

**INFLUENCE OF PRESCHOOL EDUCATION ON COGNITIVE AND
SOCIO-EMOTIONAL VARIABLES AMONG PRIMARY
SCHOOL STUDENTS OF KERALA**

Thesis
Submitted for the degree of
DOCTOR OF PHILOSOPHY IN EDUCATION

By
KADEEJA SANAM K.P.

Supervised By
Dr. ABDUL GAFOOR K.
Professor

**DEPARTMENT OF EDUCATION
UNIVERSITY OF CALICUT
2022**

DECLARATION

I, **Kadeeja Sanam K.P.**, do hereby declare that this thesis entitled **Influence of Preschool Education on Cognitive and Socio-Emotional Variables among Primary School Students of Kerala** is a bonafide record of research work done by me under the guidance and supervision of **Dr. Abdul Gafoor, K.** Professor, Department of Education, University of Calicut, Kerala, for the award of the degree of Doctor of Philosophy in Education. I also declare that this thesis or any part of it has not been submitted by me for the award of any other Degree, Diploma, Title or Recognition before.

Place: Calicut University

Date: 27.09.2022



KADEEJA SANAM K.P.

(Research Scholar)

Dr. Abdul Gafoor K.

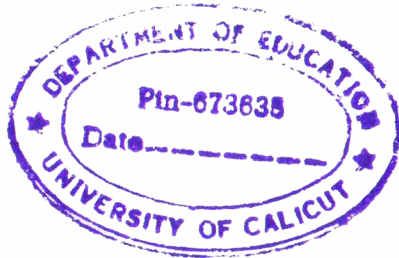
Professor & Head
Department of Education
University of Calicut
Calicut University PO
Pin- 673635
gfr.abdul@yahoo.co.in

Certificate

This is to certify that the thesis entitled “**INFLUENCE OF PRESCHOOL EDUCATION ON COGNITIVE AND SOCIO-EMOTIONAL VARIABLES AMONG PRIMARY SCHOOL STUDENTS OF KERALA**” is an authentic record of research work carried out by **KADEEJA SANAM K.P.**, for the degree of doctor of philosophy in education, University of Calicut, under my supervision and guidance and that no part thereof has been presented before for any other degree, diploma or associateship in any other university.

Place: Calicut University

Date: 27.09.2022



Prof. (Dr.) Abdul Gafoor K.

(Supervising teacher)

Acknowledgement

The journey of research got the final form with the assistance and inspiration from many people. At this juncture of my thesis submission, it is delightful to express my gratitude to all those who supported for the accomplishment of the study and made it an unforgettable one. First of all, I would like to thank Almighty for being gracious and for his seamless blessings to complete my research.

I owe my deepest gratitude to the supervising teacher, **Dr. K. Abdul Gafoor**, Professor, and Head of the Department of Education, University of Calicut for accepting me as his scholar, his inspiring guidance and patient support without which the study couldn't have been completed. He had been compassionate and generous to me throughout the course of the study. I extend my love and respect to Sir's family too.

I feel honoured to share my heartfelt thanks to all my dear teachers of the Department of Education, Prof. (Dr.) C. Naseema, Prof. (Dr.) P. Usha, Prof. (Dr.) P. K. Aruna, Prof. (Dr.) K. P. Meera, Dr. Baiju K, Nath, Dr. T. Vasumathi, Dr. A. Hameed, Dr. Manoj Praveen, G., Dr. Reesha Karally and Dr. Jibin V.K., for providing supportive environment. Special gratitude is expressed here for the Heads of the Department of Education during the tenure of this study for their timely help. In this context, I thankfully remember all office staff and librarians of the Department of Education, with special mention to Mrs. Praseetha T.P. and Mr. Abdul Gafoor and all the library staff at C.H.M.K Library, University of Calicut. I would like to express my gratefulness to all teachers who taught me so far.

I extend my sincere gratitude to Dr. K.P. Suresh (Professor, Department of Education, Central University of Kerala) for his valuable suggestions during PQE viva. I am immensely grateful to Dr. Mohammedunni Alias Musthafa (Professor, Department of Education, Central University of Kerala) for valuable directions during SRF viva.

I would like to express my thankfulness to the principals and teachers of schools I visited for their cooperation and valuable suggestions during the tool construction and data collection. With love and affection, I remember all the students for their cooperation during data collection. I express my deepest appreciation to Mr. Sayeed Anwar and Mr. Muhammed Khaleel for helping me wholeheartedly throughout my research work and fulfilling my dream. I would like to express my gratitude to Mr. Harshid Ali for his encouragement and support to this study. I would like to extend loving gratitude to Mrs. Suma, Dr. Abidha Kurukkan, and Dr. Sarabi for helping me in proof reading the thesis. I would like to thank Mrs. Sahada, Mr. Ali Akbar and Mr. Faizal for helping me in the data collection for this research. I would like to express my love to all my fellow researchers especially to Mrs. Munshida, Mrs. Fathima Shajeena and Mr. Shihabudheen for their contribution in various phases to fulfil this endeavour.

I would like to remember the inspiration and enthusiasm created in me by my family. It can't go without thanking my husband Mr. Zakkir V. and sons Mr. Hani Abdulla K.P. and Master Muhammed Zakkir for all the support and encouragement they have given to pursue my interest. I am indebted to my mother Mrs. Imbichaminabi K.P, father Mr. Aboobacker K.P., mother in law Mrs. Ayishabi, my brother Mr. Shabid K.P and his family for their support during the period of my study.

I extend my sincere gratitude to Mr. Ramprakash, Infratech, for his sincere service in preparing the report. I express my whole hearted thanks to all who have helped and cooperated with me for the fulfilment of my dream.

Kadeeja Sanam K.P.

CONTENTS

LIST OF TABLES
LIST OF FIGURES
LIST OF APPENDICES
LIST OF ABBREVIATIONS
ABSTRACT

<i>Chapter</i>	<i>Title</i>	<i>Page No.</i>
I	INTRODUCTION	1-26
II	REVIEW OF RELATED LITERATURE	27-170
III	METHODOLOGY	171-212
IV	ANALYSIS	213-554
V	SUMMARY AND MAJOR FINDINGS	555-614
VI	EDUCATIONAL IMPLICATIONS AND SUGGESTIONS	615-620
	REFERENCES	621-628
	APPENDICES	

LIST OF TABLES

Table No.	Title	Page No.
1	List of Schools Drawn for the Try Out Sample	179
2	Weightage for Content Areas in the Tests of Achievement in Malayalam for Standard I, III and V	181
3	Illustrative Items from Standard I Test of Achievement in Malayalam for Cognitive Domain Objectives	182
4	Illustrative Items from Standard III Test of Achievement in Malayalam for Cognitive Domain Objectives	184
5	Illustrative Items from Standard V Test of Achievement in Malayalam for Cognitive Domain Objectives	186
6	Reliability (Split-half Method) of Subtests of Test of Achievement in Malayalam of Standard I, III and V Students	187
7	Weightage for Content Areas in the Tests of Achievement in English for Standard I, III and V	189
8	Illustrative Items from Standard I Test of Achievement in English for Cognitive Domain Objectives	190
9	Illustrative Items from Standard III Test of Achievement in English for Cognitive Domain Objectives	192
10	Illustrative Items from Standard V Test of Achievement in English for Cognitive Domain Objectives	194
11	Reliability (Split-half Method) of Subtests of Tests of Achievement in English of Standard I, III and V Students	195
12	Weightage for Content Areas in the Tests of Achievement in Mathematics for Standard I, III and V	196
13	Illustrative Items from Standard I Test of Achievement in Mathematics for Each Cognitive Domain Objectives	197
14	Illustrative Items from Standard III Test of Achievement in Mathematics for Cognitive Domain Objectives	199
15	Illustrative items from Standard V Test of Achievement in Mathematics for Cognitive Domain Objectives	201
16	Reliability (Split-half Method) of Test of Achievement in Mathematics of Standard I, III and V Students	202
17	Component-wise Number of Items in Draft Scale on Socio-Emotional Development of Children (for Parents)	203

Table No.	Title	Page No.
18	Illustrative Items from Nine Components of Scale on Socio-Emotional Development of Children for Parents	204
19	Split-half Reliability of Scale on Socio-Emotional Development of the Children of Standard I, III and V	205
20	Coefficient of Reliability of Component Scales on Socio-emotional Development of Children (for parents) for Standard I, III and V	205
21	School-wise Size of Sample from which Data on Cognitive Outcomes were Drawn based on Type of Management and Medium of Instruction	207
22	School-wise Size of Sample from which Data on Socio-Emotional Variables were Drawn Based on Type of Management and Medium of Instruction	208
23	Medium of Instruction wise Sample Used in the Study	209
24	Subsamples based on Independent Categorical Variables: Preschooling Status, Preschool Duration, and Type of Preschooling in Achievement Tests and Socio-Emotional Outcomes	209
25	Samples Based on Moderator Variables	210
26	Data and Results of Tests of Significance of Difference between Means of Vocabulary in Malayalam by Preschooling Status among Primary Standard Students	223
27	Data and Results of Tests of Significance of Difference between Means of Malayalam Comprehension by Preschooling Status among Primary Standard Students	224
28	Data and Results of Tests of Significance of Difference between Means of Vocabulary in English by Preschooling Status among Primary Standard Students	225
29	Data and Results of Tests of Significance of Difference between Means of English Comprehension by Preschooling Status among Primary Standard Students	225
30	Data and Results of Tests of Significance of Difference between Means of Achievement in Mathematics by Preschooling Status among Primary Standard Students	226
31	Data and Results of Tests of Significance of Difference between Means of Personal Independence by Preschooling Status among Primary Standard Students	227
32	Data and Results of Tests of Significance of Difference between Means of Academic Independence by Preschooling Status among Primary Standard Students	228
33	Data and Results of Tests of Significance of Difference between Means of Work Habit by Preschooling Status among Primary Standard Students	229

Table No.	Title	Page No.
34	Data and Results of Tests of Significance of Difference between Means of Interpersonal Relationship by Preschooling Status among Primary Standard Students	229
35	Data and Results of Tests of Significance of Difference between Means of Cooperation by Preschooling Status among Primary Standard Students	230
36	Data and Results of Tests of Significance of Difference between Means of Communication by Preschooling Status among Primary Standard Students	231
37	Data and Results of Tests of Significance of Difference between Means of Leadership by Preschooling Status among Primary Standard Students	231
38	Data and Results of Tests of Significance of Difference between Means of Expressing Emotions by Preschooling Status among Primary Standard Students	232
39	Data and Results of Tests of Significance of Difference between Means of Controlling Emotions by Preschooling Status among Primary Standard Students	233
40	Results of 2×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Preschooling Status and Gender	234
41	Results of 2×2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschooling Status and Gender	235
42	Results of 2×2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Preschooling Status and Gender	236
43	Results of 2×2 ANOVAs of English Comprehension of Primary Standard Students by Their Preschooling Status and Gender	237
44	Results of 2×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and Gender	238
45	Results of 2×2 ANOVAs of Personal Independence of Primary Standard Students by Their Preschooling Status and Gender	239
46	Results of 2×2 ANOVAs of Academic Independence of Primary Standard Students by Their Preschooling Status and Gender	240
47	Results of 2×2 ANOVAs of Work Habit of Primary Standard Students by Their Preschooling Status and Gender	241
48	Results of 2×2 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Preschooling Status and Gender	242
49	Results of 2×2 ANOVAs of Cooperation of Primary Standard Students by Their Preschooling Status and Gender	243

Table No.	Title	Page No.
50	Results of 2×2 ANOVAs of Communication of Primary Standard Students by Their Preschooling Status and Gender	244
51	Results of 2×2 ANOVAs of Leadership of Primary Standard Students by Their Preschooling Status and Gender	245
52	Results of 2×2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Preschooling Status and Gender	246
53	Results of 2×2 ANOVAs of Controlling Emotions of Primary Standard Students by Their Preschooling Status and Gender	247
54	Results of 2×3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Preschooling Status and BO	248
55	Results of 2×3 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschooling Status and BO	249
56	Results of 2×3 ANOVAs of Vocabulary in English of Primary Standard Students by Their Preschooling Status and BO	250
57	Results of 2×3 ANOVAs of English Comprehension of Primary Standard Students by Their Preschooling Status and BO	251
58	Results of 2×3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and BO	252
59	Results of 2×3 ANOVAs of Personal Independence of Primary Standard Students by Their Preschooling Status and BO	253
60	Results of 2×3 ANOVAs of Academic Independence of Primary Standard Students by Their Preschooling Status and BO	254
61	Results of 2×3 ANOVAs of Work Habit of Primary Standard Students by their Preschooling Status and BO	255
62	Results of 2×3 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Preschooling Status and BO	256
63	Results of 2×3 ANOVAs of Cooperation of Primary Standard Students by Their Preschooling Status and BO	257
64	Results of 2×3 ANOVAs of Communication of Primary Standard Students by Their Preschooling Status and BO	258
65	Results of 2×3 ANOVAs of Leadership of Primary Standard Students by Their Preschooling Status and BO	259
66	Results of 2×3 ANOVAs of Expressing Emotions of Primary Standard Students by Their Preschooling Status and BO	260
67	Results of 2×3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Preschooling Status and BO	261
68	Results of 2×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Preschooling Status and MoI	263

Table No.	Title	Page No.
69	Results of 2 × 2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschooling Status and MoI	264
70	Results of 2 × 2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Preschooling Status and MoI	265
71	Results of 2 × 2 ANOVAs of English Comprehension of Primary Standard Students by Their Preschooling Status and MoI	266
72	Results of 2 × 2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and MoI	267
73	Results of 2 × 2 ANOVAs of Personal Independence of Primary Standard Students by Their Preschooling Status and MoI	268
74	Results of 2 × 2 ANOVAs of Academic Independence of Primary Standard Students by Their Preschooling Status and MoI	269
75	Results of 2 × 2 ANOVAs of Work Habit of Primary Standard Students by Their Preschooling Status and MoI	270
76	Results of 2 × 2 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Preschooling Status and MoI	271
77	Results of 2 × 2 ANOVAs of Cooperation of Primary Standard Students by Their Preschooling Status and MoI	272
78	Results of 2 × 2 ANOVAs of Communication of Primary Standard Students by Their Preschooling Status and MoI	273
79	Results of 2 × 2 ANOVAs of Leadership of Primary Standard Students by Their Preschooling Status and MoI	274
80	Results of 2 × 2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Preschooling Status and MoI	275
81	Results of 2 × 2 ANOVAs of Controlling Emotions of Primary Standard Students by Their Preschooling Status and MoI	276
82	Results of 2 × 3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschooling Status and FEQ	277
83	Results of 2 × 3 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschooling Status and FEQ	278
84	Results of 2 × 3 ANOVAs of Vocabulary In English of Primary Standard Students by Their Preschooling Status and FEQ	280
85	Results of 2 × 3 ANOVAs of English Comprehension of Primary Standard Students by Their Preschooling Status and FEQ	281
86	Results of 2 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and FEQ	282

Table No.	Title	Page No.
87	Results of 2 × 3 ANOVAs of Personal Independence of Primary Standard Students by Their Preschooling Status and FEQ	283
88	Results of 2 × 3 ANOVAs of Academic Independence of Primary Standard Students by their Preschooling Status and FEQ	284
89	Results of 2 × 3 ANOVAs of Work Habit of Primary Standard Students by Their Preschooling Status and FEQ	286
90	Results of 2 × 3 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Preschooling Status and FEQ	287
91	Results of 2 × 3 ANOVAs of Cooperation of Primary Standard Students by Their Preschooling Status and FEQ	288
92	Results of 2 × 3 ANOVAs of Communication of Primary Standard Students by Their Preschooling Status and FEQ	289
93	Results of 2 × 3 ANOVAs of Leadership of Primary Standard Students by Their Preschooling Status and FEQ	290
94	Results of 2 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by Their Preschooling Status and FEQ	291
95	Results of 2 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Preschooling Status and FEQ	292
96	Results of 2 × 3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Preschooling Status and MEQ	293
97	Results of 2 × 3 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschooling Status and MEQ	294
98	Results of 2 × 3 ANOVAs of Vocabulary in English of Primary Standard Students by Their Preschooling Status and MEQ	295
99	Results of 2 × 3 ANOVAs of English Comprehension of Primary Standard Students by Their Preschooling Status and MEQ	296
100	Results of 2 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and MEQ	297
101	Results of 2 × 3 ANOVAs of Personal Independence of Primary Standard Students by Their Preschooling Status and MEQ	298
102	Results of 2 × 3 ANOVAs of Academic Independence of Primary Standard Students by Their Preschooling Status and MEQ	299
103	Results of 2 × 3 ANOVAs of Work Habit of Primary Standard Students by Their Preschooling Status and MEQ	300
104	Results of 2 × 3 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Preschooling Status and MEQ	301
105	Results of 2 × 3 ANOVAs of Cooperation of Primary Standard Students by Their Preschooling Status and MEQ	302

Table No.	Title	Page No.
106	Results of 2×3 ANOVAs of Communication of Primary Standard Students by Their Preschooling Status and MEQ	303
107	Results of 2×3 ANOVAs of Leadership of Primary Standard Students by Their Preschooling Status and MEQ	304
108	Results of 2×3 ANOVAs of Expressing Emotions of Primary Standard Students by Their Preschooling Status and MEQ	305
109	Results of 2×3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Preschooling Status and MEQ	306
110	Results of 2×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Preschooling Status and CE	307
111	Results of 2×2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschooling Status and CE	308
112	Results of 2×2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Preschooling Status and CE	309
113	Results of 2×2 ANOVAs of English Comprehension of Primary Standard Students by Their Preschooling Status and CE	310
114	Results of 2×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and CE	311
115	Results of 2×2 ANOVAs of Personal Independence of Primary Standard Students by Their Preschooling Status and CE	312
116	Results of 2×2 ANOVAs of Academic Independence of Primary Standard Students by Their Preschooling Status and CE	313
117	Results of 2×2 ANOVAs of Work Habit of Primary Standard Students by Their Preschooling Status and CE	314
118	Results of 2×2 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Preschooling Status and CE	315
119	Results of 2×2 ANOVAs of Cooperation of Primary Standard Students by their Preschooling Status and CE	316
120	Results of 2×2 ANOVAs of Communication of Primary Standard Students by Their Preschooling Status and CE	317
121	Results of 2×2 ANOVAs of Leadership of Primary Standard Students by Their Preschooling Status and CE	318
122	Results of 2×2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Preschooling Status and CE	319
123	Results of 2×2 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschooling Status and CE	320

Table No.	Title	Page No.
124	Data and Results of Tests of Significance of Difference in Means of Vocabulary in Malayalam by Preschool Duration among Primary Standard Students	322
125	Data and Results of Tests of Significance of Difference in Means of Malayalam Comprehension by Preschool Duration among Primary Standard Students	323
126	Data and Results of Tests of Significance of Difference in Means of Vocabulary in English by Preschool Duration among Primary Standard Students	324
127	Data and Results of Tests of Significance of Difference in Means of English Comprehension by Preschool Duration among Primary Standard Students	324
128	Data and Results of Tests of Significance of Difference in Means of Achievement in Mathematics by Preschool Duration among Primary Standard Students	325
129	Data and Results of Tests of Significance of Difference in Means of Personal Independence by Preschool Duration among Primary Standard Students	326
130	Data and Results of Tests of Significance of Difference in Means of Academic Independence by Preschool Duration among Primary Standard Students	327
131	Data and Results of Tests of Significance of Difference in Means of Work Habit by Preschool Duration among Primary Standard Students	328
132	Data and Results of Tests of Significance of Difference in Means of Interpersonal Relationship by Preschool Duration among Primary Standard Students	329
133	Data and Results of Tests of Significance of Difference in Means of Cooperation by Preschool Duration among Primary Standard Students	329
134	Data and Results of Tests of Significance of Difference in Means of Communication by Preschool Duration among Primary Standard Students	330
135	Data and Results of Tests of Significance of Difference in Means of Leadership by Preschool Duration among Primary Standard Students	331
136	Data and Results of Tests of Significance of Difference in Means of Expressing Emotions by Preschool Duration among Primary Standard Students	331
137	Data and Results of Tests of Significance of Difference in Means of Controlling Emotions by Preschool Duration among Primary Standard Students	332

Table No.	Title	Page No.
138	Results of 2 × 2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Preschool Duration and Gender	333
139	Results of 2 × 2 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschool Duration and Gender	334
140	Results of 2 × 2 ANOVAs of Vocabulary in English of Primary Standard Students by their Preschool Duration and Gender	335
141	Results of 2 × 2 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and Gender	336
142	Results of 2 × 2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschool Duration and Gender	337
143	Results of 2 × 2 ANOVAs of Personal Independence of Primary Standard Students by Their Preschool Duration and Gender	338
144	Results of 2 × 2 ANOVAs of Academic Independence of Primary Standard Students by their Preschool Duration and Gender	339
145	Results of 2 × 2 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and Gender	340
146	Results of 2 × 2 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and Gender	341
147	Results of 2 × 2 ANOVAs of Cooperation of Primary Standard Students by Their Preschool Duration and Gender	342
148	Results of 2 × 2 ANOVAs of Communication of Primary Standard Students by their Preschool Duration and Gender	343
149	Results of 2 × 2 ANOVAs of Leadership of Primary Standard Students by their Preschool Duration and Gender	344
150	Results of 2 × 2 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschool Duration and Gender	345
151	Results of 2 × 2 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschool Duration and Gender	346
152	Results of 2 × 3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschool Duration and BO	347
153	Results of 2 × 3 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschool Duration and BO	348
154	Results of 2 × 3 ANOVAs of Vocabulary in English of Primary Standard Students by their Preschool Duration and BO	349
155	Results of 2 × 3 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and BO	350
156	Results of 2 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by their Preschool Duration and BO	351

Table No.	Title	Page No.
157	Results of 2 × 3 ANOVAs of Personal Independence of Primary Standard Students by their Preschool Duration and BO	352
158	Results of 2 × 3 ANOVAs of Academic Independence of Primary Standard Students by their Preschool Duration and BO	353
159	Results of 2 × 3 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and BO	354
160	Results of 2 × 3 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and BO	355
161	Results of 2 × 3 ANOVAs of Cooperation of Primary Standard Students by their Preschool Duration and BO	356
162	Results of 2 × 3 ANOVAs of Communication of Primary Standard Students by their Preschool Duration and BO	357
163	Results of 2 × 3 ANOVAs of Leadership of Primary Standard Students by their Preschool Duration and BO	358
164	Results of 2 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschool Duration and BO	359
165	Results of 2 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Preschool Duration and BO	360
166	Results of 2 × 2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Preschool Duration and MoI	362
167	Results of 2 × 2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschool Duration and MoI	363
168	Results of 2 × 2 ANOVAs of Vocabulary in English of Primary Standard Students by their Preschool Duration and MoI	364
169	Results of 2 × 2 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and MoI	365
170	Results of 2 × 2 ANOVAs of Achievement in Mathematics of Primary Standard Students by their Preschool Duration and MoI	366
171	Results of 2 × 2 ANOVAs of Personal Independence of Primary Standard Students by their Preschool Duration and MoI	367
172	Results of 2 × 2 ANOVAs of Academic Independence of Primary Standard Students by their Preschool Duration and MoI	368
173	Results of 2 × 2 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and MoI	369
174	Results of 2 × 2 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and MoI	370

Table No.	Title	Page No.
175	Results of 2 × 2 ANOVAs of Cooperation of Primary Standard Students by their Preschool Duration and MoI	371
176	Results of 2 × 2 ANOVAs of Communication of Primary Standard Students by their Preschool Duration and MoI	372
177	Results of 2 × 2 ANOVAs of Leadership of Primary Standard Students by their Preschool Duration and MoI	374
178	Results of 2 × 2 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschool Duration and MoI	375
179	Results of 2 × 2 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschool Duration and MoI	376
180	Results of 2 × 3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschool Duration and FEQ	378
181	Results of 2 × 3 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschool Duration and FEQ	379
182	Results of 2 × 3 ANOVAs of Vocabulary in English of Primary Standard Students by their Preschool Duration and FEQ	380
183	Results of 2 × 3 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and FEQ	381
184	Results of 2 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschool Duration and FEQ	383
185	Results of 2 × 3 ANOVAs of Personal Independence of Primary Standard Students by their Preschool Duration and FEQ	384
186	Results of 2 × 3 ANOVAs of Academic Independence of Primary Standard Students by their Preschool Duration and FEQ	385
187	Results of 2 × 3 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and FEQ	386
188	Results of 2 × 3 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and FEQ	387
189	Results of 2 × 3 ANOVAs of Cooperation of Primary Standard Students by their Preschool Duration and FEQ	388
190	Results of 2 × 3 ANOVAs of Communication of Primary Standard Students by their Preschool Duration and FEQ	389
191	Results of 2 × 3 ANOVAs of Leadership of Primary Standard Students by their Preschool Duration and FEQ	390
192	Results of 2 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschool Duration and FEQ	391

Table No.	Title	Page No.
193	Results of 2 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschool Duration and FEQ	392
194	Results of 2 × 3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschool Duration and MEQ	394
195	Results of 2 × 3 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschool Duration and MEQ	395
196	Results of 2 × 3 ANOVAs of English Vocabulary of Primary Standard Students by their Preschool Duration and MEQ	396
197	Results of 2 × 3 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and MEQ	397
198	Results of 2 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by their Preschool Duration and MEQ	399
199	Results of 2 × 3 ANOVAs of Personal Independence of Primary Standard Students by their Preschool Duration and MEQ	400
200	Results of 2 × 3 ANOVAs of Academic Independence of Primary Standard Students by their Preschool Duration and MEQ	401
201	Results of 2 × 3 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and MEQ	402
202	Results of 2 × 3 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and MEQ	403
203	Results of 2 × 3 ANOVAs of Cooperation of Primary Standard Students by Their Preschool Duration and MEQ	404
204	Results of 2 × 3 ANOVAs of Communication of Primary Standard Students by their Preschool Duration and MEQ	405
205	Results of 2 × 3 ANOVAs of Leadership of Primary Standard Students by Their Preschool Duration and MEQ	406
206	Results of 2 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschool Duration and MEQ	407
207	Results of 2 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschool Duration and MEQ	408
208	Results of 2 × 2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschool Duration and CE	409
209	Results of 2 × 2 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschool Duration and CE	410
210	Results of 2 × 2 ANOVAs of Vocabulary in English of Primary Standard Students by their Preschool Duration and CE	411

Table No.	Title	Page No.
211	Results of 2×2 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and CE	412
212	Results of 2×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by their Preschool Duration and CE	413
213	Results of 2×2 ANOVAs of Personal Independence of Primary Standard Students by their Preschool Duration and CE	414
214	Results of 2×2 ANOVAs of Academic Independence of Primary Standard Students by Their Preschool Duration and CE	415
215	Results of 2×2 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and CE	416
216	Results of 2×2 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and CE	417
217	Results of 2×2 ANOVAs of Cooperation of Primary Standard Students by Their Preschool Duration and CE	418
218	Results of 2×2 ANOVAs of Communication of Primary Standard Students by Their Preschool Duration and CE	419
219	Results of 2×2 ANOVAs of Leadership of Primary Standard Students by Their Preschool Duration and CE	420
220	Results of 2×2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Preschool Duration and CE	421
221	Results of 2×2 ANOVAs of Controlling Emotions of Primary Standard Students by Their Preschool Duration and CE	422
222	Mean and Standard Deviation of Vocabulary in Malayalam by Type of preschooling of Primary Standard Students	425
223	Analyses of Variance of Vocabulary in Malayalam by Type of preschooling of Primary Standard Students	425
224	Mean and Standard Deviation of Malayalam Comprehension by Type of Preschooling of Primary Standard Students	427
225	Analyses of Variance of Malayalam Comprehension by Type of preschooling of Primary Standard Students	427
226	Mean and Standard Deviation of Vocabulary in English by Type of preschooling of Primary Standard Students	428
227	Analyses of Variance of Vocabulary in English by Type of Preschooling of Primary Standard Students	428
228	Mean and Standard Deviation of English Comprehension by Type of preschooling of Primary Standard Students	430

Table No.	Title	Page No.
229	Analyses of Variance of English Comprehension by Type of Preschooling of Primary Standard Student	431
230	Mean and Standard Deviation of Achievement in Mathematics by Type of Preschooling of Primary Standard Students	433
231	Analyses of Variance of Achievement in Mathematics by Type of Preschooling of Primary Standard Student	433
232	Mean and Standard Deviation of Personal Independence by Type of Preschooling of Primary Standard Students	436
233	Analyses of Variance of Personal Independence by Type of Preschooling of Primary Standard Students	436
234	Mean and Standard Deviation of Academic Independence by Type of Preschooling of Primary Standard Students	437
235	Analyses of Variance of Academic Independence by Type of Preschooling of Primary Standard Students	437
236	Mean and Standard Deviation of Work Habit by Type of Preschooling of Primary Standard Students	438
237	Analyses of Variance of Work Habit by Type of Preschooling of Primary Standard Students	438
238	Mean and Standard Deviation of Interpersonal Relationship by Type of Preschooling of Primary Standard Students	439
239	Analyses of Variance of Interpersonal Relationship by Type of Preschooling of Primary Standard Students	439
240	Mean and Standard Deviation of Cooperation by Type of Preschooling of Primary Standard Students	440
241	Analyses of Variance of Cooperation by Type of Preschooling of Primary Standard Students	440
242	Mean and Standard Deviation of Communication by Type of Preschooling of Primary Standard Students	441
243	Analyses of Variance of Communication by Type of Preschooling of Primary Standard Students	441
244	Mean and Standard Deviation of Leadership by Type of Preschooling of Primary Standard Students	442
245	Analyses of Variance of Leadership by Type of Preschooling of Primary Standard Students	442
246	Mean and Standard Deviation of Expressing Emotions by Type of Preschooling of Primary Standard Students	443

Table No.	Title	Page No.
247	Analyses of Variance of Expressing Emotions by Type of Preschooling of Primary Standard Students	443
248	Mean and Standard Deviation of Controlling Emotions by Type of Preschooling of Primary Standard Students	444
249	Analyses of Variance of Controlling Emotions by Type of Preschooling of Primary Standard Students	444
250	Results of 3×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and Gender	447
251	Results of 3×2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and Gender	448
252	Results of 3×2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and Gender	449
253	Results of 3×2 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and Gender	450
254	Results of 3×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and Gender	451
255	Results of 3×2 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and Gender	452
256	Results of 3×2 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and Gender	453
257	Results of 3×2 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and Gender	454
258	Results of 3×2 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and Gender	455
259	Results of 3×2 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and Gender	456
260	Results of 3×2 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and Gender	457
261	Results of 3×2 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and Gender	458
262	Results of 3×2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and Gender	459
263	Results of 3×2 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and Gender	460
264	Results of 3×3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and BO	461

Table No.	Title	Page No.
265	Results of 3× 3 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and BO	462
266	Results of 3 × 3 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and BO	463
267	Results of 3 × 3 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and BO	464
268	Results of 3 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and BO	466
269	Results of 3 × 3 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and BO	467
270	Results of 3 × 3 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and BO	469
271	Results of 3 × 3 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and BO	470
272	Results of 3 × 3 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and BO	471
273	Results of 3 × 3 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and BO	472
274	Results of 3 × 3 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and BO	473
275	Results of 3 × 3 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and BO	474
276	Results of 3 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and BO	475
277	Results of 3 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and BO	476
278	Results of 3 × 2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and MoI	477
279	Results of 3 × 2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and MoI	478
280	Results of 3 × 2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and MoI	479
281	Results of 3 × 2 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and MoI	481
282	Results of 3 × 2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and MoI	482

Table No.	Title	Page No.
283	Results of 3 × 2 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and MoI	483
284	Results of 3 × 2 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and MoI	484
285	Results of 3 × 2 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and MoI	485
286	Results of 3 × 2 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and MoI	486
287	Results of 3 × 2 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and MoI	487
288	Results of 3 × 2 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and MoI	488
289	Results of 3 × 2 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and MoI	489
290	Results of 3 × 2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and MoI	490
291	Results of 3 × 2 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and MoI	491
292	Results of 3 × 3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and FEQ	492
293	Results of 3 × 3 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and FEQ	494
294	Results of 3 × 3 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and FEQ	495
295	Results of 3 × 3 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and FEQ	496
296	Results of 3 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and FEQ	498
297	Results of 3 × 3 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and FEQ	499
298	Results of 3 × 3 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and FEQ	500
299	Results of 3 × 3 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and FEQ	501
300	Results of 3 × 3 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and FEQ	502
301	Results of 3 × 3 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and FEQ	503

Table No.	Title	Page No.
302	Results of 3 × 3 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and FEQ	504
303	Results of 3 × 3 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and FEQ	505
304	Results of 3 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and FEQ	506
305	Results of 3 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and FEQ	507
306	Results of 3 × 3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and MEQ	508
307	Results of 3 × 3 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and MEQ	509
308	Results of 3 × 3 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and MEQ	510
309	Results of 3 × 3 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and MEQ	512
310	Results of 3 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and MEQ	513
311	Results of 3 × 3 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and MEQ	514
312	Results of 3 × 3 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and MEQ	515
313	Results of 3 × 3 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and MEQ	516
314	Results of 3 × 3 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and MEQ	517
315	Results of 3 × 3 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and MEQ	518
316	Results of 3 × 3 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and MEQ	519
317	Results of 3 × 3 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and MEQ	520
318	Results of 3 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and MEQ	521
319	Results of 3 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and MEQ	522
320	Results of 3 × 2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and CE	523

Table No.	Title	Page No.
321	Results of 3 × 2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and CE	524
322	Results of 3 × 2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and CE	525
323	Results of 3 × 2 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and CE	526
324	Results of 3 × 2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and CE	527
325	Results of 3 × 2 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and CE	528
326	Results of 3 × 2 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and CE	529
327	Results of 3 × 2 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and CE	530
328	Results of 3 × 2 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and CE	531
329	Results of 3 × 2 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and CE	532
330	Results of 3 × 2 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and CE	534
331	Results of 3 × 2 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and CE	535
332	Results of 3 × 2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and CE	536
333	Results of 3 × 2 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and CE	537
334	Summary of Tenability of Hypotheses	540
335	A Comparison of Strengths and Weaknesses of Three Types of Pre-schools	565

LIST OF FIGURES

Figure No.	Title	Page No.
1	Outline of the Design of the Study	172
2	Summary of the Findings of Influence of Preschooling on Cognitive and Socio-emotional Outcomes	575
3	Summary of the Findings of Influence of Preschooling on Cognitive and Socio-Emotional Outcomes Irrespective of Socio-economic and Other Demographic Factors	578
4	Summary of the Findings of Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes	584
5	Summary of the Findings of Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes Irrespective of Socio-economic and Other Demographic Factors	588
6	Summary of the Findings of Influence of Preschool Type on Cognitive and Socio-Emotional Outcomes	597
7	Summary of the Findings of Influence of Preschool Type on Cognitive and Socio-Emotional Outcomes Irrespective of Socio-economic and Other Demographic Factors	601

LIST OF APPENDICES

Appendix	Title	Page No.
A1	Interview Schedule for Preschool Teachers	629
B1	Blueprint of Test of Achievement in Malayalam for Standard I (Draft & Final)	635
B2	Test of Achievement in Malayalam for Standard I (Draft)	636
B3	Data and Results of Item Analysis of Test of Achievement in Malayalam for Standard I	640
B4	Test of Achievement in Malayalam for Standard I (Final)	641
B5	Scoring Key of Test of Achievement in Malayalam for Standard I (Final)	644
C1	Blueprint of Test of Achievement in Malayalam for Standard III (Draft & Final)	645
C2	Test of Achievement in Malayalam for Standard III (Draft)	646
C3	Data and Results of Item Analysis of Test of Achievement in Malayalam for Standard III	650
C4	Test of Achievement in Malayalam for Standard III (Final)	651
C5	Scoring Key of Test of Achievement in Malayalam for Standard III (Final)	655
D1	Blueprint of Test of Achievement in Malayalam for Standard V (Draft & Final)	656
D2	Test of Achievement in Malayalam for Standard V (Draft)	657
D3	Data and Results of Item Analysis of Test of Achievement in Malayalam for Standard V	661
D4	Test of Achievement in Malayalam for Standard V (Final)	662
D5	Scoring Key of Test of Achievement in Malayalam for Standard V (Final)	666
E1	Blueprint of Test of Achievement in English for Standard I (Draft & Final)	667
E2	Test of Achievement in English for Standard I (Draft)	668
E3	Data and Results of Item Analysis of Test of Achievement in English for Standard I	671
E4	Test of Achievement in English for Standard I (Final)	672
E5	Scoring Key of Test of Achievement in English for Standard I (Final)	675
F1	Blueprint of Test of Achievement in English for Standard III (Draft & Final)	676
F2	Test of Achievement in English for Standard III (Draft)	677

Appendix	Title	Page No.
F3	Data and Results of Item Analysis of Test of Achievement in English for Standard III	681
F4	Test of Achievement in English for Standard III (Final)	682
F5	Scoring Key of Test of Achievement in English for Standard III (Final)	686
G1	Blueprint of Test of Achievement in English for Standard V (Draft & Final)	687
G2	Test of Achievement in English for Standard V (Draft)	688
G3	Data and Results of Item Analysis of Test of Achievement in English for Standard V	692
G4	Test of Achievement in English for Standard V (Final)	693
G5	Scoring Key of Test of Achievement in English for Standard V (Final)	697
H1	Blueprint of Test of Achievement in Mathematics for Standard I (Draft & Final)	698
H2	Test of Achievement in Mathematics for Standard I (Draft)- Malayalam	699
H3	Test of Achievement in Mathematics for Standard I (Draft) - English	702
H4	Data and Results of Item Analysis of Test of Achievement in Mathematics for Standard I	705
H5	Test of Achievement in Mathematics for Standard I (Final)- Malayalam	706
H6	Test of Achievement in Mathematics for Standard I (Final) - English	709
H7	Scoring Key of Test of Achievement in Mathematics for Standard I (Final)	712
I1	Blueprint of Test of Achievement in Mathematics for Standard III (Draft & Final)	713
I2	Test of Achievement in Mathematics for Standard III (Draft)- Malayalam	714
I3	Test of Achievement in Mathematics for Standard III (Draft)- English	718
I4	Data and Results of Item Analysis of Test of Achievement in Mathematics for Standard III	722
I5	Test of Achievement in Mathematics for Standard III (Final) - Malayalam	723
I6	Test of Achievement in Mathematics for Standard III (Final)- English	726
I7	Scoring Key of Test of Achievement in Mathematics for Standard III (Final)	729
J1	Blueprint of Test of Achievement in Mathematics for Standard V (Draft & Final)	730

Appendix	Title	Page No.
J2	Test of Achievement in Mathematics for Standard V (Draft) - Malayalam	731
J3	Test of Achievement in Mathematics for Standard V (Draft) - English	735
J4	Data and Results of Item Analysis of Test of Achievement in Mathematics for Standard V	739
J5	Test of Achievement in Mathematics for Standard V (Final) - Malayalam	740
J6	Test of Achievement in Mathematics for Standard V (Final) - English	744
J7	Scoring Key of Test of Achievement in Mathematics for Standard V (Final)	747
K1	Scale on Socio-Emotional Development of Children for Standard I, III & V (Draft)	748
K2	Result of Component-wise Item Analysis of Scale on Socio-Emotional Development of the Children of Standard I	751
K3	Scale on Socio-Emotional Development of Children for Standard I (Final)	752
K4	Result of Component-wise Item Analysis of Scale on Socio-Emotional Development of the Children of Standard III	755
K5	Scale on Socio-Emotional Development of Children for Standard III (Final)	756
K6	Result of Component-wise Item Analysis of Scale on Socio-Emotional Development of the Children of Standard V	759
K7	Scale on Socio-Emotional Development of Children for Standard V (Final)	760
L1	Tabular Summary of Findings on Objectives and Practices of Three Types of Pre-schools	763

LIST OF ABBREVIATIONS

ASD	:	Autism Spectrum Disorders
AWC	:	Anganwadi Centre.
AWMA	:	Automated Working Memory Assessment
AWSNA	:	Association of Waldorf Schools of North America
AWW	:	Anganwadi Worker
BO	:	Birth Order
BOT:2	:	Bruininks-Oseretsky Test
BRIEF	:	Behavior Rating Inventory of Executive Function
BSAG	:	Bristol Social Adjustment Guides
CAS	:	Children Adjustment Scale
CASP-LAN	:	Community Aid & Sponsorship Programme PLAN
CBCL	:	Child Behaviour Checklist
CBTT	:	Corsi Block Tapping Test
CCB	:	Child's Coping Behaviour
CDA	:	Child Development Assessment
CE	:	Cognitive Engagement
CECN	:	Canadian Education Centre Network
CIS	:	Caregiver Interaction Scale
CPC	:	Child Parent Center
CPD	:	Continuous Professional Development
CST	:	Challenging Situation Task
CSWB	:	Central Social Welfare Board
DCCS	:	Dimensional Change Card Sort
EBP	:	Externalizing Behaviour Problems
EC	:	Effortful Control
ECBI	:	Eyberg Child Behavior Inventory
ECECD	:	Early Childhood Education, Care, and Development
ECEQ	:	Early Childhood Education Questionnaire
ECERS-E	:	The Early Childhood Environment Rating Scale
ECERS-R	:	Early Childhood Environment Rating Scale-Revised
ECLS-K	:	Early Childhood Longitudinal Study
EPPE	:	Effective Provision of Preschool Education
EYFS	:	Early Years Foundation Stage
EYFS	:	Early Years Foundation Stage
FEQ	:	Father's Educational Qualification
GPA	:	Grade Point Average
HAZ	:	Height for Age Zscores

HFW	:	Health and Family Welfare
HLE	:	Home Learning Environment
HSIS	:	Head Start Impact Study
HTKS	:	Head Toes Knees Shoulders
IAPE	:	Indian Association for Pre-school Education
IAPE	:	Indian Association for Pre-school Education
ICCW	:	Indian Council for Child Welfare
IHDS	:	India Human Development Survey
IWM	:	Internal Working Model
K:ABC	:	Kaufman Assessment Battery for Children
KTP	:	Kindergarten Transition Practices
MEQ	:	Mother's Educational Qualification
MoI	:	Medium of Instruction
NCPFECCE	:	National Curricular & Pedagogical Framework for Early Childhood Care & Education
NIPCCD	:	National Institute of Public Co -operation and Child Development
OECD	:	Organisation for Economic Cooperation and Development
PBI	:	Pupil Behavior Inventory
PBQ	:	Prosocial Behaviour Questionnaire
PCDTP	:	Pandey's Cognitive Development Test for Preschoolers
PISA	:	Programme for International Student Assessment
PMA	:	Primary Mental Abilities
PPVT	:	Peabody Picture Vocabulary Test
PSE	:	Pre-school Education
PTIQ	:	Parent-Teacher Involvement Questionnaire
RCPM	:	Raven's Coloured Progressive Matrices
RPM	:	Raven's Progressive Matrices
SEN	:	Special Educational Needs
SNP	:	Special Nutrition Programme
SSBD	:	Systematic Screening for Behavior Disorders
TOP	:	The Opportunity Project
TPS	:	Tulsa Public Schools
WAIS-R	:	Wechsler Adult Intelligence Scale – Revised
WCD	:	Women and Child Development
WEP	:	Welfare Extension Projects
WJ:R	:	Woodcock- Johnson Psycho educational Battery – Revised
YAI	:	Young Adult Interview
YL	:	Young Lives
YRS	:	Ypsilanti Rating Scale

ABSTRACT

This study investigated the impact of preschool education on the cognitive and socio-emotional outcomes of primary school students in Kerala, motivated by the broad question “Does preschool education influence the subsequent educational development of children?” It employed a mixed method (qual→QUAN) research design. Review of the literature has not only indicated the paucity of research on the medium and long-term educational and developmental consequences of ECCE in India but also on the extant types and practices of preschools specifically in Kerala. Hence, phase 1 of this study explored preschooling in Kerala to identify and compare the current objectives and practices of preschool education in Anganwadis, Kindergarten, and Montessori schools; using semi-structured interviews of randomly selected thirty preschool teachers each from Anganwadis and Kindergartens and seventeen Montessori school teachers (N=77). Phase 2 followed a Causal Comparative (ex-post facto) research design to test a large number of hypotheses concerning whether preschooling status, duration, and type influenced select cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics, and socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions of Standard I, III and V students. It further examined whether such influences, if any, were moderated by students’ socioeconomic and other demographic factors namely gender, birth order, medium of instruction, parental education levels, and cognitive engagement. In phase 2, specifically developed graded tests of achievement in Malayalam and English, vocabulary and reading comprehension and achievement in Mathematics, numerical ability and basic mathematics and graded Scales on Socio-Emotional Development among Primary School Students for Parents were administered on stratified random samples of students in Standard I, III and V drawn with weightage to the locality, type of management and medium of instruction from Kozhikode district of Kerala. It is revealed that though the stated objectives of various types of pre-schools are similar, there exist wide disparities in their curricular practices. The

findings reveal that the influence of preschool education on cognitive and socio-emotional outcomes among primary students is complex in multiple respects and that preschooling type and duration, more than whether preschooled or not, influences cognitive and socio-emotional outcomes in primary schools, with longer preschooling showing better results. In general, this influence is higher in cognitive outcomes than socio-emotional outcomes, that too in the order Montessori, Kindergarten and Anganwadi. Effect of attending any preschool on cognitive outcomes is apparent during the later grades only; but that on socio-emotional outcomes are seen both immediately and in later years. However, positive effect of preschool duration and type of preschooling on cognitive and socio-emotional outcomes of primary grade students are visible in both initial and later grades. Accordingly, the study among others suggested the need for developing effective and viable strategies to ensure adequate facilities, resources and activities for the implementation of a three-year preschool curriculum, with play-way stimulating the activities with a special focus on the development of the socio-emotional aspect of the child with improved teacher to pupil ratio, equipped classrooms and well-trained teachers.

Chapter I
INTRODUCTION

- *Introduction*
- *Need and Significance*
- *Statement of the Problem*
- *Definition of Key Terms*
- *Variables of the Study*
- *Research Questions*
- *Objectives of the Study*
- *Hypotheses of the Study*
- *Methodology*
- *Scope and Delimitation of the Study*

The period of life from three to six years is a period of momentous significance. During this period child tries to explore his environment, acquire control over the environment, strives to know what the environment is, how it works, and how it feels. It is the ideal time for learning new skills. During this period, the child is adventurous and enjoys repetition, speech skills are developed, the ability to comprehend develops, develops ego-centrism and animism. During this age, children enter the social world beyond the family and establish themselves more or less easily and successfully as members of a community of their peers, and they first encounter and deal with the challenges set to them.

Psychologists assert that an individual's achievement in life depends very largely upon what he has been helped to learn before the age of five because 80-90% of the brain growth is complete when a child reaches 5 or 6 years. Benjamin S. Bloom, an eminent psychologist and educationist, observed that the environment from the first to six or seven years of life is very significant for cognitive development. Other psychologists established the importance of early childhood in the later development of aptitudes and personality. If the foundation is good in childhood, it will lead to good individual and social adjustments and greater probability of happiness. If it is vice versa, the individual will be poorly adjusted to the world and a less chance of happiness. It is conveyed in sayings like "As the twig is bent, so the tree will grow". A child's early development has an enormous and a decisive influence on the whole of his future life.

In old days, when a joint family system prevailed there were many people at home to care for children other than parents. But the nuclear family system and education and job of parents force the parents to send children to preschool. Preschool education has become inevitable due to socio-familial changes: and hence preschools are blooming in our country.

Considerable amount of causal evidence is now available on the harmful impact of detaching children from their mothers in early period on cognitive development (Baker et al., 2005 & Ruhm, 2004). Berlinski et al. (2006) say that it is not the matter of detaching, but rather what experience the children get during detachment and they posit that children can have positive effects if they are provided a high quality pre-primary education setting. Hence preschool education plays a pivotal role in the development of the child.

2 INFLUENCE OF PRESCHOOL EDUCATION ON SCHOOL OUTCOMES

Preschool education lays down a healthy foundation for the all-around development of the child. Indeed, it is the platform the child extends his thinking to new areas, exploring new learning, showing the ability to initiate ideas and solve simple practical problems. Preschooling is the first exercise in which children are separated from the comfort and secure zone of their parents. Therefore, it is a second home for the child. This is the place where the child builds his/her self-esteem. A child learns the importance of his own name, things, and friends and learns to communicate with his teachers and fellow students in the preschool. So pre-schools are also responsible for teaching social etiquette to the child. It also focuses the child's attention on healthy habits and personal hygiene. The skills and knowledge that the child develops in preschool have a great impact on the aptitude and attitude of the child later in life. Research indicated that well-designed ECECD programs of high quality contribute to children's holistic development, workforce productivity, international collaborations, sustainability of peace-building initiatives, and improved economies in the long run (Mbugua & Barbara, 2018). Therefore, it is the right place for the child's foundation for lifelong progress. Duncan et al. (2007) emphasized the strongest predictors of later achievement are school-entry math, reading and attention skills. A meta-analysis of the results shows that early math skills have the greatest predictive power, followed by reading and then attention skills and also pointed out that patterns of association were similar for boys and girls and for children from high and low socioeconomic backgrounds. It means that going to preschool is 'A small step for a giant exposure in a child's life'.

Despite the less than required attention hitherto being given for the field of ECCE, National Education Policy 2020 has laid importance on the universalization of Early Childhood Care and Education with a 2030 target to ensure that all the students entering Grade 1 are school ready.

Need and Significance

It is felt that preschool education is absolutely essential for child development. A review of policies and practices around the globe indicate the emerging priority of ECCE. The events like United Nations Convention on the Rights of the Child in 1989, Human Development Index, a summary measure of human development, by

the United Nations Development Programme (UNDP) in 1990 and World Conference on Education For All (EFA), held in Jomtien, Thailand in 1990 have contributed to the realization of the significance of the early childhood years for a country's economic progress.

There are several provisions in the Constitution of India, either as Fundamental Rights or as Directive Principles of State Policy that have been used to promote ECCE services in the country. Articulating the intent to cater to the needs of 0–6-year-old children, the Constitution (Eighty-sixth Amendment) Act has altered Article 45 (Directive Principles of State Policy) to read: “*The State shall endeavour to provide early childhood care and education for all children until they complete the age of six years.*”

The planning commission of the India in their Sixth Plan stated that the preschool years of child is period of its maximum learning and intellectual development and hence of gross potential educational significance. The need and importance of preschool education have been described by various commissions and committees. The Education Commission (1966) pointed out that preschool education is essential to develop the child's good physique and good health habits, social attitudes and manners like group participation, emotional maturity and independence as well as aesthetic appreciation, intellectual curiosity, and creativity.

Obviously, preschool programmes have greater influence in the life outcomes of an individual including on physical, cognitive, social and emotional outcomes. Barnett (1998) and Stewen (2009), pioneers in ECCE, affirm that early childhood programmes can produce benefits for children on intelligence quotient and school achievement, and reduces grade retention and placement in special education. Wong (2008) found that state Pre-K programmes can have positive effects on children's cognitive skills, though magnitude of these effects varies by states. Goswamee, (1994), Anderson et al., (2017) Jamir, (2015) and Berlinski, (2006) affirm that preschool education has positive effects on aspects of social behaviour, social competence and non-cognitive behavior of children.

Many studies have emphasized the lasting effects of preschool education on various aspects of development. Barnett (1998) has emphasized lasting positive

effects preschool programmes on young children's cognitive and social development. Goodman and Sianesi (2005) found the improvement in Mathematics test scores at 16 years. Pianta (2009) found that attending preschool can boost development and school readiness skills and can have longer term benefits to children and communities. Berlinski et al. (2006) pointed out one year of preprimary school increases average third grade Spanish and Mathematics scores. Camilli (2010) observed that programmes that are more educationally focussed and well defined produce larger effects on child development. Preschool education benefits may vary by socio economic status, birth order, quality of preschool setting and educational level of parents. But the results are inconsistent in some studies, especially in different cultural background. Shala (2013) says that there is a greater association between social-emotional development and academic achievement in elementary school, especially during the first three years, but not in fourth grade. But Barnett and other researchers say that though preschool effects declined over time but they are not insubstantial. Campell et al. (2002) stressed that though individuals in the preschool treated and control groups did not differ significantly in the percentage employed, young adults with preschool treatment were more likely to be engaged in skilled jobs. But, statistically significant differences in the attainment of full economic independence were not found at this age. It is clear that the literature shows positive and some negative impacts of preschool education on different aspects of an individual.

In the fast paced world, cognitive, social and emotional developments are crucial factors than ever before. These developments are the key stones in one's life because all the three are very much intertwined and mutually reinforcing to make one's life successful. No doubt, early years of children are more important than any other periods because the rate of growth and development is fastest during this period. A large portion of the child population is spending their valuable time in preschools. Therefore, it is imperative to pay close attention on cognitive, social and emotional aspects of the child and identify the activities of different preschools on these areas for the development of the child. There are some debates on preschool programmes are targeted to disadvantaged children, little is known about the benefits for the population as a whole.

This study is an attempt to shed some light on the debate by investigating the effect of preschool education on subsequent cognitive and socio emotional outcomes of primary school students performance in Kerala.

Though there are plenty of studies in early childhood care and education more than half century, thorough search of the literature specifies the paucity of researches in this specific area of ECCE in India, especially in Kerala. Hence the study is entitled as ‘Influence of Preschool Education on Cognitive and Socio-Emotional Variables among Primary School Students of Kerala’.

Statement of the Problem

The study is entitled as ‘Influence of Preschool Education on Cognitive and Socio-Emotional Variables among Primary School Students of Kerala’.

It identifies and compares the current objectives and practices of pre-school education in Anganwadis, Kindergarten, and Montessori. Prior to investigating whether preschooling: status, duration, and type, influence cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics, and socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions of Standard I, III and V students.

It further examines whether preschooling: status, duration and type influence cognitive and socio-emotional outcomes of Standard I, III and V students irrespective of their socioeconomic and other demographic factors namely gender, birth order, medium of instruction, parental education, and cognitive engagement.

Definition of Key Terms

The key terms that appear in the title of the study stand for the following.

Preschool Education

It is the early childhood education for the children between the ages of three and six years, prior to the commencement of compulsory education at primary school.

This study is on the influence of the status, duration, and type of preschool education. The preschooling status of students was studied on two levels: pre-schooled students and non-preschooled students. Preschool duration was categorized as two levels, i.e., the students who preschooled up to 2 years (1 or 2 years) and the students who preschooled >2 years (3 or 4 years). Anganwadi, Kindergarten and Montessori were the major types of preschool education studied.

Cognitive Variables

Based on received literature, the cognitive variables in this study are language and mathematical abilities, the essential aspects of cognitive development. For measuring these variables, relevant and grade-appropriate tests of achievement in Malayalam and English focusing on vocabulary and comprehension, and tests of achievement in Mathematics were employed for standard I, III and V which were developed after an extensive content analysis of the text books and interview with experienced teachers at this level in primary standards.

Socio-emotional Variables

Based on the thorough analysis of the related studies and developmental theories, socio-emotional variables in the study are the set of socio-emotional behavior of the child in the various contexts such as within family, school and other situations reported by the parents which include personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions.

Primary School Students of Kerala

In the present study, Primary School Students of Kerala are Standard I, III and V students in the Government, Aided, and Private schools in Kozhikode district of Kerala.

Variables of the Study

The independent, dependent and moderator variables of the study is explicated here under separate heads.

Independent Variable

Independent variable of the study is preschool education which encompasses three independent categorical variables. They are labelled distinctly under preschool education.

Preschool Education

Preschool education is denoted as three independent categorical variables, i.e., preschooling status, preschool duration and type of preschooling. Hence the influence of preschool status, preschool duration and type of preschooling on cognitive and socio-emotional outcomes among primary standard students were studied. Each of these categorical variables are given in brief.

Preschooling Status. There are preschooled and non-preschooled students in primary standards. This is denoted as two levels of preschooling status- pre-schooled and non-preschooled. Hence the influence of preschooling status on cognitive and socio-emotional outcomes among primary standard students were studied.

Preschool Duration. The duration of preschool is categorized as two levels, i.e., up to 2 years (1 or 2 years) and >2 years (3 or 4 years). Therefore, the influence of preschool on cognitive and socio-emotional outcomes among primary standard students who attended preschools up to 2 years and >2 years was assessed.

Type of Preschooling. Type of preschooling has three levels, corresponding to the three categories of preschools, i.e., Anganwadi, Kindergarten and Montessori. Hence the influence of preschool on cognitive and socio-emotional outcomes among primary standard students who attended Anganwadi, Kindergarten and Montessori schools were studied.

Dependent Variables

In this study, dependent variables are cognitive and socio-emotional outcomes. There are 14 dependent variables, out of which five of them are cognitive and nine of them are socio-emotional. They are described under separate heads in brief.

Cognitive Outcomes

Based on the related studies, it is found that achievement tests are extensively used as a measure of cognitive outcomes. Therefore, five cognitive outcomes related to language and mathematical abilities of school children were included. In language, vocabulary and reading comprehension in Malayalam and English were measured whereas in Mathematics, various mathematical concepts were assessed.

For measuring these outcomes paper pencil tests are used which consists of tests of achievement in Malayalam and English focusing on vocabulary and comprehension, and tests of achievement in Mathematics were employed for standard I, III and V.

Based on intended learning outcomes of cognitive domain in Standard 1-V and analysis of textbooks in primary standards, grade appropriate, school relevant and frequently using oral and written vocabulary and mathematical concepts and reading comprehension in various contexts were included in the multiple choice items tests of achievement in Standard I, III and V. The tests consist of tests of achievement in vocabulary in Malayalam, tests of achievement in Malayalam comprehension, tests of achievement in vocabulary in English, tests of achievement in English comprehension, and tests of achievement in Mathematics for the students in Standard I, III, and V. The short description of each tests are given.

Vocabulary in Malayalam. It is the level of students' achievement in the areas such as identifying and naming objects, rhyming words, spelling, plural form, antonyms, synonyms, gender, adjectives, prepositions, and dissolution of words were included in the tests of achievement in vocabulary in Malayalam.

Malayalam Comprehension. It is the level of students' achievement in Malayalam comprehension comprised of sentences, hints, riddles, poems and passages.

Vocabulary in English. It is the level of students' achievement in the areas such as identifying and naming objects, rhyming words, spelling, noun, verb, plural form, antonyms, synonyms, prepositions, pronoun, article, adjectives, adverb and contracted form were included in the tests of achievement in vocabulary in English.

English Comprehension. Achievement in English comprehension consisted of sentences, hints, riddles, poems and passages.

Achievement in Mathematics. The level of students' achievement in the areas such as numbers, shapes and patterns, time, days, weeks and months, arithmetic operations, measures, fraction, and decimal were assessed.

Socio-emotional Outcomes

Based on the thorough analysis of the related studies and developmental theories, nine socio-emotional outcomes such as personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions were included. These are the set of socio-emotional behavior of the child in the various contexts such as within family, school and outside situations reported by the parents. Each of them are described in brief.

Personal Independence. It is a measure of ability of the child to do the personal activities without the assistance of others such as eat, comb hair, bath, etc.

Academic Independence. It is a measure of ability of the child to do the academic activities without the assistance of others such as read, write, packing school bags, etc.

Work Habits. It is a measure of habits of the child to do the activities regularly or promptly such as remembering what is supposed to do, doing works on time, etc.

Interpersonal Relationship. It is the extent to which the child expresses the behaviours such as spending time together, bonding, and communicating etc. with the members of the family and peers including other gender in and outside the school in preferring, expressing happiness, interest, etc.

Cooperation. It is a measure of behaviours of the child such as taking turns, cooperating and sharing with others, handling the belongings of others with care etc.

Communication. It is a measure of abilities of the child such as conveying the ideas clearly, responding suitably, talking with respect, etc.

Leadership. It is a measure of abilities of the child such as initiating among peers in play and related activities, initiating age appropriate activities, taking up responsibilities, etc.

Expressing Emotions. It is a measure of behaviours of the child such as curious about new things, smiling, pleasing nature, etc.

Controlling Emotions. It is a measure of behaviours of the child to identify and regulate emotions and respond in a socially tolerable and flexible way such as keeping calm when get angry or in stressful situation, taking criticisms positively, etc.

Moderator Variables

The variables such as gender, birth order, medium of instruction, parental education, and cognitive engagement were studied as moderator variables to check the influence of preschool education on cognitive and socio-emotional outcomes of the primary standard students.

Gender

Gender of the child is considered as moderator variable because it is decisive in the development of a child.

Birth Order

As birth order has a great influence in the development of a child, single child, first and later born were considered as moderator variable for the study.

Medium of Instruction

Medium of instruction has a substantial influence in the development of the child. Students in Malayalam and English medium were included in the study.

Parental Education

Parental education differs from Below SSLC to Post Graduation or professional education and above. Hence it is categorized as below secondary, secondary and above secondary.

Cognitive Engagement

Cognitive engagement comprises varied academic engagements outside the school or at home such as learning, tuition, hobby, religious education, play, use of various devices such as T.V., computer, mobile, internet, etc. These activities at different times on working days and holidays were frequency counted and categorized as high and low groups.

Research Questions

The study is to answer the broad question “Does preschool education influence subsequent educational development of children?” This question is investigated by limiting the scope of educational development into select cognitive and socio-emotional outcomes among students in Standard I, III and V. Hence specific questions being asked by this research are:

1. What are the current objectives and practices of Anganwadis, Kindergarten and Montessori?
2. Does preschooling influence cognitive and socio-emotional outcomes among students in Standard I, III and V?
3. Does preschool duration influence cognitive and socio-emotional outcomes among students in Standard I, III and V?
4. Does type of preschooling influence cognitive and socio-emotional outcomes among students in Standard I, III and V?
5. Does the influence of preschooling status, preschool duration and type of preschooling if any, remain irrespective of factors namely gender, birth order, medium of instruction, educational qualification of father and mother, and cognitive engagement?

Objectives of the Study

The major objective of the study is to find out whether preschooling and its duration and type make a difference in cognitive and socio-emotional outcomes in primary standard students of Kozhikode district and if so whether such difference persists till Standard V. The study has set the following objectives.

1. To identify and compare the current objectives and practices of pre-school education in Anganwadis, Kindergarten and Montessori schools.
2. To study whether preschooling status influence Standard I, III and V students':
 - I. Cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics.
 - II. Socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions.
3. To study whether preschooling status influence Standard I, III and V students':
 - I. Cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics irrespective of socioeconomic and other demographic factors namely
 - i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement

- II. Socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions irrespective of socioeconomic and other demographic factors namely
 - i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement
4. To study whether preschool duration influence Standard I, III and V students':
 - I. Cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics.
 - II. socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions.
 5. To study whether preschool duration influence Standard I, III and V students':
 - I. cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics irrespective of socioeconomic and other demographic factors namely
 - i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement

- II. Socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions irrespective of socioeconomic and other demographic factors namely
 - i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement
6. To study whether types of preschooling influence Standard I, III and V students’:
- I. Cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics.
 - II. socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions
7. To study whether types of preschooling influence Standard I, III and V students’
- I. cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics irrespective of socioeconomic and other demographic factors namely
 - i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement

- II. Socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions irrespective of socioeconomic and other demographic factors namely
 - i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement

Hypotheses of the Study

The study analyses the influence of preschool education on cognitive and socio-emotional outcomes of primary standard students which is examined through the following hypothesis.

- 1. Preschooling status does not significantly influence
 - I. Cognitive outcomes namely:
 - A. Vocabulary in Malayalam
 - B. Malayalam comprehension
 - C. Vocabulary in English
 - D. English comprehension
 - E. Achievement in Mathematicsamong students in
 - (a) Standard I
 - (b) Standard III
 - (c) Standard Vin primary schools of Kerala.
 - II. Socio-emotional outcomes namely:
 - A. Personal independence
 - B. Academic independence

- C. Work habits
- D. Interpersonal relationship
- E. Cooperation
- F. Communication
- G. Leadership
- H. Expressing emotions
- I. Controlling emotions

among students in

- (a) Standard I
- (b) Standard III
- (c) Standard V

in primary schools of Kerala

2. Preschooling status does not significantly influence

I. Cognitive outcomes namely:

- A. Vocabulary in Malayalam
- B. Malayalam comprehension
- C. Vocabulary in English
- D. English comprehension
- E. Achievement in Mathematics

among students in

- (a) Standard I
- (b) Standard III
- (c) Standard V

in primary schools of Kerala after controlling socioeconomic and other demographic factors namely

- i. Gender
- ii. Birth order
- iii. Medium of instruction
- iv. Educational qualification of father
- v. Educational qualification of mother
- vi. Cognitive engagement

- II. Socio-emotional outcomes namely:
 - A. Personal independence
 - B. Academic independence
 - C. Work habits
 - D. Interpersonal relationship
 - E. Cooperation
 - F. Communication
 - G. Leadership
 - H. Expressing emotions
 - I. Controlling emotions
 - among students in
 - (a) Standard I
 - (b) Standard III
 - (c) Standard V
 - in primary schools of Kerala after controlling socioeconomic and other demographic factors namely
 - i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement
- 3. Preschool duration does not significantly influence
 - I. Cognitive outcomes namely:
 - A. Vocabulary in Malayalam
 - B. Malayalam comprehension
 - C. Vocabulary in English
 - D. English comprehension
 - E. Achievement in Mathematics
 - among students in
 - (a) Standard I
 - (b) Standard III

(c) Standard V

in primary schools of Kerala.

II. Socio-emotional outcomes namely:

- A. Personal independence
- B. Academic independence
- C. Work habits
- D. Interpersonal relationship
- E. Cooperation
- F. Communication
- G. Leadership
- H. Expressing emotions
- I. Controlling emotions

among students in

- (a) Standard I
- (b) Standard III
- (c) Standard V

in primary schools of Kerala.

4. Preschool duration does not significantly influence

I. Cognitive outcomes namely:

- A. Vocabulary in Malayalam
- B. Malayalam comprehension
- C. Vocabulary in English
- D. English comprehension
- E. Achievement in Mathematics

among students in

- (a) Standard I
- (b) Standard III
- (c) Standard V

after controlling socioeconomic and other demographic factors namely

- i. Gender
- ii. Birth order
- iii. Medium of instruction

- iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement
- II. Socio-emotional outcomes namely:
- A. Personal independence
 - B. Academic independence
 - C. Work habits
 - D. Interpersonal relationship
 - E. Cooperation
 - F. Communication
 - G. Leadership
 - H. Expressing emotions
 - I. Controlling emotions
- among students in
- (a) Standard I
 - (b) Standard III
 - (c) Standard V
- in primary schools of Kerala after controlling socioeconomic and other demographic factors like
- i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement
5. Type of preschooling does not significantly influence
- I. Cognitive outcomes namely:
 - A. Vocabulary in Malayalam
 - B. Malayalam comprehension
 - C. Vocabulary in English
 - D. English comprehension
 - E. Achievement in Mathematics
- among students in
- (a) Standard I

(b) Standard III

(c) Standard V

in primary schools of Kerala.

II. Socio-emotional outcomes namely:

- A. Personal independence
- B. Academic independence
- C. Work habits
- D. Interpersonal relationship
- E. Cooperation
- F. Communication
- G. Leadership
- H. Expressing emotions
- I. Controlling emotions

among students in

(a) Standard I

(b) Standard III

(c) Standard V

in primary schools of Kerala.

6. Type of preschooling does not significantly influence

I. Cognitive outcomes namely:

- A. Vocabulary in Malayalam
- B. Malayalam comprehension
- C. Vocabulary in English
- D. English comprehension
- E. Achievement in Mathematics

among students in

(a) Standard I

(b) Standard III

(c) Standard V

after controlling socioeconomic and other demographic factors namely

- i. Gender
- ii. Birth order
- iii. Medium of instruction

- iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement
- II. Socio-emotional outcomes namely:
- A. Personal independence
 - B. Academic independence
 - C. Work habits
 - D. Interpersonal relationship
 - E. Cooperation
 - F. Communication
 - G. Leadership
 - H. Expressing emotions
 - I. Controlling emotions
 - among students in
 - (a) Standard I
 - (b) Standard III
 - (c) Standard V
- in primary schools of Kerala after controlling socioeconomic and other demographic factors like
- i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement

Methodology

It deals with the precise description of the design, samples, tools and statistical techniques to be used for the study.

Design of the Study

This study follows Causal Comparative (expost facto) research design. It is treated as a type of descriptive research since it describes conditions that already

exist. In this method, the researcher attempted to determine the cause and effect, for preexisting differences in groups of individuals. So it helped the investigator to determine the effect of differences that already exist between primary school students having Anganwadi, Kindergarten and Montessori experience on cognitive, social and emotional development.

Procedure of the Study

The study has two major phases. The phase I is the survey to identify and compare the current objectives and practices of different types of pre-schools. It is followed by the analysis of the learning outcomes and textbooks in Malayalam, English and Mathematics of standard I to V for development of essential tools for the assessment of cognitive and socio-emotional outcomes of primary school students in phase II.

Phase I: Survey of Objectives and Practices of Anganwadis, Kindergarten and Montessori Schools

The Phase I of the study is to identify and compare the current objectives and practices of different types of pre-schools like Anganwadis, Kindergarten and Montessori using an interview among preschool teachers.

Sample. The sample of the phase I consists of randomly selected thirty preschool teachers each from Anganwadis and Kindergartens and seventeen Montessori school teachers (N=77) in Kerala.

Interview Schedule for Preschool Teachers. To identify the objectives and practices of Anganwadis, Kindergarten and Montessori schools, an interview schedule for preschool teachers was developed. The semi structured interviews were conducted with the preschool teachers in Kerala. Investigator contacted interviewees in person to conduct interview. The information collected was recorded and noted down for interpretation.

Percentage Analysis. The interview data were analyzed for their implicit and explicit meaning as is appropriate to the particular question, responses were categorized and categories of responses were frequency counted.

Phase II: Survey on Influence of Preschool Education on Cognitive and Socio-emotional Variables

For assessing the influence of preschool education on cognitive and socio-emotional variables among primary school students, the analysis of the learning outcomes and textbooks in Malayalam, English and Mathematics of standard I to V were done. The achievement tests used in standard I to V were also analysed which lead to the development of the tests of achievement in Malayalam, English and Mathematics for standard I to V. In Tests of achievement in Malayalam and English, vocabulary and reading comprehension were assessed. In tests of achievement in Mathematics, numerical ability and basic mathematics were assessed.

Sample. The study conducted on the samples of Standard I, III and V students in schools affiliated to Department of Education Government of Kerala and Montessori schools. The sample was drawn by using stratified random sampling with weightage to locality, type of management and medium of instruction. The data collection was limited to Kozhikode district giving due representation to three educational districts: Kozhikode, Vadakara and Thamarassery.

For measuring the cognitive outcomes, the achievement tests were conducted among 347, 333 and 473 students in Standard I, III and V respectively. Socio-emotional development of these children was assessed through the scale for their parents. But only 271, 265 and 341 parents in Standard I, III and V responded completely. Hence there are two sub sets of data in this phase.

Tools. Different tools were developed for measuring the cognitive and socio-emotional outcomes are given separately.

To compare the cognitive variables like language (vocabulary and reading comprehension) and mathematical ability among primary school, students the following tools were developed.

1. Test of Achievement in Malayalam for standards I
2. Test of Achievement in Malayalam for standards III
3. Test of Achievement in Malayalam for standards V
4. Test of Achievement in English for standards I
5. Test of Achievement in English for standards III
6. Test of Achievement in English for standards V
7. Test of Achievement in Mathematics for standards I
8. Test of Achievement in Mathematics for standards III
9. Test of Achievement in Mathematics for standards V

To develop the tests of achievement in Malayalam, English and Mathematics for the students in Standard I, III, &V, the intended learning outcomes of cognitive domain in standards 1 to V (NCERT, 2017 and SCERT, 2016) and the comprehensive analysis of the textbooks of primary classes (SCERT, 2016) were done. It led to the identification of the language and mathematical skills proposed at each level. The achievement tests used in primary classes were also analyzed for the development of the tests. Taking into account the feasibility for easy administration and scoring of the tests, only multiple choice items were included. It measures students' proficiency in vocabulary and comprehension. The items included in these categories were based on the grade level of the students.

For comparing the social-emotional variables namely personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions among primary school students, the following tools was developed for parents. Personal details of the child and demographic details of the family were also obtained from the parents.

1. Personal data form of the child
2. Scale on Socio-Emotional Development among Primary School Students for Parents

Statistical Techniques Used. The following statistical techniques were used for the analysis of the data in the second phase of the study.

- Independent samples *t*-test
- One-way ANOVA
- Two-way ANOVA
- Effect size (Cohen's *d*)
- Partial eta squared

Scope and Delimitation of the Study

The present study is intended to identify current objectives and practices of preschool education in Anganwadi, Kindergarten and Montessori and to investigate differences, if any, among the primary students who had preschooled in Anganwadi, Kindergarten and Montessori on cognitive and socio-emotional outcomes. The study was done in two phases. The first phase was the identification of the strengths and weaknesses of three types of preschools were done. For this seventy seven preschools were visited and preschool teachers were interviewed. Compared to the other types of preschools, the number of Montessori schools are limited. Hence only 17 Montessori teachers are interviewed in the first phase of the study.

In the second phase of the study covered the cognitive outcome variables of primary schooling viz, vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and Mathematics and the socio-emotional development indicators like personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions.

Test of achievement for primary grades students in Malayalam, English and Mathematics were developed and standardized, after analyzing the textbooks and achievement tests in primary classes. In total, during the second phase, 1153 primary students were tested for cognitive outcomes and its subset of 877 primary students were assessed for socio-emotional outcomes. As the study include three

achievement tests and a scale for a child in the second phase, the data collection was limited to Kozhikode district of Kerala.

The cognitive and socio-emotional outcomes of primary standard students were analysed by their preschooling status, duration and type. This was done by controlling for gender, birth order, medium of instruction, father's educational qualification, mother's educational qualification and cognitive engagement.

In spite of the limitations that occurred in data collection due to mass protest in sequel to Citizenship Amendment Bill and later due to Covid-19 restrictions on social gathering and school activities, the investigator applied utmost care and rigour to obtain sufficient amount of valid data to derive valid findings. The findings will help preschool teachers, primary school teachers and policy makers to design the future programmes of preschools in a better way for developing cognitive, social and emotional aspects of the child. The results will be fruitful for the parents to pay attention on these aspects of their children and help them to lead successful lives.

Chapter II

REVIEW OF RELATED LITERATURE

- ***Conceptual and Theoretical Overview***
 - *Preschool Education*
 - *Evolution – International, National and State*
 - *Theoretical Evolution: Views of Eminent Scholars*
 - *Recommendations: Commissions and Policies*
 - *Types*
 - *Early Childhood*
 - *Nature and Significance*
 - *Cognitive and Socio-emotional Developmental Theories*
- ***Studies (National and International)***
 - *Influence of Preschool Education on Cognitive and Socio-emotional Variables*
 - *Influence of Preschool Education on Cognitive Variables*
 - *Influence of Preschool Education on Socio-emotional Variables*

Conceptual and Theoretical Overview

This study examines the influence of different types of preschool education: Anganwadi, Kindergarten and Montessori, on cognitive and socio-emotional variables among primary standard students. Hence this chapter deals with conceptual and theoretical overview of early childhood years and preschool education in the first part where as second part deals with the related studies on influence of preschool education on cognitive and socio-emotional variables conducted in international and national levels found in academic books and journal articles.

Preschool Education

Preschool education is, also known as pre-primary or nursery education, a term widely used from early years throughout the world. It is the foundation or the first step of the child's educational journey. It does not mean formal teaching using textbooks but it is the means to provide the best possible environment for the growth and development of young children by the cooperation of parents and teachers (Green & Woods, 1969).

For several years much importance has been placed on improving child's health and nutrition, but psychological guidance has been a neglected area. Child rearing was based on tradition rather than scientific findings. A quality preschool education considers the development of the whole child – physical, cognitive, social, emotional and creative aspects and provides optimal development of children during their early years. According to UNESCO (2022), “Early childhood care and education is more than preparation for primary school. It can be the foundation for emotional wellbeing and learning throughout life and one of the best investments a country can make as it promotes holistic development, gender equality, and social cohesion”.

Evidence on Early Childhood Education (ECE) suggests that children who engage in early and play-based learning activities have better developmental outcomes. Good quality early childhood education helps to reduce the chances of dropout and improves outcomes at all level of education. Children enrolled in, at least one year of pre-primary education, are more likely to develop the critical skills

they need to succeed in school and less likely to repeat grades or drop out. So an attempt has been made here to explore its origin, views of eminent scholars, recommendations of commissions and policies and various types of preschools are included in this chapter.

Evolution of Preschool Education

Preschool education is the contribution of international and national movement of distinguished educationists and organisations. In Europe, Rousseau was the first contributor for the change in society's view of childhood. In 'Emile', he claimed that children should be children before being men. Influenced from the thoughts of philosophers on the significance of early years, Jean Fredric Oberline (1740-1826) started 'Salles d' asile', a village centre in 1780's in Alsace, France following a method of instruction based on play and enjoyment. Pestalozzi (1746-1827) was also influenced by Rousseau and concerned with education of the poor. He adopted sense training as the method of teaching young children. In Britain, a major step in nursery education was with beginning of the first 'Infant school' by Robert Owen (1771-1858), a pioneer socialist, in New Lanark Scotland in 1816 which was based on freedom and play. He never promoted to introduce books in the early years and highlighted that the young children were even given a room of their own. During World War I, nursery schools were established in England to care for children of war workers which became a part of English school in 1918. The financial grants to universities led to the establishment of nursery schools as research centers. Others were established teacher training and home making departments. Children who enrolled were usually from upper middle class families. Among these first nursery schools were those located at Columbia University, University of California at Los Angeles, University of Minnesota and Merrill Palmer school in Detroit. Private nursery schools began to flourish in 1920. National Association for Nursery Education gave impetus to defining standards and gaining recognition for the importance of the early years. The Education Acts in 1870 and 1944 paved the way for many changes in the field of nursery education. While the former helped the working class to enroll their children from the age of five in elementary schools, the latter placed a duty on local authorities to provide nursery

education for the three and four years old through opening of nursery schools and classes attached to primary schools in only a minority of areas.

In Germany, Friedrich Froebel's (1782-1852) Kindergarten was the first international movement in the education of children under six carrying the message of free play and the garden environment practiced in France, North America, Japan, and Australia. The 'New Education' of the late nineteenth century owned by Froebel. French Maternelles founded by Madam Pauline Kergomand (1838- 1925) replaced Sales d'asile and stressed freedom and happiness as desirable goals for early education. It completely avoided book work and intellectual practices and teachers were even warned against trying to turn children into first graders or memory machine. Margaret Mc Millan and her sister Rachael Mc Millan, pioneers in the field of early child education, did admirable work in this ground upholding the slogan 'educate every child as if he is your own'. They started an open air nursery school at Dept-ford in 1914 for two- five years olds stressing health nutrition and hygiene of the children considering nursery school was an extension of home. The contribution of Itard and Segmin to the education of Idiots was commendable. Segmin's research was the starting point of Madam Maria Montessori's, a medical practitioner, method of educating the young children. She designed numerous tasks in a designated sequence. Montessori schools using Montessori method continued to be in use throughout the world even today. Child education is an integral part of the educational system of the USSR. Hence it evolved its own system of child-rearings well as preschool education. In Soviet Union, the school system begins with a nursery or Creche, an important landmark in the history of preschool education, for children between the ages of three years and three months which is running by collective farms, factories, offices and other enterprises. The Kindergarten provides additional pre-school education to children between three and seven years of age, that is up to compulsory school age which is under the jurisdiction of ministry of education. Pre-school education in the USSR was the responsibility of the state. But it is neither compulsory nor available to all nor it is free of charge. It is expanding to a majority of children. Furthermore, Soviet educationists stressed the importance of the development of the child through expert preschool guidance.

'Nursery for the children of poor women in the city of New York' was the first day care programme was established in America in 1854 for helping working women who left their children between the age of six weeks to six years. Towards the end of nineteenth century, day nurseries were opened for the care of underprivileged children in America (Green & Woods, 1969). The first American Kindergarten was founded by Carl Shurz in Wisconsin in 1856, who had been a student of Froebel (Hildbrank, 1980). Kindergarten organisation had risen in the late nineteenth century in USA for the children in the year preceding public school entrance nursery schools. The Kindergarten continued in a progressive neo-Froebel tradition whereas nursery schools were often linked with the campus and patronised by academies. The first White House conference in 1909, President Theodore Roosevelt recommended for the organisation of children's Bureau. Subsequently, numerous nursery schools were opened in USA under the sponsorships of colleges and universities in nineteen twenties. The development of the child to his or her highest level of attainment was accepted as the fundamental principle of education of the child in the white house conference in 1930. There was gradual change in the concept of preschool education till the first half of the 20th century. Child development reports and developmental theories of Jean Piaget and other eminent educationists have proved useful to educators for developing and implementing a number of pre-education programme. There are different pre-education programmes grouped under two major categories as 'Infant and home based programme' and 'Center based Pre-school programme'. Under Infant and home based programme, number of educational programmes were started as experimental basis in nineteen sixties in USA with the fund of federal agencies for culturally deprived children. The 'Project head start' was introduced for educationally disadvantaged children. The six major parts of it are administration, education, social services, health services, parental involvement and career development. Then pre-school programme such as 'Home Start' and 'Health Start' were originated from 'Head Start Project' as a result of controversy on it. A plenty of models of Pre-school Programmes with different theoretical foundations are included under Centre based Pre-school Programmes. The 'Bilingual Early Childhood Programme', a programme designed

for non-English speaking children of America, of Shari Nedler was one among them. The aim of many programmes was the preparation of the child for successful participation in a school programme. Though numerous Pre-school education programmes developed and implemented in USA are found to be quite diverse, it is clear that no one model of pre-school programme is best for all children at all time or for all educational goals.

The education system in Asia was greatly influenced by western models and practices. Religious institutions and missionaries have a decisive role in spreading the education in Asian countries. Pre-schools were wide spread under the sponsorship of Church or missionaries in the beginning of twentieth century. In many of the Asian countries, preschool education is mainly for preparing children for schools and prepare children for competitive examination and with the need for child care facilities for working mothers. Preschool education was influenced by the thoughts and approaches of Froebel and Montessori, the pioneers in the preschool education. As most of the preschools was in private sector, only elite classes could afford it. Due to heterogeneity of population the curriculum and practices varies across the continent (Bettelhaim & Takanishi, 1976). The two major kinds of preschool institutions in Japan are Kindergarten administered by the ministry of education and Day nurseries by the ministry of welfare which cares the children of working mothers from birth to entry into primary schools. The kindergarten was mostly private and limited to children of middle class and upper class background. On the basis of the broad curriculum formulated in 1969 by the Korean Association of Kindergarten Education and approved by the Ministry of Education, curriculum was adapted to local communities and Day care services are extended to the children of different sections of society. The two major distinctions between public and private preschools in Philippines are former focus on readiness training whereas formal academic work is a common practice in latter and the intake of children per class in public pre-schools is twenty to thirty-five, while in private pre-schools the intake is thirty to forty-five. The approaches of Montessori and Froebel are adopted in Philippine and Malasian pre-schools. But in 1970's the programmes based on American model were tried in Malaysia.

Preschool Education in India. The evolution of preschool education in the western countries has influenced preschools in India too. The origin of preschools in India can be traced back to the end of the 19th Century. As the beginning of preschool education Loreto Convent School was established at Lucknow in 1874 for the education of young children. After that St. Hildas nursery school was founded at Poona in 1885 (Singh, 1997). Muralidharan (1968) mentioned that the American Missionaries took the initiative to set up a few kindergarten classes in Madras, Sholapur and Ahmedabad. Devi (1975) reports that as early as 1888 kindergarten classes were added to the Saidapet High School in Madras and the trainees at the Saidapet Teachers Training College had to do a part of their practice teaching in this school. She also mentions that in 1901-02 the American Missionary Josephine started a kindergarten school with the objective of giving training to teachers of kindergarten. This institute closed down in 1904-1905 but was again renewed in 1920-21. Dakshinamurthi Training College at Bhavnagar came up in 1924.

The actual preschool movement on a national scale was started by the untiring efforts of Annie Bessant and Tagore in the early parts of the 20th century (Singh, 1997). In 1915 two social workers, Darbar Gopal Das and Moti Bhai Amin, under the influence of Madam Montessori's ideology, established a Montessori school at Vase in Baroda District of Gujarat. Five years later Giju Bhai Badheka started his Bal Mandir at Bhavnagar in Gujarat and began to adopt Montessori methods to suit Indian condition. In 1922, Giju Bhai was joined by Tarabai Modak who devoted her entire life to child education (Muralidharan, 1968).

In 1925, the followers of Montessori established a Montessori Association and convened a conference on child education. Subsequently, under the influence of Gijubhai the objectives of the association were modified to suit the Indian condition and it was renamed as 'Nutan Bal Shikshan Sangh' in 1926 which started two experimental preschools in Gujarat and Maharashtra. Besant Memorial School with Montessori section at Adyar was started in 1934 which also known as Adyar Montessori Centre. In 1936, the first full-fledged nursery training institution was started in Veperiy, Madras, by Christian Missionaries (Devi, 1975). In 1938, the

‘Nutan Bal Shikshan Sangh’ established some nursery schools and a training centre at Dadar, Bombay. Madam Montessori visited India in 1939 and provided tremendous impetus to nursery education was instrumental to start Montessori schools, especially in Maharashtra, Gujarat and Madras. The Montessori method aroused a great deal of interest among Indian educators and a series of training centres were started in different parts of the country.

The report of the Central Advisory Board of Education on Post-War Educational Development in India (1944) emphasized the significance and recommended that an adequate provision of pre-primary education should be an essential adjunct of a national system of education. It emphasized the need for providing free pre-primary education either in separate nursery schools or in nursery sections attached to junior basic schools. The report advocated the appointment of only trained women teachers for these schools.

In 1945, Gram Bal Shiksha Kendra at Kosbad under the leadership of Smt. Tarabai Modak began programmes of education for the tribal children of Kosbad Hills which is known as Kosbad scheme. She initiated pre-school teacher institutes there. Another step in this direction was ‘Anganwadis’ which Tarabai run in village courtyards and under trees.

In 1946, Montessori met Mahatma Gandhi who asked her to ‘Indianize’ the method to bring about a revolution in Indian education. Gandhiji emphasized the need for an inexpensive system of preschool education which could be made available to a large majority of children. That was the beginning of pre-basic education. Pre-basic education was first experimented within the Sevagram under the guidance of Shanta Narulkar and was subsequently extended to start rural Balwadis under the auspices of Kasturba Gandhi National Memorial Trust, primarily in the villages of India. It was followed by the establishment of many centers for training women workers in Balwadis.

Keeping the preschool education in view the National Policy of Action for the International Year of the child had recommended that pre-school education should be made universally available to the weaker sections of the society, and those

belonging to poverty groups and for those who did not get admission to a regular pre-school. Pre-school education should be provided so as to facilitate their adjustment to primary schooling.

Prior to independence, nursery school education was not regarded as a state responsibility. But the schools established after 1947 fall into a wide range of categories such as Montessori schools, Pre-basic nursery schools, the laboratory schools, the Balawadis and a variety of social welfare programmes as Day nurseries, child health centres, Mobile Creches, Anganwadis, Vikaswadis and the like. The sponsorship of nursery schools includes private and voluntary associations, religious bodies, Indian Council for Child Welfare and Central Social Welfare Board, Montessori Association of India, Education and community development departments in the states and the labour and social departments in the state. The laboratory nursery schools were models of new nursery programmes which are being developed and are attached to university departments of child development, colleges of home sciences or to institutes of education. The programmes in the various categories of nursery schools are different which range from nutrition, health and welfare services to pre-educational experiences and formal schooling of young children.

Independent India has observed planned efforts in ECCE through the successive Five Year Plans. The first five-year plan (1951-56) acknowledged that the needs of children should receive much greater consideration than as usual and assigned the responsibility of welfare collectively to the family, community and the Government. In 1952, Indian Council for Child Welfare (ICCW), the first national level organization was formed to mobilize voluntary activities in all aspects of child development (Singh, 1997). Another significant development was the establishment of the Central Social Welfare Board (CSWB) in 1953 which was set up to release grants to voluntary organizations and mobilize their support and co-operation in the provision of social services, especially for women and children. CSWB and the Community Development Administration have done pioneering work and have been running Balwadis. At that time most of the voluntary welfare organizations were located in urban areas. Saxena (1959) reports that the Board launched the Welfare

Extension Projects (WEP) in 1954 to cater to the rural population. Several activities were taken up by the project. Balwadi, the multipurpose centre of the project, comprised of creche and preschool, and provided supplementary nutrition. The Welfare Extension Projects were coordinated with programmes of women and children in Community Development Blocks with education of children up to six years which was an integral part during the second plan. In 1959, the UN Declaration of the Rights of the Child was adopted and this Declaration was accepted by the Government of India (Muralidharan & Venita, 1988) for the child care activities in the country. As the base of National Education System, ECE was formally recognized for the first time during the Third Five Year Plan when the government directed the CSWB to survey the needs and status in the country by setting a special committee. The comprehensive report of the committee includes age, health, nutrition and need for recreation. As a result of it large scale of expansion in the facilities of ECE during 1961- 1966 and also training centres were setup for the training of Bal Sevikas. There was a shift from the quantity to quality during this period.

The Ministry of Education opened a new unit in the National Council of Educational Research and Training (NCERT) at New Delhi to conduct child services and evolve better method of childhood education in 1963. The Kothari Commission (1966) recommended expansion of pre-school education facilities, particularly to children from disadvantaged areas. A new scheme of Family and Child Welfare was implemented in 1967 to foster the all-round development of the pre-school child. An important legislation enacted in was the 'Children's Act' which came into effect in 1960 and amended in 1978 to meet the needs of delinquent and neglected children too. The Ganga Saran Sinha Committee was set up to identify the problems and needs of the child, and to suggest appropriate actions in 1967. The committee observed that a comprehensive national policy for child welfare was necessary to take an integrated view of the needs of children.

Although nursery schools were mainly in the private and voluntary sector before nineteen seventies in India, governmental involvement in the comprehensive care from low SES background where initiated from the fourth five-year plan

onwards. It directed its efforts to the training of teachers and production of teaching materials for the better implementation of the programme of ECE. Many conferences and seminars were organized for discussing the various concepts and approaches in this area. The National Policy Resolution for Children was issued in 1974. As a result of it National Children's Board was constituted. The policy endorsed the UN Declaration of the Rights of the Child.

The fifth plan saw a major break-through with the formulation of the National Policy for Children which was approved by the Parliament in 1975. During this period Integrated Child Development Service Scheme (ICDS) was launched on an experimental basis. One of the components of this scheme is nursery education which is implemented with hundred percent financial assistance from the central government. This scheme was presented for the first time at the sixth conference of the Indian Association for Pre-school Education (IAPE) in October 1972 at Bangalore by K.V. Natrajan, the then chief, Nutrition and Social welfare, planning commission. During the successive year plan this scheme was extended to hundreds of blocks and millions of children were the beneficiary of the services like supplementary education, immunisation and health care under this programme. The scheme has been expanding steadily and is presently the largest child development programme in the country.

In the Sixth Five Year Plan (1980-85), early childhood education was first suggested as a strategy to reduce the dropout rate and improve the rate of retention in schools. It was designed with a view to prepare the child for primary school by enhancing the communication and cognitive skills. A scheme was initiated whereby voluntary organisations were provided central assistance for operating ECE centres in rural and back ward areas of backward states. The task of the ECE Centres was to take up activities related to early childhood care and education. Programmes and services for children in the areas of health, nutrition, education and social services were expanded during the eighties. It was for the first time in the National Policy on Education (NPE), adopted in 1986, by the Government of India, that a bold recognition was granted to Early Childhood Care and Education (ECCE) and a clear Government Policy was stated. World Summit for Children in 1990 urged all Governments to give

every child a better future. Sixth and Seventh Five Year Plans gave special attention to the welfare of mother and child belonging to the under-privileged strata of the society which was more comprehensive in scope, integrated in nature and systematically planned for the development of the 'total child'. An accelerated expansion of coverage of preschool children took place in the Eighth Five Year Plan. The integrated development of the early childhood education and services in the former plans was reiterated in the Ninth Five Year Plan. The programmes of Integrated Child Development Services, Reproductive and Child Health and massive movement of education for all began during Tenth Five Year plan. The organised preschool programme have begun only towards the end of the first half of the 20th century.

In spite of the recommendations of many commissions and committees the education of the children under six is partially neglected in India. Considering the poverty of Indian homes, it is not realistic to expect any kind of enrichment of the home environment for a long time. Therefore, the only possible way of tackling the problem is to provide enriched experiences through appropriate preschool programmes.

In our country's initiative for 'Attaining Education for All' by 2000 AD, much importance has been given to early childhood education (NIEPA - 1991). In order to implement early childhood care and education (NPE, 1986) the committee proposed to take the following steps in the center. Sarva Siksha Abhiyan (SSA) launched for Universal Elementary Education (UEE) in 1998 acknowledges the need and significance of programmes of ECCE for achieving the goals of UEE. The spirit behind the ECCE in SSA seems to be to encourage innovations and help in their upscaling and dissemination. Though, with the increasing emphasis on early childhood care and education services, the coverage of children under ECCE programmes has increased significantly during the past few decades in our country, there still remains a wide inaccessibility to a large number of children in urban slums, remote and rural areas.

Preschool Education in Kerala. From the formation of the state to the present, Kerala has got an appreciable advancement in the socio-economic, cultural and educational upliftment. Though attempts were made in the state in the field of

pre-school education even in nineteen thirties it has not received much recognition compared to the other parts of the country. There were poor facilities in the state for preschool programme as well as preschool teacher education programmes.

The institutions for pre-school education in the state can be categorised into four types as follows institutions run by the Government, institutions aided by Government, institutions recognized but unaided and unrecognised institutions. At present 33115 Anganwadis, 53 Government model preprimary schools, 2159 Aided preschools, 3946 preschools running by PTA, 90 Nurseries under Scheduled Caste Development Department, 13 nurseries of Scheduled Tribe Development Department, 220 Creches under Child Development department and innumerable preschools under the private agencies. Administrative structure and academic programmes of these categories have wide differences. Most of the preschools in the private sector cater to the needs of the middle class and high class of the society. Hence the children of the poor families have to depend on Balawadis and Anganwadis. There are no uniformities in the objectives, curriculum, content and the delivery system of the programme in the various institutions. Preschool education in Kerala seems as a less emphasized one up to 1990's. Then pre-schools started mushrooming especially in the English medium sector which concentrate on the academisation of pre-school programme deviating from the ideals and ideas of early childhood care and education.

Study of history of teacher education in Kerala revealed that the teacher training programme at the pre-primary level was a neglected area compared to the primary and secondary level. After the formation of Kerala state, the administrative control of pre-primary teacher education was rested jointly in the organisations; The Kerala State Council for Child Welfare and the Department of Education, Government of Kerala. From 1962 the Government of Kerala took upon itself the sole responsibility of the administration of pre-primary teacher education. Similar to the case of the preschool programme, there was a great variation among the different teacher education programme at pre-primary level. The diverse sectors were scattered and to a certain extent devoid of any control from the part of the

government. From the early years of 1990 there was a rapid increase in the pre-primary institutions in the state. This necessitated greater demand for personnel for pre-primary education. The inadequacy of pre-primary teacher education programme in the state was revealed by Musthafa (2007) and Rajalakshmi (1992). All these emphasise the fact that in the educational sector, the most neglected one is the pre-primary level and in fact it should be given prime importance.

Theoretical Evolution: Views of Eminent Thinkers and their Contributions

Considering the importance of the early years, eminent thinkers, philosophers and psychologists from the West and the East have conducted extensive research and experiments and shared their thoughts and views on early childhood education (ECE). They affirmed that early childhood education is essential to develop the child's good physique, good health habits, social attitudes and manners, group participation, emotional maturity, intellectual curiosity, independence and creativity. A short description of the theoretical evolution and contributions made by some eminent thinkers will be helpful in developing conceptual insight in to this promising area.

Plato's Concept on Nursery Education. Early in 350 B.C., Plato (429-347 BC) pointed out the need of nursery education for the children of three to six years old emphasising the importance of activities and plays. His concept of nursery education was based on the psychological principles of child development and gave importance to the child than to the curriculum, teacher and method. He stated the importance of providing the child with a skilled teacher who could understand the needs of children and educate them. He suggested music and physical training should be given during early years of childhood because it will lead to harmonious development of the body as well as soul. He believed that education of young children should be given through the stories of Gods and Goddesses. He also reminded of the environment should be happy and congenial for the development of the personality of the children.

Comenius' Views on All-round Development of Children. Thoughts of John Amos Comenius (1592 - 1670) on education are presented in his famous book, 'Great Didactic', which provides his views and ideas on aims, curriculum, textbooks

and methods of teaching. He proposed a system of school education that covers from birth to maturity and classified infancy, childhood, boyhood, and youth as the four distinct periods of children's growth. According to his classification, the mother's lap should serve as the school for the first six years. He highlighted the importance of stimulating the senses of sight, hearing, smell, and touch and developing child's power of observation. In his opinion, play is necessary for the all-round development of the child and thus encouraged to play games. He advocated shorter school hours, more play, better bodily development, sound health and less strain. He prompted teachers to make schoolwork interesting for keeping the children relaxed. He objected to the teaching method which is frightening to the students and suggested that children should not be burdened with matters that are inappropriate to their age, and present conditions. He favoured teaching in small groups. He believed that the children should be told spiritual and secular stories and children should feel the desire for learning rather than imposing on them. He wrote 'The world in pictures' the first picture book for children including pictures of birds and animals. He considered schools as workshops where children worked eagerly and encouraged the integration of curriculum. His thinking about the importance of activity was echoed later by Dewey, Montessori and Piaget (Brewer, 1992).

Theory on Natural Development by Roussoau. Jean Jacques Rousseau's (1712-1778) philosophy of preschool education was based on "Naturalism" which proposes the natural growth of children in natural environment that constitutes adequate education (Gupta, 2009). It has influenced the educational practice particularly those in a preschool. Rousseau emphasised that child is not passive, he actively participates in his own development by acting upon the environment through trial and error and experimentation (Essa, 2011). The child continuously organises and interprets her experiences and tries to solve problems. He gave emphasis to the direct experiences of things and also opined that the child is a discoverer who explores the world and "learning by doing". He says "Give your scholar no verbal lessons. He should be taught by experience alone". He feels that interventions of parents and teachers distort the natural succession of the changes in childhood. He asserted that child has his own personality and he is not a miniature adult. He recognized that child is unique and his ways of seeing, thinking and

feeling are peculiar to his age. In *Emile*, Rousseau (1762) stressed the necessity of play for learning. He emphasised the importance of using objects, pictures and illustrations in educating the young child and did not promote lectures for teaching. He emphasized good education to be based on the stages of development of the child and provide an appropriate environment for young children in which their development can be maximised. He propagated that learning should be the goal and not teaching. Moreover, children should be free to explore. His educational philosophy is available in his book ‘*Social Contract*’ too.

Child-centered Approach of Pestalozzi. Johann Heinrich Pestalozzi (1746 - 1827) highlighted the role of the mother in preschool education stating that the task of educating the child begins with the mother, who can promote the all-round development of the child. He is considered to be the first to teach young children of preschool age, marking the beginning of Kindergarten movement. He emphasized child should be the centre of education system. He stated that education should be child-centered; that is, education should be seen from the developing mind of the child and not from the already developed mind of the adult. In his view, education was to be from within and not from without. Hence the growth of the child was more important than achievement. Pestalozzi gave great importance to games in the development and education of young children. He said that the spontaneous activity of the child leads to learning. He recapitulated the active involvement of the child in learning. He believed in the importance of the great use of objects in teaching of young children. He encouraged the children to observe and express their observations and also promoted the children to prepare albums containing drawings, maps, mathematical problems and natural objects (Gutek, 1968). In his famous book “*How Gertrude Teaches Her Children*”, Pestalozzi developed various educational materials and exercises for preschoolers. According to him, discipline should come from within and should not be forced upon children from outside.

Froebel’s Play way Method and Kindergarten. Friedrich Wilhelm August Froebel (1782-1852) learned the ideas of preschool education from Pestalozzi’s book “*How Gertrude Teaches Her Children*” and made an outstanding contribution to the theory and practice of early childhood education. He recognized that children

needed to be presented with an orderly series of phenomena that would stimulate their minds and produce inner organization and integration (Downs, 1978). Froebel considered childhood has a value in itself and it possesses its own creativeness, it is not merely a preparation for adulthood. The true method of educating a child is considering the mind of the child as a living whole in which all the parts work together to produce harmonious unity. Froebel believed that the growth of the child is directed by an inner force and education should provide opportunities for free self-activity and self-determination for the proper development of the inner force (Safford, 1989). He told that individual realizes his own nature through self-activity and builds up his own world and then unites and harmonises the two. To him, child's own activity is the chief means of education. Froebel felt that play is an indispensable factor in the proper growth of the child. Frost and Joan (1976) have mentioned that according to Froebel, play is the most important phase in the spontaneous development of the child, because it is the pure and natural mode of learning and allows the harmonious exercise of physical as well as intellectual qualities. In his opinion play for the child is as ethical. Realizing the paramount importance of early childhood, Froebel opened the first 'Kindergarten', an institution for children of ages between four and six, at Blackenberg in 1837. The literal meaning of the word kindergarten is 'children's garden'. Froebel found many similarities between a child and a plant. He believed that the process of growth and development of the plant and the child was the same; the plant grows from within, according to the seed that is within. In the same way the child grows from within, unfolding her tendencies and impulses from within. Froebel considered the nursery school as a garden, the teacher as the gardener and the children as the tender plants (Pankajam, 1994). The objective of kindergarten, according to Froebel (1826) is to give the children employment in agreement with their whole nature, to strengthen their bodies, to exercise their senses, to engage their awakening mind and to make them acquainted with nature and their fellow creatures. Froebel developed a carefully programmed curriculum and specific materials. He used two types of play materials in the kindergarten. One was certain geometrical pattern and the other was the essential material for activities such as modeling, drawing, sewing and colouring. The geometrical patterns were known as 'gifts' and the activities as

'occupations'. He found that graded gifts could be used as an effective basis for preschool education. He was credited with developing blocks, a standard early childhood material. His Kindergarten was centered on play and sensory awareness. Art activities, games, finger plays, songs, blocks, stories, crafts and other similar activities included in curriculum. Froebel saw an organic relationship between songs, gestures and artwork. He regarded these as the three co-ordinate forms of expression in the child. What is to be learned by a kindergarten child was first expressed in a song, then it was dramatized or expressed in gestures or movements and lastly illustrated through some creative work with paper or clay. In the opinion of Froebel (1826) teachers of nursery schools must carefully guide children's play with 'gifts' and 'occupations'. She should demonstrate certain activities to children, sing songs and suggest ideas while children are progressing in play. He reminded nursery teachers to avoid external restraint and bodily punishments to children.

Dewey's Progressive Education Movement and Early Childhood Education. John Dewey's (1859-1952) Progressive Education Movement, a movement focused on changing schools to decrease rote learning and shifting from teacher centered to child-centered, made a remarkable change in the teaching-learning process. According to this movement, curriculum experience should be based on children's interests and should involve children in active experiences. In his view, it is through experience of objects and social and physical environment that true knowledge is achieved. He emphasized that a child lives in the present. Therefore, the immediate aim of education is more important and education should be planned to meet his present needs and interests. Dewey (1990) advocated that children should explore the limited area of their school yard, collect specimens of the plant and animal life, learn to classify them, compare their collections with those of others, learn about how their specimens fit into larger ecological systems, and so on. In the process of investigating their own area of the schoolyard, they would read, write, solve mathematical problems and learn to work successfully with others. Early childhood education has benefited from Dewey's work in developing an active curriculum for young children that is integrated rather than divided into subject matter segments. Such a curriculum cannot be set ahead of time, but must be built on

knowledge of the children and their interests. Teachers are responsible for achieving the goals of the school, but the specific topics to be studied to meet those goals cannot be determined in advance (Dewey, 1902).

Montessori's Method of Early Childhood Education. Maria Montessori (1870 - 1952) emphasised that the first six years of life is the most critical period in a child's life. In her view, every child is unique and the rate of progress too different in each one. She believed that collective methods of teaching limit the child's individuality. Hence she treated each child as a separate entity and gave importance to self-activity which leads to better and permanent learning on the part of the child. And says the child should mould himself rather than get moulded. Her method was based on the principle that young children learn in a way that is fundamentally different from how adults learn. She also highlighted the great capacity of children to learn during the early years and called the capacity as absorbent mind. She believed that all the children have a fundamental, inborn intellectual structures that unfolds gradually as they develop, although individual differences are due to different environmental experiences. Much importance was given to the enrichment of the child's environment so that it would create interest and motivate self-exploration. Montessori stressed that the senses are the gateways of knowledge and also asserted that senses are very active during the early years and a lot of learning takes place during this period. She believed that training and refinement of the senses widen the field of perception and provide a strong base for cognitive development. Gross motor and fine motor development is the other feature of her early childhood education. She believed that fostering motor development would aid other activities like writing and drawing. Montessori introduced the concept of the children's house which consisted of a set of rooms for intellectual work, individual play and sleep, rooms for music, games, dining and dressing and a garden. The materials and equipment for preschool children was her another contribution. Those materials were mainly of three type - for training of senses, teaching practical skills and helping children to adopt themselves to the needs of the school life. She arranged the activities in a sequence from easy to difficult and encouraged children to discover and understand concepts by themselves through activities. For

developing the concepts of length, breadth and thickness she made use of building blocks. Arranging cylindrical pieces of the same height but different diameters in an order of increasing diameter she helped children to understand the concept of relative size. Activities like fastening and unfastening of buttons, shoe laces, putting the articles in a room in order, setting a table and moving chairs quietly were encouraged in her school. The purposes of these activities were not simply to develop a skill but also to aid “the inner construction of discipline, organization, independence and self- esteem through concentration on a precise and completed cycle of activity”. She emphasized on the freedom of child. She has provided practical exercises in her school to enable children to learn habits of cleanliness and order. Montessori has stressed on social values and for developing these values in children many co-operative activities such as eat together, clean the plates and serve lunch in turn was performed in her school.

Recommendations of Commissions and Policies on Preschool Education in India

Since independence, the importance of preschool education has been recognized and underlined in number of commissions and policies that have suggested many recommendations on different aspects of preschool education for the quality enhancement of it. The overview of these major recommendations are indispensable to understand the observation of these commissions on preschool education and the development in the field of preschool education.

Sargent Committee (1944). Sargent committee has suggested the following recommendations regarding pre-primary education.

- i. In urban areas where adequate children are available within reasonable radius, separate nursery schools or departments may be started. Nursery classes should be attached to lower schools.
- ii. Pre-primary education should be free but attendance may not be compulsory. Parents should be persuaded to send their children to school voluntarily, particularly in areas where housing conditions are unsatisfactory and where mothers are working.

- iii. Provide social experience to the toddlers rather than formal instruction is the main objective of pre-primary education.

The Secondary Education Commission (1952-53). After the analysing the status of preschool education in India, the commission reported that “At the pre-primary stage, nursery schools of various types exist in some states but on a very small scale. At this stage the child is introduced to the joy of learning through companionship and recreational activities and it is slowly guided in proper habits of life. In several states there are a few such nursery schools run by private organization or by missionaries and where they have been so established, they have done excellent work. The cost involved and the very limited number of trained personnel produce any large expansion of nursery schools” (Secondary Education Commission, 1952-53, p.14).

The Education Commission (1964 - 1966). The commission recognized the importance and need of pre-school education as extensively as possible and stated the objectives of pre-primary education – development of good health habits and basic skills necessary for personal adjustments, desirable social attitudes and manners, emotional maturity, aesthetic appreciation and stimulation of intellectual curiosity. It emphasized pre-primary education especially for children with unsatisfactory home backgrounds. After visualizing the problems in this field, commission put forward the following recommendations.

- i) There should be a state level center for the development of pre-primary education located in the state institute of education. In addition, a pre-primary education development center should be established in each district in a phased manner. Training of pre-primary teachers, preparation of teaching materials and education of parents will be the main functions of these centres.
- ii) The establishment and conduct of pre-primary schools may be left as at present mainly to private enterprise. The state should assist through grant-in - aid especially for catering the needs of children from the under privileged groups.

- iii) For expanding pre-primary education, encouragement should be given to experimentation particularly using less costly methods.
- iv) Children's play centers, focusing the development of social, physical, creative and aesthetic aspect of children for about two hours a day, should be attached to as many pre-primary schools as possible. These should be connected by a specially trained teacher in the primary school.
- v) The role of state should be to maintain children's play centres at the state and district levels, train pre-primary teacher, promote research, support in the preparation of materials and literature needed for pre-primary education and provide supervision and guidance to pre-primary schools and training institutions.
- vi) The pre-primary programme should consists of play activities, physical training, manual and manipulative activities, sensorial education, artistic activities, activities for language learning, personal hygiene and health, nature study and self-service.
- vii) The commission set a target of 5% enrolment of children in the age group 3-5 by 1986.

National Policy on Education (1986). NPE stresses the National Policy on Children and the investment in the nutrition, health, physical, social, mental, moral and emotional development of young children. It emphasized ECCE will receive high priority and be suitably integrated with the Integrated Child Development Programmes, as far as possible. Day care centres will be provided as a support service for universalization of primary education, to enable girls engaged in taking care of siblings to attend school and as a support service for working women belonging to poorer sections.

In the manner of implementation of the programme, NPE highlights the need for child centred, play-focused activities taking into consideration the individuality of the child. It discourages formal methods and introduction of 3R's and demands full integration of child care and preprimary education as a feeder and strengthening factor for primary education and for human resource development in general.

NPE stresses the need for training in all models of ECCE. It states, “as the early childhood care and education programmes are bound to expand considerably over the next two decades, corresponding facilities will be made available for all levels of functionaries” (National Policy on Education, 1986, p.7). It lists the following as parameters for meeting the training requirements.

- i) Initiate a two-year vocational course in ECCE with the objective to create basic skills which can later be adopted through job training for specific situations.
- ii) Strengthen the educational content of ICDS functionaries, by providing appropriate training inputs, resources, materials, etc. and extend it to include a component of day care management.
- iii) Take steps for setting up a higher course in ECCE for senior level functionaries of ICDS, trainers in the various training institutions and the supervising personnel.
- iv) Create a system of accreditation of training institutions dealing with ECCE and review of the existing training programmes
- v) Work out appropriate, task specific flexible models for day care training at field level in rural areas.

Programme of Action (1986)

POA document (1986) analyzed the policy statements, provided the strategy of implementation and elaborated on the various target groups. It emphasized on strengthening the training programme and the ways of improving, monitoring, and evaluation of the various programmes at this stage. It has suggested that by 2000A.D, 70% of the target groups (children 0-6 years) should be covered by all services. It discouraged the early introduction of three R's to young children and advocated to adopt play way method, develop appropriate materials and linkage with community. An important aspect of the suggested change was to “make education a joyful, inventive and satisfying learning activity, rather than a system of rote and cheerless, authoritarian instruction”. It also suggested that preschool education in ICDS needs to be strengthened, health and nutrition components, training of

personal, and play-way educational materials are to be provided in ECE centres, Balwadis run by voluntary agencies need to be converted into total child development centres and day care centres are to reviewed and strengthened.

The Revised Policy Formulation POA (1992). The Programme of Action (1992) attempted to update Programme of Action (1986) taking into account the developments in the intervening period. It underlined the need to strengthen the programme by improving the programme components, co-ordination mechanism, community participation in mobilizing resources, planning and monitoring. It emphasized that the practical training for anganwadi workers and extension workers by anganwadi working centres. Regarding pre-primary schools, it suggested:

- i. add components of nutrition with community / parent participation,
- ii. developing a relationship between home and community
- iii. discouraged the early introduction of the three R's and entrance tests for admission.

It further specified daily activities should be based on the age and developmental level of children and should be flexible. Medium of communication should be mother tongue or regional language. It stressed that the content of the ECE programme should provide inputs for a full development of child faculties which includes

- regular medical checkup of children with follow-up and referral services where necessary
- daily provision of supplementary nutrition
- growth monitoring through maintenance of height and weight through records.
- child centered development and process oriented play activities to expose children to variety of experiences.
- Promote cognitive curiosity and language skills.
- foster joy, creativity and confidence.
- promote muscular development.

The National Policy for children (1974). It has specified that the state should provide adequate services for the children, before and after birth and throughout the developmental period and ensure their full physical, mental and social development. The policy suggested some measures to attain these objectives are; comprehensive health programme, nutritional services to children, expectant and lactating mothers, nutrition education for mothers, free and compulsory education up to 14 years of age, non-formal education for preschoolers, physical education and recreational facilities and special considerations for the children of scheduled castes and tribes. The policy has also framed a National Children's Board and a forum to plan, review and co-ordinate all these services. The policy also felt the need for package programme for the children living in the rural and tribal areas which have been effected through the Integrated Child Development Scheme (ICDS) started in 1975 by the Social Welfare Department.

The highlight of the seventies was the evolution and adoption of the National Policy for Children in 1974, based on the recommendations of the Ganga Saran Sinha Committee. The policy endorsed the UN Declaration of the Rights of the Child. It stated that the Government should provide adequate services to children before and after birth and during the period of growth to ensure their full physical, mental and social development. The measures suggested included, among others, non-formal pre school education also. The Special Nutrition Programme (SNP) was launched in 1970-71 to improve the nutritional status of pre school children, pregnant women and lactating mothers. Another feeding programme started in this decade was Balwadi Nutrition Programme in 1970-71. The aim of this project was to supplement children's daily caloric and protein intake (Mohanty, 1984).

The fifth plan saw a major break-through with the formulation of the National Policy for Children which was approved by the Parliament in 1975. In pursuance of this policy the Integrated Child Development Services Scheme was proposed (Muralidharan and Venita, 1988). This scheme was presented for the first time at the sixth conference of the Indian Association for Pre-school Education (IAPE) in October 1972 at Bangalore by K.V. Natrajan, the then chief, Nutrition and

Social welfare, planning commission, in a paper titled “Integrated Child Care Services -An Approach”. As indicated in the paper, the minimum package of services envisaged in the scheme did not include any component of preschool education. IAPE, therefore submitted a memorandum to the Planning Commission to bring this matter into their notice. After extensive correspondence with IAPE on this matter, the scheme that was finally launched on an experimental basis in 1975 included non-formal pre school education as a component along with other components of health and nutrition. The scheme has been expanding steadily and is presently the largest child development programme in the country.

Doka (1 982) reports that another landmark in the seventies was the setting up of the National Institute of Public Co-operation and Child Development (NIPCCD), New Delhi. Set up in 1975 as an autonomous institute, it was identified as an apex body for training of workers in child welfare. Another function of it was to assist the Government in all technical matters related to child development and promotion of voluntary action in social development

It was for the first time in the National Policy on Education (NPE), adopted in 1986, by the Government of India, that a bold recognition was granted to Early Childhood Care and Education (ECCE) and a clear Government Policy was stated in this regard. The NPE used the term ECCE to include all activities which foster and promote the all-round balanced development of the child during the critical early childhood years, that is the age group of 0-6 years.

The contents of ECCE - Physical, mental, social and emotional development- were very similar to what was being offered in the ICDS package, which also has non-formal preschool education. The policy thus suggested that ECCE be integrated with ICDS wherever possible.

Rama Murti Review Committee (1990). Ram Murti Review Committee (1990) also considered ECCE seriously and made the following recommendations regarding Early Childhood Care and Education.

- i) The scope of the constitutional directive (Article 45) of providing, within a specified time-frame, free and compulsory education for all children until they complete the age of fourteen should be enlarged to include ECCE.

- ii) Since ECCE is a cross-sectoral programme which addresses the intersecting needs of children, women and girls, should receive due attention in all dimensions and stages of education, such as women's education, education of scheduled castes and tribes, elementary education, content and process, teacher training, higher education, etc.
- iii) ECCE should be included in the Minimum Needs Programme.
- iv) The Department of Women and Child Development in the Ministry of HRD at the centre and the Department of Social Welfare in the states should be responsible for the implementation of ECCE in all aspects of its operational design, as recommended in the POA.
- v) The Department of Women and Child Development must also accept the nodal role to stimulate, coordinate and monitor the ECCE work undertaken by other departments namely Labour, Rural Developments, Forest, etc.
- vi) The Department of Women and Child Development and the Department of Social Welfare should seek the setting up of an Inter-Ministerial Committee and is equivalent in the states, comprising of representatives of the department of Labour, Health and Education to assist in planning, co-ordinating and monitoring the ECCE programme.
- vii) Under Article 45, the Department of Education cannot give up its basic responsibility for the education of children from birth to six years, and must ensure that this continuing concern is reflected in action in all dimensions and stages of education.
- viii) With a view to widen coverage and improve retention, the principle of diversity, flexibility, and decentralised funding and management must be incorporated into the policy framework, especially with reference to remote habitations and most under-privileged or migrant communities.
- ix) By linking a rich diversity of models and strategies, these principles must be reflected in the operational design for developing a country wide network of ECCE programmes.

- x) Provision should be made for statutory Creches and Day care centres in both the organised and unorganised sectors for strict implementation of all labour laws dealing with child care services and these laws should also be reviewed to facilitate easier implementation.
- xi) ECCE centre should be linked physically and programmatically with the primary school, whenever possible.
- xii) With the aim of broadening access and improve quality, ICDS should move in the direction of becoming a participatory network of decentralised ECCE centres managed by local groups, preferably poor women's groups under the umbrella of Panchayat Raj institutions, with the Government providing support through essential funding (may be on a per child basis), training, monitoring and guidance.
- xiii) Concrete provisions should be made in financial and pragmatic terms for decentralised and community based implementation of the various models and strategies mentioned in POA, such as (a) to strengthen and upgrade all existing models (b) to promote innovative and experimental models (c) to develop special programmes for specific under privileged or migrant communities and for remote habitations, and (d) to develop and promote media support on a massive scale (as is being done at present for the adult literacy campaign) for generating public awareness and understanding regarding issues relating to care and education of children with 0-6 age group.
- xiv) The basic principles of curriculum and content of ECCE should be translated into localised content.
- xv) Effective field strategies, supported by a systematic media campaign (as in adult literacy), need to be urgently implemented in order to discourage formal teaching methods and early introduction of 3R's in ECCE programme, both in the private and the government sectors.
- xvi) Appropriate and acceptable ratios of adults to children in ECCE programmes for different age-groups and models should be worked out as guidelines for agencies implementing ECCE and adequate provision be made to proportionately augment the staff of the centres.

- xvii) Considering the skilled nature of work in ECCE and the links between programme quality on the one hand and wages, job satisfaction, social status and motivation on the other hand, the policy for remuneration of ECCE workers spelt out in POA must be implemented with immediate effect.
- xviii) The overall responsibility of teacher education and personnel training for ECCE at all levels must be accepted by the Department of Education, both at the centre and the States/UTs in close coordination with the Department of Women and Child Development at the centres and Department of Social Welfare in the states, while developing mechanisms to respond to the needs and perception of the users and programme implementers such as the Department of Labour, Forest, Irrigation, works and Housing, Rural Development etc., as well as the private sector. For the other components of ECCE such as health, nutrition etc. a close co-ordination with the social and other related departments/ agencies would be necessary.
- xix) Working through educational complexes, DIETS should assume responsibility for training the teachers and other staffs in ECCE and establish a field based networking relationship with ECCE programmes. For this purposes DIET should build up their own training capacity.
- xx) Building upon the base of available training pattern, a network of modular training programmes for ECCE must be developed at grass roots, para professional, professional and supervisory level through vivid models and strategies, with content to meet the holistic goals of ECCE and participatory methodology using the basic principle of internship with different degrees of field placement.
- xxi) As specified in POA, a system of accreditation of training programmes and agencies in ECCE must be developed.
- xxii) Action should be taken shortly to start Vocational Education of ECCE at the plus two level in all States/UTs. The feasibility of organising ECCE training following class VIII should be examined on a priority basis with a view to widen the social base and availability of ECCE workers.

- xxiii) Measures should be initiated to restructure the training programmes of elementary school teachers all over the country for integrating and emphasising the child education in the primary schools with a view to enhance schools' capability to receive and retain children.
- xxiv) The ICDS and related centrally sponsored schemes of ECCE may be shifted to the States/UTs following the completion of the present phase. The States/UTs plans should then be proportionately augmented with additional funds with conditionality of non-liability and accountability.
- xxv) The management of Anganwadis and other ECCE centres should be fully handed over to the voluntary organisations and or local community groups through the Panchayathi Raj framework. Village level or Mohalla level committee may be constituted by local bodies, with at least half of the members being poor women and appropriate representation of Anganwadi workers, for planning, co-ordinating and monitoring of a cluster of community based centres in a village or town. Needless to add, the principle of community control over ECCE programme would carry with it the principle of full public accountability to the community.
- xxvi) So as to ensuring diversity, flexibility and responsiveness to local needs and socio-cultural conditions, the community groups, and/or village or mohalla-level committees would be responsible for designing the model and strategy for the local ECCE centre, while being expected to ensure the minimum programme recommended by the state government. Experimentation and innovation in approach to training, recruitment of personnel and management would be encouraged and be provided for.
- xxvii) Regarding financial and social audit, the village or Mohalla level Committee or the community group is responsible for managing the ECCE centre would also be free to mobilize additional resources, in addition to the state resources.
- xxviii) ECCE should be encompassed in the charter responsibilities of the Educational Complexes proposed in the school education sector. Women and other community groups managing ECCE centres and Anganwadi

workers may be represented adequately on the executive bodies of the complexes.

- xxix) The role of Educational complex would be not only to develop a perspective plan for ECCE for the region covered by it but also to assist the local committees and groups by arranging for training through DIETS, supplying educational and other materials, guidance in budgeting, co-ordination, promoting mutual exchange of information, and most importantly, monitoring.
- xxx) Since the ECCE centre would be accountable to the community it is serving, the monitoring role of educational complex and also of the State Government assumes special significance. While the educational complex would make its report on individual centres available to the village/community as an input in the awareness raising process, the state Government would monitor the complex as a whole and release its report for public action at the Block or District level. In this frame work, supervision as a means to control and improve performance becomes superfluous.
- xxxi) The role of the State Government may be confined to: ensure the essential funding (may be on a per child basis) for ECCE through the Panchayathi Raj Institutions/Educational complexes; spell out policy imperatives and broad guidelines; provide training through SCERT/DIETS; supply materials not available locally; promote lateral exchange and analysis of information and experiences amongst educational complexes; co-ordination; monitoring; and raising public awareness and giving media support.
- xxxii) The state government should also ensure that representatives of the user agencies and programme implementers such as Departments of Labour, Irrigation, Forest, etc, as well as voluntary organisations are included in the state level structures set up for planning, programme formulation, designing curriculum, and development of training models and strategies, so that their needs and perceptions find adequate expression.

- xxxiii) A central fund for child care services should be raised at the national level.
- xxxiv) The Government should provide considerably a higher amount for ECCE, keeping in view the estimated requirements of Rs.4900 crores per annum even for achieving the POA targets to be reached by the end of eighth plan in a phased manner.
- xxxv) A 10-year action and resource allocation plan for building up a national network of child care services be prepared, hence at least 70% of the children below six would be covered by an essential package of services by 2000 AD as recommended in POA.
- xxxvi) Funds for the national network may be drawn from five sources as given below: a) Government: As per Article 45 of the constitution, the Central and State Government would have to bear the major responsibility of funding the programme. These funds may be drawn by pooling together the provisions made in the respective budgets of the departments of Education, Women and Child Development, Health and Labour. To facilitate this, an Inter-Ministerial Committee may be instituted. The Government Departments which employ labour (eg: Irrigation, Rural Development, Forest, Works and Housing, etc.) should henceforth be required to make a proportionate provision for expenses on child care services and contribute this money to the Central Fund. b) Employers: A special welfare for the central fund should be levied on all employers, whether in the private or in the public sector, regardless of the sex of the workers employed. No distinction need be made on the basis of the type of the employment - salaried, daily wage or some other form. c) Local bodies: Panchayaths, Municipalities and corporations may be encouraged to raise additional funds for ECCE, through special local cess/ taxes. d) Parents: With community control, it should become possible for the village/Mohalla committee to raise a certain fraction of the needed resources from the parents at the local level as a voluntary contribution on a monthly basis. In

the organised sector, this contribution could be collected through the trade unions. e) Donations: Tax incentives may be given to the central fund.

xxxvii) For undertaking the preparatory work, a special allocation of additional funds, Rs.100crores be made for 1991-92, consisting of an awareness to raise media campaign, upgrade the existing ICDS and other centres, develop decentralised structures at the grass roots, build up training programmes and promote action research in alternative models.

xxxviii) Rather than any higher level structures, DIETS and Educational complexes should have a major role in both planning and execution of the system of internal monitoring and evaluation.

xxxix) An independent system of monitoring and evaluation of the programme at the level of Educational Complexes only (ie. not at the level of individual centres) should be organized by the State Government and ensure that its reports are available for open and public consideration at the District or Block level.

xl) One major objective of these exercises should be to use the findings as a direct input for regeneration or strengthening of the programme at the level. For this, it would be necessary to foster lateral interaction and exchange of findings (complex to complex or centre to centre or centre to complex), rather than exclusive vertical and upwards flow indicated in the POA. Monitoring and evaluation exercises should also be released for open interaction at both the formal and informal levels with a view to build up public pressure for programme efficiency.

xli) The index of Human Development should be a dynamic concept and be made public as a means of monitoring as well as community intervention in the programme.

The National Curriculum Framework for School Education, 2000 (NCERT) suggests providing two years of pre-schooling for every child. It states, "The experiences to be provided at the very beginning of education play a very crucial role in the development of child's personality and have a strong bearing upon later

education of children. Learning at this stage may be characterized by the activities such as group activities, play-way techniques, language games, number games and the activities directed to promote socialization and environmental awareness among children” (National Curriculum Framework for School Education, NCERT, 2000). The curriculum stresses that the need of adequately trained teachers to achieve the aim. The training programme must be attuned to the objectives of ECCE.

Report of the Innovations in Early Childhood care and Education in the context of SSA by NCERT (2003) also asserted that the quality of education in pre-schools depends to a great extent upon the quality of teachers. The quality of teachers depends to a greater extent upon the quality of the training programme.

In spite of all the recommendations of many commissions and committees the education of the under six is still neglected. In the process of planning and formulating policies related to ECCE, one major drawback is the lack of a well-developed research especially in the field of teacher preparations. The analysis of the present condition led to the current policy.

National Education Policy 2020. Recognising the critical importance of early years of children, policy suggests that strong investment in ECCE has the potential to give all young children access, enabling them to participate and flourish in the educational system throughout their lives. Policy made the following recommendations based on the thorough review of the previous policies.

- i. It aims to achieve universal provisioning of quality early childhood development, care, and education as soon as possible, and no later than 2030, to ensure that all students entering Grade 1 are school ready.
- ii. The overall aim of ECCE will be to attain optimal outcomes in the domains of: physical and motor development, cognitive development, socio-emotional-ethical development, cultural/artistic development, and the development of communication and early language, literacy, and numeracy.
- iii. A National Curricular and Pedagogical Framework for Early Childhood Care and Education (NCPFECCE) for children up to the age of 8 will be

developed by NCERT by following the guidelines, the latest research on ECCE, and national and international best practices and incorporating the numerous rich local traditions of India developed over millennia. The framework will serve as a guide both for parents and for early childhood care and education institutions.

- iv. The predominant goal will be to ensure universal access to high-quality ECCE across the country in a phased manner. Special attention and priority will be given to districts and locations that are particularly socio-economically disadvantaged. ECCE shall be delivered through early-childhood education institutions such as (a) stand-alone Anganwadis; (b) Anganwadis co-located with primary schools; (c) pre-primary schools/sections covering at least age 5 to 6 years co-located with existing primary schools; and (d) stand-alone pre-schools - all of which would recruit workers/teachers specially trained in the curriculum and pedagogy of ECCE.
- v. Anganwadi Centres will be strengthened with high-quality infrastructure, play equipment, and well-trained Anganwadi workers/teachers for universal access to ECCE. Anganwadis shall be fully integrated into school complexes/clusters, and Anganwadi children, parents, and teachers will be invited to attend and participate in school/school complex programmes and vice versa.
- vi. It is envisioned that prior to the age of 5 every child will move to a “Preparatory Class” or “Balavatika” i.e., before Class 1, which has an ECCE-qualified teacher. The learning in the Preparatory Class shall be based primarily on play-based learning with a focus on developing cognitive, affective, and psychomotor abilities and early literacy and numeracy. The mid-day meal programme shall also be extended to the Preparatory Classes in primary schools. Health check-ups and growth monitoring that are available in the Anganwadi system shall also be made available to Preparatory Class students of Anganwadi as well as of primary schools.

- vii. To prepare an initial cadre of high-quality ECCE teachers in Anganwadis, current Anganwadi workers/teachers will be trained through a systematic effort in accordance with the curricular/pedagogical framework developed by NCERT. Anganwadi workers/teachers with qualifications of 10+2 and above shall be given a 6-month certificate programme in ECCE; and those with lower educational qualifications shall be given a one-year diploma programme covering early literacy, numeracy, and other relevant aspects of ECCE. These programmes may be run through digital/distance mode using DTH channels as well as smartphones, allowing teachers to acquire ECCE qualifications with minimal disruption to their current work. The ECCE training of Anganwadi workers/teachers will be mentored by the Cluster Resource Centres of the School Education Department which shall hold at least one monthly contact class for continuous assessment. In the longer term, State Governments shall prepare cadres of professionally qualified educators for early childhood care and education, through stage-specific professional training, mentoring mechanisms, and career mapping. Necessary facilities will also be created for the initial professional preparation of these educators and their Continuous Professional Development (CPD).
- viii. ECCE will also be introduced in Ashramshalas in tribal-dominated areas and in all formats of alternative schooling in a phased manner. The process for integration and implementation of ECCE in Ashramshalas and alternative schooling will be similar to that detailed above.
- ix. The responsibility for ECCE curriculum and pedagogy will lie with MHRD to ensure its continuity from pre-primary school through primary school, and to ensure due attention to the foundational aspects of education. The planning and implementation of early childhood care and education curriculum will be carried out jointly by the Ministries of HRD, Women and Child Development (WCD), Health and Family Welfare (HFW), and Tribal Affairs. A special joint task force will be constituted for continuous guidance of the smooth integration of early childhood care and education into school education.

Types of Preschools

In India, preschool education is provided through public and private streams. Anganwadis, Kindergarten and Montessori preschools are the major category of preschools. Though these preschools have started before many decades, still continuing with some modifications. Apart from these typical preschools there are various types of preschools are emerging in private sector recently without any regulation and control by the Government. Though the exact number is unavailable, evidence suggests that enrollment in private preschools are rapidly increasing (Singh & Mukherjee, 2017).

Atypical preschools follow diverse international curricula of either European or Islamic versions. European curriculum includes Waldorf, Early Years Foundation Stage (EYFS), Whystles and Maple Bear Canadian. Different types of Islamic preschools are running by numerous Islamic organizations on varied heads. All these international curricula are adapted to the local demands and have incorporated different languages too.

Parents are more attracted to atypical preschools due to the diversity in their curriculum and related practices. Hence many educated parents choosing these type of preschools in the private sector. A recent study conducted among 13,000 children in several states in India found that about 43% of the children attended private preschools (Centre for Early Childhood Education and Development, 2015). Each type of preschools in Kerala is explicated here.

Anganwadis. Integrated Child Development Services, a centrally sponsored scheme, is the largest major national programme that addresses the needs of children under the age of six years. The health and nutrition needs of the child cannot be addressed in isolation from those of the mother. Therefore, the programme also targets pregnant women, nursing mothers and adolescent girls. ICDS Scheme was launched in 1975 with the objectives to improve the nutritional and health status of children in the age-group 0-6 years; to lay the foundation for proper psychological, physical and social development of the child; to reduce the incidence of mortality, morbidity, malnutrition and school dropout; to achieve effective co-ordination of

policy and implementation amongst the various departments to promote child development; and to enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education. The scheme seeks to provide an integrated package of services such as supplementary nutrition, immunization, health check-up, referral service, health and nutrition education and pre-school education. The ICDS Scheme is implemented through a vast network of 33115 Anganwadi Centers.

The Non-formal Pre-school Education (PSE) component of the ICDS may well be considered the backbone of the ICDS programme, since all its services essentially converge at the anganwadi – a village courtyard. Anganwadi Centre (AWC) – a village courtyard – is the main platform for delivering of these services. These AWCs have been set up in every village in the country. In pursuance of its commitment to the cause of India's children, present government has decided to set up an AWC in every human settlement. As a result, total number of AWC would go up to almost 1.4 million.

PSE, as envisaged in the ICDS, focuses on total development of the child, in the age up to six years, mainly from the underprivileged groups. Its programme for the three-to six years old children in the anganwadi is directed towards providing and ensuring a natural, joyful and stimulating environment, with emphasis on necessary inputs for optimal growth and development. The early learning component of the ICDS is a significant input for providing a sound foundation for cumulative lifelong learning and development. It also contributes to the universalization of primary education, by providing to the child the necessary preparation for primary schooling and offering substitute care to younger siblings, thus freeing the older ones especially girls to attend school. Major areas of Anganwadis namely aspects of curriculum, teaching- learning materials, teaching-learning practices, assessment and demographic details are explained in chapter IV in detail.

Kindergarten. Friedrich Froebel introduced Kindergarten education, popular preschool education system throughout the world and was declared “by far the most original, attractive and philosophical form of infant development, the world

has yet seen.“ It was also immensely influenced by the Idealistic philosophy initiated by Kant and developed by Fichte, Schelling and Hegel. The basic principles or postulates of Froebel’s educational philosophy are the principle of unity, development and self-activity. Froebel’s aims of education are “living out” and giving expression to the child’s ideas, emotions, beliefs, desires and purposes in him. Education must be provided in accordance with his inner needs and must help nature to guide it to ends higher and loftier than those that would grow unaided. “Kindergarten” is a German term which means a “children’s Garden”. Froebel conceived the school as a garden, the teacher as the gardener and the students as tender plants. This meaningful word “Kindergarten” occurred to him all of a sudden when Froebel was roaming with some friends in spring and saw the valley of the river Rhine stretching out before him like a great garden. He exclaimed, “Eureka: I have found it”. To him the school would be a kindergarten where young children may grow as naturally as plants under the guidance of the teacher who should actually behave as an expert gardener. Froebel discovered analogy between a child and a plant as he believed that the process of growth and development of the child and plant is the same. The plant grows from within according to the nature of the seed that is within. In the same way the child grows from within. Both of them unfold the inner and innate tendencies and impulses spontaneously.

Froebel attached great importance to the earliest years of the child’s life. Kindergarten seeks to help the child to express himself and thus, produce development in him. Leaves and branches-spring out of the tree according to the principle hidden in the seed. Similarly, the child grows naturally by virtue of the inborn tendencies and potentialities. His innate interests and impulses are to be identified first by the teacher. The school has to provide all the facilities for self-expression and self-realisation of the child. The work of the Kindergarten is based on self-activity which aims at acquisition of knowledge for growth and development. Knowledge, according to Froebel is only a means to an end-growth and development according to his innate abilities and interests. Teacher’s role is to organise and guide the free and continuous development of the pupil through play and for this, he should know the native interests and impulses of children. Play is the most important

way for harmonizing the feelings and the activities of children. Kindergarten is a miniature society for children. The young citizens learn here to move freely with consideration for each other. It is a school without books. There are set intellectual to exercises. It is permeated with play, freedom and joy. Mutual help, cooperation and participation are the basic to the philosophy and functioning of the Kindergarten. The Kindergarten, thus, seeks to achieve the fullest individual development through self-activity and play and social cooperation. Froebel insists an all-round development of children is the main aim of Kindergarten. Its curriculum consists of manual work, religion and religious instruction, Natural Science and Mathematics, language, and art and objects of art. The Kindergarten is a school without books and without rigid mental activities, Self-activity, creativeness and social cooperation find complete application and concrete expression. Three coordinate forms of expression in it are song, movement, and construction. The child expresses his feelings and ideas through singing, gestures and construction. Everything that is to be taught to the child must be expressed to him through these activities. These three activities should go together through the means adopted for each of them may be quite distinct and separate. Froebel was of opinion that songs are the common objects of life and are intended to exercise the infant's limbs and muscles. Every song should be related to the physical, mental and moral needs of the child. The selection and arrangement or ordering of the songs to be used in a Kindergarten is determined according to the development of the child. Children are, according to Froebel, quite restless both in body and mind. They are interested to move their limbs and muscles. They are inquisitive and curious. Froebel, keeping this in view, developed a set of aids called gifts and a series of activities called occupations. They are mainly used for stimulating students activities. In the Kindergarten all attempts are made for unfolding the innate potentialities of children. But such unfoldment is guided, not moulded and children's development is nourished and nurtured, not imposed and forced. The playful experimental and creative activities that are promoted and emphasized for early childhood education owe immensely to the Kindergarten Education.

Froebel has given the right principle of pre-school education when he says "Educate every child as if he were your own". His emphasis on spontaneity, joy,

freedom, self-activity, play, sense training and nature study cannot be underestimated in the present era. His passionate appeal and deep concern for the children's well-being is unique and incomparable when he aptly says, "Come, let us live for children". Most of the modern tendencies and trends in education emerge from his philosophy and ideologies. Many ideas in modern curriculum and methods as well media for the children's education have been given by him. Modern education in general is highly indebted to him and his ideas as regards aims of education, methods of teaching, use of media and materials, class management and school organisation are still relevant.

Montessori Preschools. Maria Montessori realized that the first six years of life is the most crucial period of a child's life and believed that every child is unique and the rate of progress is also different for each child. To her opinion collective methods of teaching is crucial the child's individuality. She treated each child as a separate individual and recommended that the child should be helped and guided in a manner that helps in proper growth and development.

Montessori asserted that the senses are the gateways of knowledge. She pointed out that senses are very active during the early years and a lot of learning takes place during this period. She also attached the importance of gross motor and fine motor development as a part of the early childhood education. She believed that fostering motor development would facilitate other activities like writing and drawing (Kamer, 1976). Montessori developed and practiced the concept of the children's house in her institutes. It consisted of a set of rooms for intellectual work, individual play and sleep, rooms for music, games, dining and dressing and a garden.

All subjects are interwoven; history, art, music, math, astronomy, biology, geology, physics, and chemistry are not isolated from each other and a child studies them in any order he chooses, moving through all in a unique way for each child. At any one time in a day all subjects - math, language, science, history, geography, art, music, etc. are being studied, at all levels.

The materials and equipment designed by Montessori for preschool children was another contribution to her. Those materials were mainly of three type - those

for the training of senses, those of teaching practical skills and those for helping children to adopt themselves to the needs of the school life. She arranged the activities in a series from easy to difficult and encouraged children to discover and understand concepts by themselves through activities.

For developing the concepts of length, breadth and thickness she made use of building blocks. Arranging cylindrical pieces of the same height but different diameters in an order of increasing diameter she helped children to understand the concept of relative size. Activities like fastening and unfastening of buttons, shoe laces, putting the articles in a room in order, setting a table and moving chairs quietly were encouraged in her school. The purposes of these activities were not simply to develop a skill but also to aid the inner construction of discipline, organization, independence and self-esteem through concentration on a precise and completed cycle of activity. She has provided practical exercises in her school to enable children to learn habits of cleanliness and order.

The practical application of the Montessori method is based on human tendencies – to explore, move, share with a group, to be independent and make decisions, create order, develop self-control, abstract ideas from experience, use the creative imagination, work hard, repeat, concentrate, and perfect one's efforts.

The steps of learning any concept are analyzed by the adult and are systematically offered to the child. A child is always learning something that is indirectly preparing him to learn something else, making education a joyful discovery instead of drudgery.

Montessori has stressed on social values and for developing these values in children many co-operative activities such as eat together, clean the plates and serve lunch in turn was performed in her school. Montessori method emphasized an individualized teaching. She thought that the function of a teacher is to direct the child and not to teach them. She insisted that the teacher should have an intimate knowledge of the mind and character of each child. She should keep the physiological records of each child's development: the height, weight and other measurements.

There are no text books, and seldom will two or more children be studying the same thing at the same time. Children learn directly from the environment, and from other children – rather than from the teacher. The teacher is trained to teach one child at a time, with a few small groups and almost no lessons given to the whole class.

Multi-aged grouping is one of the features of Montessori system which is based on periods of development. Children are grouped in three or six-year spans and have the same teacher for this period. The first group is called the “Nido” and consists of children in necessary daycare for working parents. This is age 0-1, or “until walking”. The second group is known as the “Infant Community” and is from around one year to age 2-3. The third group is the “casa dei bambini” and is from 2.5-6 or 3-6, depending on the training of the teacher. The fourth group is from 6-12, a larger age span because the children for this 6 years exhibit the same tendencies and learning habits.

The 6-year-old learns from and is inspired by children much older, and the teaching is done by older to younger as well as younger to older. This large age span helps to avoid the tendency of some teachers to over-schedule and over-direct students who need ever more freedom of time-planning and research. Scientific observations of the child’s development are constantly carried out and recorded by the teacher. These observations are made on the level of concentration of each child, the introduction to and mastery of each piece of material, the social development, physical health, etc. on.

There are no grades, or other forms of reward or punishment, subtle or overt. Assessment is by portfolio and the teacher’s observation and record keeping. The real test of whether or not the system is working lies in the accomplishment and behavior of the children, their happiness, maturity, kindness, and love of learning, concentration, and work.

Waldorf Education. In 1919, Rudolf Steiner, an Austrian scientist and philosopher, introduced Waldorf education which integrates spiritual and scientific understanding and experiences. His school challenged the conventions of the time. It addresses the needs of the growing child. As Waldorf education give importance to

experiences, music, dance, literature, writing, theatre, legends and myths are not simply the subjects to be studied, but to be experienced which helps to develop students' intellectual, social, emotional, physical and spiritual capacities. Waldorf teachers eliminate the need for competitive testing, academic placement, behaviour-based rewards and replace them with the motivation and generating enthusiasm that arises from within. It prepares students for lifelong learning and instill a desire to develop their unique capacities fully. It radically contrasts with mainstream education. Moreover, it questions the mechanistic, materialistic, and consumerist mentality of modern society and encourages a non-materialistic view centered on the inner development of the individual. Association of Waldorf Schools of North America (AWSNA) claims that there are more than 800 Waldorf schools in over 40 countries.

Waldorf education in India began in 1969 with the lecture tour of a Waldorf teacher from the Netherlands, Daan van Bemmelen, accompanied by the eurythmist Christine Hebert and Walter Soesman, across Mumbai, New Delhi, Hyderabad, Bengaluru, Chennai, Kolkata and Dehradun. The elements of Waldorf education were incorporated in schools such as Nanhi Duniya in Dehradun and Chethana in Bengaluru. Then Himgiri Waldorf Boarding School in Himachal and Sloka, the first Indian Waldorf day school, in Hyderabad began in 1982 and 1997 respectively. There are hundred plus Waldorf preschools in Kerala. At present 1 in 1000 preschools in India and 1 in 200 preschools in Mumbai adopted Waldorf education.

Early Years Foundation Stage (EYFS). The Early Years Foundation Stage is the standard framework introduced in England for the education of children aged zero to five years which is inclusive of needs of children, recognizing the need to respond to difference of ethnicity, culture, religion or belief, home language, family background, disability, gender or ability (Ang, 2010). It was published in 2007 and officially implemented in 2008. It was developed from the theories of Piaget, Vygotsky and Montessori. It asserts that cognitive development of the child during the early years is key to the overall progress of the child.

According to Nutbrown and Carter (2009) EYFS intend to elevate standards and improve access to positive experiences for all children. The four regulatory principles of EYFS framework are every child is unique, children learn to be resilient and independent through positive relationships, children learn and develop well in conducive environments and children develop and learn in various ways at different rates (Thornton & Brunton, 2010).

Communication and language, physical development, personal, social and emotional development, literacy, mathematics, understanding the world and expressive arts and design are the seven areas of learning in EYFS (Wood & Attfield, 1996). The EYFS follows a summative assessment at the end of the foundation stage for collecting evidence over the two years to compile the profile using observation, analysis and planning (Nutbrown & Carter, 2009). Tickell (2011) highlighted that the outcomes of EYFS for young children were improving and also pointed out that early identification of need followed by appropriate support is the most effective. Recognizing the features EYFS, number of schools are following it in India, but the number is very less in Kerala.

Whystles. As a research, Whystles started in 2012 in Kerala and implemented in 2016. It is unique in the sense of blended curriculum. At present there are 12 preschools in Kerala following Whystles preschool curriculum.

Though it is based on Early Years Foundation Stage, the elements of different early childhood philosophies viz., Montessori preschool, Froebel's Kindergarten, Waldorf education, etc. are merged in Whystles. It focuses to develop various skills such as executive function, self-regulation skills and 21st century skills providing highly explorative and stimulating learning experiences to the children.

The major areas of development in Whystles are knowledge and understanding of the world, problem solving and numeracy, physical and motor, social and emotional, language, communication and literacy, and art, music and design. Curriculum incorporated specially designed activities also to meet the requirements of the children with developmental delay.

Activity and play based learning, freedom to explore and experiment, fostering of independence, designing the environment to act as a learning aid with

structures and attractive learning spaces, real life experiences, interconnected learning units and use of self-directed didactic materials for conceptual development are the features of Whystles. It offers exercises of practical life, sensorial activities, arithmetic, languages and social activities which help children develop their confidence, intelligence, social and emotional skills and motor skills, to make choices, become independent and take charge of their own learning. Besides, the curriculum follows theme based learning which helps children learn about self and the world around them. Every child is considered as an individual, the development is monitored continuously and thus assessed individually based on their developmental milestones using various modes. The unique features of Whystles helped to expand to different areas in the world with 15 branches. At present 12 preschools in Kerala following the same.

Maple Bear Canadian Preschool. In India, it is a cooperative undertaking between Maple Bear Global Schools Ltd, Canada and Modi Edutech. Though Maple Bear preschools are present in 16 countries in over 5 continents, only a few schools are in India, particularly in Kerala.

It grew out of the Canadian Education Centre Network (CECN), works as non-profit organization backed by the Government of Canada and the Asia Pacific Foundation of Canada in 2007. It sets high standards to ensure children's readiness for elementary school. The focus is on building quality preschools that will withstand the test of time. The curriculum was developed by Canadian experts, and are being continually updated to ensure that it reflects the very best in early childhood education because it considers there is nothing more important than children. It delivers a unique system called the English immersion learning system based on Canadian educational pedagogy, which aids in speaking language naturally as first language in any context. It works on the premise that learning two languages at an early age offers both linguistic and cognitive advantages.

The areas included are English Language Arts, Personal and Social Development, Science, Creative Activity, Physical skills and well-being, Mathematics and Language development and acquisition. As play and play based learning as a critical component, learning language, developing literacy, exploring numeracy and

discovering the natural world are doing through activities and experiences that are play based. It assures that the children will become curious, confident, independent, analytical, flexible, creative, prepared and global. The curriculum is developed to make a best start in life and enable them to fulfill their potential. It provides children the wide-ranging knowledge and skills that lays foundation for good progress through school and life.

Islamic Preschools. Recognizing the importance of early years, Egyptians started Islamic preschools at first in the world with the aim of cultivating the natural instincts of children in a comprehensive and balanced manner by inculcating Islamic values among the young children. It has spread steadily to the different continents and countries. The first Islamic preschool in India entitled Al-Fitrah started in 2012 by Anjuman Thahlil Qura'n, the first institution for Hiflu in Malabar, after visiting Islamic preschools in Egypt (Gafoor & Sanam, 2020). It put forward a curriculum assimilating Islamic education and general preschool education with an integrated continuous evaluation process. Different Islamic preschools also originated lately which are directed by many Islamic organizations on various heads such as Al-Birr, Zahrathul Qur'an and the like. But all are similar in nature and focusing on learning Qur'an, Arabic, and religious studies along with other subjects. The aim is to nourish and nurture the instincts of children in a comprehensive and balanced manner following the philosophy of Islam being a way of life. Furthermore, teaching Islam was neither confined to a specific instruction time nor limited to learning rituals and beliefs, it is beyond these boundaries.

Characteristics of Preschoolers

The early childhood period, extending from two to six years of age, is unanimously acknowledged for its importance due to the most rapid mental growth. No other period of life is so susceptible and responsive to positive environmental influences which broaden his development. The significance of early years is highlighted in the Freud's studies of personality maladjustments which could be traced to unfavourable childhood experiences (Hurlock, 1942). The early period is ideal for learning new skills and the child is learning every moment of life. So far as

the aspects of development are concerned, broadly five aspects: physical aspect, health aspect, social and emotional aspect, cognitive aspect, and aesthetic aspect. Even though the development is integrated, all these aspects are described in detail.

Physical Development. When the child becomes two years old and acquires the skill to stand, walk and run and is able to play different games, his muscles, both finer and larger, grow stronger and bring more strength to his body. As it is essential to develop muscles stronger to keep the body more fit for day to day work, a pre-school worker should plan for different games and other forms of physical exercises so that along with development of muscles the surplus energy with the child is properly utilized.

Along with development of muscles, it is also quite needed to have proper co-ordination between different muscles' movement resulting proper body posture in sitting, standing, walking and running, proper care while handling different objects, proper care in transporting things from one place to other, and care in transferring liquids from one container to the other etc.

In general, muscular co-ordination is essential for having proper movement of the entire body for doing any work skillfully. This can very well be achieved when the children get ample scope to play and do different work where some amount of care is necessary. Starting from hard works like digging, earth, carrying loads etc. up to works like drawing and painting, clay modelling and milking the cow etc., there is scope for muscular co-ordination.

In order to enable the young children to maintain a good health we have to look to their food habits, personal and environmental cleanliness and preventive measures for different diseases. For that, looking to the age level and calory requirement for that age to keep the body function and grow, we have to prescribe a balanced diet for them. This will prevent malnutrition and give the body resistance and strength to fight against the attack of many diseases.

The child gets some diseases due to want of personal hygiene. It is necessary for the child to keep his body clean, wash his teeth and clean the tongue regularly,

develop proper toilet habit, comb his hair and cut the nail to keep it clean, wash his hands before and after taking food etc. to keep his body away from some diseases. Along with personal cleanliness, the surroundings or the immediate environment in which the child spends most his time, needs to be kept clean. Those are his living room, class room, school compound, toilet and the community at large. This will fetch him and other children an atmosphere in which they can get fresh air to inhale and clean water to drink. Hence a teacher of Pre-school education should try to cultivate interest in them to volunteer for keeping the surrounding clean and thereby lead a healthy life.

After advancement of science it is now seen that these diseases are controlled in case the children are given preventive measures for these diseases. Preventive measure for Titanus even starts from the pre-natal stage. For many of the diseases preventive measures are given to the children at the early stage. Hence for a better health, our children have to receive these preventive measures in order to develop resistance against these diseases, thereby maintain a good health.

Social Development. Man is a social being. He lives in a society with his family members for mutual benefit and safety. A child being the future adult member has to develop the quality of a social being. Hence as parents, teachers and adult members we have to provide the children with situations where they can grow and develop socially. For this he has to establish proper relationship with his peers and elders. He has to learn to live a harmonious life with the community and develop self-realisation and sense of security. He has to acquire good social habits and proper manners. Hence, to grow as a socially desirable person, he has to observe certain social customs and behave as a part of the society. As these children are quite young to do all these things, the elders have to design direct and indirect programmes so as to cultivate these qualities in their children. It is possible through continuous interaction with elders and active participation in social functions. We have a number of societies which differ among themselves in anticipating required manner and behaviour from their members. A child is expected to grow and develop as per norms fixed by the other society, even though it is different from the norm fixed by the other society.

This social aspect is always relative and subject to modification as per the need of time. Even it can undergo frequent and silent changes when felt by a majority of people. But what ever norm is fixed from time to time we have to adjust, otherwise we may be taken as unsocial elements. When some one goes against the law fixed by the society he is considered to be anti social and finds no place in the society. Hence, we have to develop programmes, even through games and play, story telling and singing songs etc. through which we can allow a child to develop socially.

Emotional Development. Child by birth is self centred. He normally reacts when some one attacks his ego and tries to snatch away his share. This reaction may make him emotionally disturbed and unbalanced and create some further Hence, it is the duty of the teachers to enable the children to learn how to control their emotions. This is to be taken up through different activities specially designed for it. Social and emotional developments very often come together. Through mass play and games, story telling, drawing and painting competitions, going round different. places of importance together and singing and dancing together, one can help in bringing emotional development with children.

Cognitive Development. This aspect of development refers to the knowledge in different directions. Mainly we take care of three major areas while planning to have development in cognitive aspect. These are language skill, computational skill, and exploration of the environment.

So far as the language is concerned, all children's minds are like clean slates at the time of birth. They can pick up any language gradually as their medium of expression when exposed to a community speaking a definite language. Even two identical twins can speak, two different languages equally well if brought up separately from the very beginning in two different languages. It may be difficult for us, the elders, to acquire skill in a foreign language but a three year old child will not face so much difficulty. In having fluent conversation in that foreign language if exposed from the beginning.

For language development a child has similarly to be provided with required situations, where he can be encouraged to respond freely, express as far as

practicable spontaneously and correctly, ask questions, answer questions, hear and recite poems, hear stories and tell the stories, narrate simple events and incidents, imitate the sounds of birds and animals, describe what is seen in the screen, tell a story looking to the pictures, carry out discussion with his peers and elders, and pronounce common words correctly, etc.

Sometimes children show extra curiosity to know about some aspects which may appear to the elders vague. Eventhen a child should not be made disheartened with orders to keep quiet. This may have the bad effect of making the child shy and a back bencher. It is a good sign for language development that these young children are even capable of starting conversation with animals and inanimate objects. When a child plays along he goes on speaking a lot of things to himself which definitely counts towards the development of language.

It is very often seen that they learn to speak some unsocial and unparliamentary words which may disturb elders. The elders are solely responsible for this. They might be speaking such words. while they lose temper out of rage or when abuse others. Hence, it is very important for the elders to control themselves while speaking before the children. They should start having conversation with the young children in a simple and commonly used language so that it is easy for the child to acquire skill in the language.

We expect the child to acquire some simple mental arithmetical operations like counting at least upto 50 and doing simple additions and subtractions within 10. They are not required to do this in pen and paper. With the help of different animate and inanimate objects and materials they can count numbers and do like addition and subtraction. For example, while playing they should be able to count how many children are there in the line. If ten children are there and three of them go to collect flowers they should be able to tell how many of them are left in the line.

Besides knowledge about this simple computation they are expected to know about shape and size of different objects and materials. They should be able to classify different objects belonging to shapes like rectangular, triangular, circular etc. and tell which one is bigger when compare two objects. They have also to feel and say whether a particular object weighs heavy or light when compared with another object.

While playing in nature they come across objects of different colours. They are also expected to identify the objects of common colours like Black, White (they are basic colours also), Red, Yellow, Blue and Green. By collecting objects of these colours and classifying those, can be able to identify colours rightly.

Along with above skills they are also expected to tell about time by looking to the sky. We do not expect that they can give the exact time by looking to the watch. It is too much for a young child. But they can say looking to the rising sun that it is morning and looking to the setting sun that it is evening. Similarly, when the sun is over the head, he can say the time to be noon. When the sun is there in the sky and when there are stars in the sky the child should be able to say that the time is day and night respectively. Besides he can feel different objects and be able to say whether one is harder or softer than the other, whether one's surface feels rough or smooth to the hand. Similarly, he has to be able to say whether an animal or tree is taller or shorter than the other, whether an object is placed higher, whether something is thick or thin.

They are also expected to tell the names of days in a week and months in a year. They can also show and name the directions by looking to the rising and setting sun. Different seasons have their impacts on our lives. Major activities in the society and locality are influenced by these seasons. Children can feel this and give a common account of seasons like Rainy season, Summer season and Winter season. Main weather phenomena like could, rain, fog, lightening should be understood by them. They should know about major land forms like bills, plains, rivers, sea etc. wherever possible. They are to be acquainted with sources of water, places of worship, means of communication and economic activities of the locality as far as practicable.

A teacher of Pre-school education should keep in mind that this knowledge cannot be achieved by children simply by hearing to any discussion. The teacher has either to take the help of natural phenomena or objects or to create situations as the case may be so that the children learn by observing the same. For this the teacher has to plan and carryout a number of activities for the children.

The environment is of two types, one is the natural environment and the other is the social environment. The children may be allowed to wander in the

natural environment, observe different phenomena like rain, storm, clouds sailing in the sky, lightening, spring on a hill, river, sea etc. and play with different kinds of fruits, seeds, flowers, leaves, stone, pebbles, sand, soil, water etc. to learn a lot of things. That will cause the outlet of their inner urge and balance their emotions. They can get scope to know and understand about why and how of many incidences. While playing with different natural objects, they can create a lot of things particularly in drawing and painting, modelling, preparing toys out of natural and waste material. Similarly, they can interact with their social environment and get scope to develop socially and emotionally. In a society people observe different social functions. The child can find himself one with other members and participate in social functions to know about the customs and way of life of social beings. By that, he gets scope to be accustomed to the principles laid down by the society in which he is going to live as a member.

In india, except some costly English Medium schools, no pre-school centre can purchase costly learning materials like toys, charts, models etc. for the children and for our good luck we are gifted with vast natural resources and a pleasing climate. Hence, for the education of the common children we have to plan for the best utilisation of natural and social environment and make it meaningful and useful for the growth and development of our children. Various educationists, particularly in the field of early education, have invented a lot of programmes for maximum utilisation of natural resources. The Thematic Approach is now considered to be quite useful for our children. In this approach a theme or a phenomenon or even a social institution like the market, the post office, a pond, the river, the hill or even a temple is taken as a theme and the children are exposed to this place or institute to learn various things and develop through different activities. As this approach is a new one, a teacher has to foresee the areas of development and plan different activities accordingly. This is proved to be useful now a days for allround development of children.

Aesthetic Development. We aim at creating a sense of appreciation among the children for beautiful things and forms. This aesthetic development causes moral development with the children afterwards. Here the teacher takes care to create

situations for the children for orderliness and love for different objects and forms in nature. Under cognitive development the children are expected to recognise different colours but under aesthetic development they are expected to learn how to combine these colours to create a beautiful pattern. They develop the attitude of loving natural objects like flowers, fruits, leaves, and appreciate their colours, shape, arrangements etc. They take care of these things alongwith their belongings like books, note books, pens, pencils, dresses etc. They like the orderliness of things like trees in a line, arrangement of desks and chairs, standing in a queue etc. They preserve different things and objects carefully without causing destruction.

Drawing pictures and colouring them properly, modelling shapes rightly, singing songs in tunes, dancing simple dances etc. all come under aesthetic development. Personal cleanliness and cleanliness of the surrounding also causes aesthetic development with the children.

Theoretical Overview of Cognitive Variable

Cognitive development is one of the most remarkable and rapidly expanding areas of contemporary child study. The term cognitive literally means “to know”. Psychologists has defined “Cognition” vividly but all these definitions are not agreed on a single definition, mainly because of the differing emphasis which they place on the attributes which can justifiably be regarded as intelligent behaviour. The Oxford Dictionary (1985) states that the word cognition means faculty of knowing, perceiving and conceiving. Vernon (1969) classifies the definitions of cognition into biological, psychological and operational. Briefly, the biological definitions stress adaptation to the environment and actions which are of survival value. Psychological definitions generally deal with reasoning, rational thinking and abstract thinking. Operational definitions make no assumptions about the internal mental processes but only observe the outward manifestations of what is defined as intelligent behaviour. Craig (1979) emphasized that cognition is composed of many different kinds of processes such as perception, memory, problem-solving, and the relationship of one piece of information to another. Schiamberg and Smith (1981) opined that the quantitative and qualitative changes throughout the life span in thinking, organizing perceptions and problem-solving can be defined as cognitive development. Copple, Lisi and Sigel

(1982) defined cognitive development as the changes in children's knowledge and thinking skills and the way they are organized and used in dealing with problems. Binet and Simon (1916) regarded intelligence as a collection of faculties, judgement, practical sense, initiative and the ability to adapt oneself to circumstances. Thurstone (1946) viewed intelligence as a number of primary mental abilities and independent factors which different people possess in different degrees. The primary mental abilities are: verbal perception, numerical, word fluency, memory, spatial relations and reasoning. These activities are nearly or completely separate and distinct functions of the mind. According to Burt (1955) intelligence is "innate, general cognitive ability". In Good's (1959) view, cognition is the faculty of knowing. Cognition includes the individual's thoughts, interpretations understandings and ideas about himself and his environment (Maiseh, 1972; Eson, 1972; Hilgard, 1975; Meconnell, 1977). Santrock (1984) explains that cognitive development refers to the age related series of changes that occur in mental activity - thoughts, memory, perception, attention and language. While analyzing different definitions Wechsler (1975) concluded that intelligence has been viewed by educators as the ability to learn; by biologists as the ability to adapt to the environment; by psychologists as the ability to deduce relationships; and by computer scientists as the ability to process information.

The child's remarkable progress during the pre-school period in motor abilities, language and cognitive function is paralleled by vast changes in his personality characteristics and motives. The pre-school child has a much richer, more complex and more highly differentiated personality than the infant. Here personality refers to the total organization of an individual's characteristics, the ways of thinking, feeling and behaving. Here cognition refers to the 'higher mental processes' that is to the functions involved in understanding and dealing with the world. It includes perception, language, concept formation, abstraction, problem solving and thinking. The development of various aspects of cognition gives us a clear picture of the mental development of the child.

Theories of Intellectual or Cognitive Development

Several experimental psychologists have developed theories of intelligence based on individual's performance on different mental tasks.

Thurston's Multiple - Factor Theory. In the view of Thurston (1938, 1941) intelligence consists of seven separate factors - spatial, perceptual, speed, numerical ability, verbal comprehension, memory, word fluency and reasoning and he called them 'Primary Mental Abilities' (PMA). To him an individual's intelligence cannot be described as a single IQ score but as separate scores on primary mental abilities

Jean Piaget's Theory. The account of cognitive development is incomplete without the mentioning the theory of renowned psychologist Jean Piaget. He observed the hypothesis that children's minds were not merely miniature versions of adult minds and older children do not think more quickly than younger children and moreover, both qualitative and quantitative differences occur between the thinking of young children and older children. He concluded that children were not less intelligent than adults, but they think differently. Albert Einstein called Piaget's discovery "so simple only a genius could have thought of it."

He suggested that intelligence grows and develops through a series of stages. It involves changes in cognitive process and abilities. In Piaget's view, early cognitive development involves processes based upon actions and later progresses to changes in mental operations. Operation, the central concept in his theory, is a special kind of mental routine that is reversible. In his observation, the acquisition of operation is the core of intellectual growth.

In his view, mind is active, not passive. The core of his theory is that all cognitive growth of the child results from interaction between the child and the environment. The infant learns about the world by acting upon it. Later in childhood these overt actions are internalized in the form of thought. According to him, such thoughts begins in actual physical and manipulative contact with the environment. It is concomitant with the view of Bruner (1964) that the child's first way of representing the environment is enactive. Because Piaget views the acquisition of all knowledge –whether in infancy, childhood or adulthood- as an active, ongoing process, this must be considered an interactionist theory which says the child continually interact with the environment – as acting upon, transforming and modifying, the world and, in turn, being transformed and modified by the

consequences of his own actions. It is this dynamic interaction between individual and environment which Piaget views as the essential, adaptive basis of all intelligent behavior (Sheppard & Willoughby, 1975).

Piaget's theory suggests that children move through four different stages of cognitive development which focuses on how children acquire knowledge and the nature of intelligence. Piaget's stages: sensory motor stage (0 to 2 years), pre-operational stage (2 to 7 years), concrete operational stage (7 to 11 years) and formal operational stage (12 years and above), are continuous and each stage is built upon the other.

Early childhood period comes under the stage of preoperational stage (2 to 7 years). He asserts that the foundations of language development may have been laid during the sensory motor stage, but the child acquires the skill of using symbols and languages during this period. Child learn through pretend play and he learn to separate physical and mental realities, but at this stage tend to be egocentric and struggle to see things from the perspective of others. According to Piaget, it is the period of intuitive thoughts. The child become familiar with more concepts, explains the concepts and builds more complex thoughts and images. Moreover, he, is able to group objects together into classes, according to the similarity.

He opined that each new stage is attached to the earlier one, so no child can skip any stage. Every new experience is attached to previous one and there is a relation between the child's abilities, skills and believes at present and his past. In Piaget view, children's intellectual development is not a quantitative process; i.e., adding more information and knowledge to their existing knowledge as they get older, instead, Piaget suggested that there is a qualitative change in how children think as they gradually process through these four stages. The following are some of the major notions of Piaget's theoretical system.

Schemas. In Piaget's view a schema is a cognitive structure, a class of similar actions or thoughts and a category of underlying operation which subsumes a collection of similar action sequences which helps to understand and interpret the

world. Through experiences, the new information is used to modify, add to, or change previously existing schemas.

Assimilation. The process of taking new information into our already existing schemas is known as assimilation. The process is somewhat subjective because we tend to modify experiences and information slightly to fit in with our preexisting beliefs.

Accommodation. Accommodation is the process of changing or altering our existing schemas as a result of new information or new experiences. During this process new schemas may also be developed.

Equilibration. Piaget believed that all children try to strike a balance between assimilation and accommodation, which is achieved through a mechanism Piaget called equilibration. As children progress through the stages of cognitive development, it is important to maintain a balance between applying previous knowledge (assimilation) and changing behavior to account for new knowledge (accommodation). Equilibration helps explain how children can move from one stage of thought to the next. He ascertains that mental growth is due to the resolution of the tension between the two processes assimilation and accommodation which leads to equilibration, a balance between these two. He ascertains that assimilation and accommodation are always interrelated but functions of the, do not change with the development of the organism; only their relations change systematically with age and experience.

Piaget sees the basic development of the child shifting gradually from an egocentric involvement in self to a final stage of equilibrium and objectivity. The various stages between these extremes may be represented by a differentiation of the two processes Munsiger (1971).

Lev-Vygotsky's Theory. In Social Constructivism, Vygotsky (1962) highlights cognitive functions which originate and must be explained as product of, social interactions. Every function in child's cultural development appears twice, first as social level and later on individual level. He also pointed out that knowledge is not simply constructed, it is co-constructed.

Guilford's Structure of Intellect Theory. Guilford (1967) rejects the earlier notions of 'G', 'S' and primary mental abilities and formulates a three dimensional system according to the kind of mental operations, the kind of content and the mental products. The five types of mental operations, four types of contents and six types of mental products together form the three dimensional system with 5 x 4 x 6 or 120 different and separate abilities.

Bruner's Theory. Bruner, most ardent exponent of cognitive development approach, (1973) contributed much to the technique of information processing leading to the development of cognitive structure of an individual. By propagating 'Discovery Learning' he suggested to make use of creativity and grade the curricular material to suit the developmental status of learner. Enactive, iconic and symbolic are the three hierarchical stages put forward by him.

All the cognitive theorists see the human beings as rational, active, alert and competent. For them human beings not only receive information but also process it. Each person is a thinker and a creator of his or her destiny, says Craig (1989).

Socio-Emotional Development

The term socio-emotional is a broad and commonly used concept. Literature defines socio-emotional competencies in myriad ways - skills that enable individuals to accomplish particular tasks such as recognizing and managing their emotions and coping successfully with conflict. Usually used terms of socio-emotional competencies include soft skills, non-cognitive skills, character skills, life skills, and 21st-century skills.

Socio-emotional development or socio-emotional maturity focus on whether the child's behaviors are age appropriate, socially acceptable, or mature. The importance of adult expectancies to children's socio-emotional behavior is that they directly determine which of the child's behaviors will be considered acceptable, and there by worthy of reward, and which will not. In effect, the expectancies of the socializing agents- parents, teachers, peers- serve as the criteria for those behaviours of the child that are to be encouraged or discouraged, reinforced or unreinforced. The child's socio-emotional development is also influenced by the changes in the

cognitive capacity. The importance of increased cognitive and linguistic competence to socio-emotional development can be seen in young child's other activities.

Psychologists believe that socio-emotional skills differ from traditional IQ measures or from raw intelligence, but such skills interact with intelligence. Hence it must be taken into consideration when measuring outcomes and estimating causal relationships. Generally, socio-emotional maturity is evaluating on cultural basis than a biological one. Some contend that referring to such competencies as skills may implicitly exclude beliefs, values, and other rational attitudes.

Theories of Socio-emotional Development

The concepts of socio-emotional development are often found as part of developmental theories. These concepts help to shape research and may be reshaped by research findings. Some of the major socio-emotional theories are discussed here to support the study.

Sigmund Freud's Psychoanalytic Theory. Sigmund Freud (1856–1939), a phenomenal psychoanalyst, stated that individual personality is shaped by unconscious biological forces. He introduced psycho-sexual development which involves a sequence of age periods, in each of which the major motivation and behavioral tendencies have to do with the part of the body. At each stage emotionality is concentrated on the major focus of that age period. Each of the stages is also associated with personality traits: for the oral stage, a wish to take in pleasure and to be cared for; for the anal stage, a wish to keep control and retain possessions; and for the phallic stage, a wish to compete, dominate, boast, and show off. In his theory, he emphasized that the problems of experience in each of these stages may lead to a fixation on the concerns of a stage which will continue to dominate the personality even as a child moves into later stages. Later difficulties or frustrations can also cause a regression to the concerns and characteristics of an earlier stage.

Freud also stated that the personality consists of three parts: the id, the selfish part of the personality; the ego, the rational part of the personality and the superego, which represents society's conscience. The id consists of biological instincts of all

babies and generally, it is the demand for immediate gratification. When the child gets older, he understands that all his needs cannot be met immediately, and develops ego. As the child gets older still, he internalizes society's norms and values and thus begins to develop his superego. The superego of the child does not become strong enough if he does not develop normally and he is at risk to commit antisocial behavior.

Attachment Theory. Attachment theory (Bowlby, 1982) is one of the most influential theories of child development in the last 50 years. This theory is the source of the concept of attachment, an emotional development by which a young child comes to have a strong preference and positive emotional reactions for familiar caregivers, while showing negative emotional responses, especially fear, to separation from familiar people or to the approach of strangers. Attachment was seen as biologically-based because unlearned behaviours typical of young infants help to establish social interactions and because the timing of attachment behaviour is strongly age-related. Bowlby's original thinking was based in part on work in ethology, an approach that investigated and described apparently unlearned behaviours of birds, fish, and animals. He initially considered attachment as monotropic, involving a connection to only one adult, in a further parallel to imprinting.

As Bowlby conceptualized attachment, this step in development was the foundation of personality characteristics that determined later social interactions. Recognizing that early attachment behaviours, such as staying near familiar people and avoiding strangers, became much less frequent during the preschool and school years, he suggested that early attachment experiences, together with cognitive advances, led to the development of an internal working model (IWM) of social relationships. The concept of an internal working model had been put forward many years and involved the idea that mental representations of the world, established as a result of earlier experiences, contributed to individuals' cognitive, emotional, and social behaviours. The IWM thus provided the link between early attachment and later social interactions.

Although Bowlby's original theory of attachment remains foundational to thinking about children's emotional and personality development, current thinking

on this topic has undergone some changes. Comparisons to imprinting in animals have almost disappeared and been replaced by a focus on a more gradual development of attachment through experiences with sensitive and responsive caregivers. The idea of monotropy attachment to one and only one adult caregiver has been replaced with the awareness that an infant may have several familiar attachment figures, or persons towards whom he or she shows attachment behaviours. These figures need not be biologically related to the child.

Socioemotional Selectivity Theory. Socioemotional selectivity theory is a life-span theory of motivation developed by Laura L. Carstensen, Stanford psychologist. The theory maintains that as time horizons shrink, i.e. as the age increases, people become increasingly selective and invest greater resources in emotionally meaningful goals and activities. According to the theory, cognitive processing is influenced by motivational shifts.

Aging is associated with a relative preference for positive over negative information in individuals who have had rewarding relationships. This selective narrowing of social interaction maximizes positive emotional experiences and minimizes emotional risks as individuals become older. According to this theory, older adults systematically hone their social networks so that available social partners satisfy their emotional needs.

The theory also focuses on the types of goals that individuals are motivated to achieve. Knowledge-related goals aim at knowledge acquisition, career planning, the development of new social relationships and other endeavors that will pay off in the future. Emotion-related goals are aimed at emotion regulation, the pursuit of emotionally gratifying interactions with social partners and other pursuits whose benefits can be realized in the present.

When people perceive their future as open ended, they tend to focus on future-oriented and development- or knowledge-related goals, but when they feel that time is running out and the opportunity to reap rewards from future-oriented goals' realization is dwindling, their focus tends to shift towards present-oriented and emotion- or pleasure-related goals. Research on this theory often compares age

groups (*e.g.*, young adulthood vs. old adulthood), but the shift in goal priorities is a gradual process that begins in early adulthood. Importantly, the theory contends that the cause of these goal shifts is not age itself, *i.e.*, not the passage of time itself, but rather an age-associated shift in time perspective.

This justified shift in perspective is the rational equivalent of the psychological perceptual disorder known as “foreshortened future,” in which an individual, usually a young and physically healthy individual, unreasonably believes (either consciously or unconsciously) that his/her time horizons are more limited than they actually are, with the effect that the individual undervalues long-term goals and long-run pleasure and instead disproportionately pursues short-term goals and pleasure, thereby diverting resources from investment for the future and often even actively reducing his/her long-term prospects.

Lawrence Kohlberg’s Stages of Moral Development. Imbibing the views of Piaget, Kohlberg (1963) was interested in the changes of moral reasoning in an individual as he gets older. He learned how people decide what is right and what is wrong. Kohlberg (1984) claimed that moral values are learned as a result of active thinking and reasoning. As Piaget believed that children’s cognitive development follows specific patterns, he affirms that moral development also follows a series of stages.

Level One – Pre-conventional Morality. In the first stage, concepts of punishment are the basis of moral reasoning. If the consequence of an action is punishment, the child relies upon the action that was wrong. In the second stage, the child bases his thinking on self-interest and reward. The youngest subject seemed to answer based on what would happen to the man as a result of the act.

Right or wrong, the decisions were based on what would happen to the man as a result of the act. This is a self-centered approach to moral decision-making. Pre-conventional morality focuses on self-interest. Punishment is avoided and rewards are sought. Adults can also fall into these stages, particularly when they are under pressure.

Level Two – Conventional Morality. In this level, right and wrong is based on what other people think. In stage three, the person wants to gratify others. At stage four, the person wants to be a good member of the group or society by acknowledging the importance of social norms and laws. A good decision is one that gains the approval of others or one that complies with the law. Some older children, adolescents, and adults use this reasoning to *care about the effect of their actions on others*.

Erikson’s Theory of Psycho-Social Development. Erik Erikson predicted that man is motivated by a need to achieve competence in certain areas of his lives. Erikson classified his psychosocial theory as eight stages of development from infancy to late adulthood. In his view, there is a conflict, or task, that an individual to resolve at each stage. A sense of competence and a healthy personality is attained after the successful completion of each developmental task. Failure to master these tasks leads to feelings of inadequacy.

During the elementary school stage (6-12 years), children face the task of *Industry versus Inferiority*. Children begin to compare themselves to their peers to see how they measure up. They either develop a sense of pride and accomplishment in their different activities such as schoolwork, sports, social activities, and family life, or they feel inferior and inadequate when they don’t measure up.

According to Erikson, children in middle childhood are very active or diligent in doing, planning, playing, getting together with friends, achieving. This is the time they are gaining a sense of how they measure up when compared with friends. Erikson believed that if these industrious children can be successful in their endeavors, they will get a sense of confidence for future encounters. Otherwise, a sense of inferiority can be particularly lingering during middle childhood.

Abraham Maslow’s Hierarchy of Needs. Maslow found that all go through a hierarchy of needs that motivates our behavior. We want to fulfill and meet these needs before moving on to more advanced needs. There are five levels in the hierarchy. They are:

Physiological Needs. These needs are the basic and the strongest human needs such as food, water, shelter, and clothing; without them, we cannot survive. When all of these foundational needs are met only, we can proceed to the next stage.

Safety Needs. Being safe in life is one of our basic needs. Maslow identifies personal security, having a job, having a home that is yours, feeling secure, having health insurance, and having your health as elementary safety needs. Only after these basic needs, physiological and safety needs, are satisfied we move up to the next level of needs.

Love and Belonging. Giving and receiving love and affection and a sense of belonging help everyone to overcome the feeling of loneliness and alienation. This can be accomplished through various ways such as friendships, romantic attachments, family, community groups, churches, and religious organizations which help you gain a sense of being part of something. After attaining this need, move to the next level.

Self-Esteem. We all have a need to recognize our accomplishments and to be valued by other people. Maslow says getting respect from others leads to self-esteem. A sense of dignity and a sense of achievement and mastery within ourselves can be achieved through professional jobs, studies, by being on a team, or through hobbies. People who can satisfy these needs of esteem by getting recognition from others and achieving good self-esteem tend to feel confident in their abilities. Those who lack self-esteem and who lack respect from others can develop feelings of inferiority.

Self-Actualization. Maslow says most people do not reach self-actualization, the epitome of needs. Only after meeting all other needs, is the need for self-actualization activated. Maslow opined self-actualization, the highest level of the hierarchy, is a person's need to be and do what they were born to do. It not only involves seeking personal growth but also desires to accomplish everything that one can, to become the most that one can be.

Bronfenbrenner Ecological Systems Theory. Urie Bronfenbrenner's, American psychologist, the Ecological Systems Theory explains how social environments affect children's development. It stresses the significance of studying

children in multiple environments, known as ecological systems, in the attempt to understand their development.

According to Bronfenbrenner's ecological systems theory, children typically find themselves enmeshed in various ecosystems, from the most intimate home ecological system to the larger school system, and then to the most expansive system which includes society and culture. Each of these ecological systems inevitably interact with and influence each other in all aspects of the children's lives.

Bronfenbrenner's ecological model organizes contexts of development into five nested levels of external influence: Microsystem, Mesosystem, Ecosystem, Macrosystem, and Chronosystem. These levels are categorized from the most intimate level to the broadest.

The Bronfenbrenner theory suggests that the microsystem is the smallest and most immediate environment in which children live. As such, the microsystem comprises the home, school or daycare, peer group and community environment of the children.

Interactions within the microsystem typically involve personal relationships with family members, classmates, teachers and caregivers. How these groups or individuals interact with the children will affect how they develop. More nurturing and supportive interactions and relationships will likely to foster a better environment for development.

Bronfenbrenner proposed that many of these interactions are bi-directional: how children react to people in their microsystem will also affect how these people treat the children in return.

One of the most significant findings that Urie Bronfenbrenner unearthed in his study of ecological systems is that it is possible for siblings who find themselves in the same ecological system to experience very different environments.

Therefore, given two siblings experiencing the same microsystem, it is not impossible for the development of them to progress in different manners. Each child's particular personality traits, such as temperament, which is influenced by

unique genetic and biological factors, ultimately have a hand in how he/she is treated by others.

Review of Related Studies

This chapter presents the review of the studies in the area of influence of preschool education on various developmental aspects of children. The studies reviewed are arranged as studies abroad India and studies in India. As it was found that while some researchers have explored both cognitive and social or emotional variables, some have concentrated either cognitive or socio-emotional variables with following sub heads.

- Influence of Preschool Education on Cognitive and Socio-Emotional Variables
- Influence of Preschool Education on Cognitive Variables
- Influence of Preschool Education on Socio-Emotional Variables

Indian Studies on Influence of Preschool Education on School Outcomes

The studies on influence of preschool education on school outcomes in India are given separately under the following heads.

Influence of Preschool Education on Cognitive and Socio-Emotional Variables

Reddy (2022) conducted a study on importance of childhood education in India: problems and prospects. It emphasised the significance of the education in this crucial age and explicated the importance of development of each aspects of child during this period. The study pointed out that preschool curriculum and teaching are more concerned about academic skills and do not give much attention on the dimensions of social-emotional development. It is suggested that giving attention to intellectual competencies only is inadequate and weakens the potential success of children, hence early-childhood education should be inclusive of all the dimensions of child development, with special emphasis to social-emotional competencies.

Bajpai et al. (2022) highlighted that National Early Childhood Care and Education Policy (2013) of the Government of India and National Curriculum Framework and Quality Standards together provide a comprehensive framework for promoting access, equity, and quality in ECCE. The study states that for the

preprimary education sector, smartphones are intended to help in delivering a meaningful education, with autonomy to reflect the local context and the setting. ICT-driven advanced methods have been contributing to the service delivery of the Anganwadi centers. This would call for investments in high-quality interventions for young children and are therefore cost-effective ways of improving outcomes both for individual children, especially in the case of vulnerable or disadvantaged children, and for the society as a whole. This paper also included an operational model that could be implemented for “quick-wins” by leveraging technology to achieve short term and medium terms gains. The paper lays out activities that could be carried in a typical rural Anganwadi settings and using ICT to enhance its current functioning. Finally, the paper suggests pathways forward on the potential of using ICT for enhancing the quality of ECE.

Majumdar et al. (2021) conducted a study in selected government-run and private preschool centres in three selected districts of the Indian state of West Bengal. It stated that there is a need to defend public provisioning of early childhood education for equity goals and demand its major improvement on quality grounds and stressed that an early start to education often turns out to be an unfitting start because it already mimics a full school with its excessive focus on formal instruction and readiness for competition. In assessing early-years learning, focus should be on children’s cognitive diversity rather than taking a restrictive and test-centric view of cognition. The study claimed that a democratic framework of thought is needed to collectively address some of these vexed issues and re-examine our current imagination of education, even preschool education.

Alcott et al. (2020) followed a mixed-methods approach to analyse longitudinal household survey and interview data from the India Early Childhood Education Impact study. The results specify that children’s participation trajectories in the early years- from age four to eight- do not reflect the age or grade norms stated by national educational policies. And, far from being linear, children’s educational pathways involve considerable back and forth between home, preschool and school. The authors argue that these trajectories are the result of poor implementation of national norms as well as an inadequate understanding among both parents and service providers of how best to support young children’s cognitive development.

Sharma (2020) studied the factors conducive to the development of preprimary students using the combination of three methods: experimental method, survey method and observation method. The sample of the study, consisted of 250 students from five government and five private preprimary schools of urban areas and 250 students from five government and five private preprimary schools of rural areas, have been selected randomly by lottery method. The tools used were Anthropometric test for physical development, Bhatia Battery for cognitive development and Eyberg Child Behavior Inventory (ECBI) for social development. A tool was constructed to determine the effect of curriculum, school infrastructure and teacher quality on the development of preprimary students. Mean, standard deviation, t-test and product moment (r) coefficient of correlation were the statistical techniques used for the analysis of the data. The key findings are the cognitive and social development of the students of private preprimary schools of urban and rural areas is better than that of govt. schools of urban and rural areas. The stressed that it is due to the better academics and more opportunities to new knowledge in the private preprimary schools and the social network formed from the literate parents, loving families and trained teachers provide them with ample opportunities to develop social awareness. The study revealed a positive relation between the physical and cognitive; and physical and social development of students of government preprimary schools of urban areas and positive correlation between physical and social; and cognitive and social development of students of government preprimary schools of rural areas. It was also reported that a moderate positive correlation between physical and social development of students of private preprimary schools of urban areas and positive correlation between the physical and cognitive; and physical and social development of students of private preprimary schools of rural areas. Finally, it recommends the development and expansion of preprimary education in rural areas.

Sriprakash et al. (2020) studies how normative discourses of school readiness govern family strategies for early childhood care and education (ECCE) through an in-depth ethnographic research in a village in Bihar, India. It has been emphasized that it is crucial for marginalised young children to access multiple forms of educational capital: written literacy, discipline, and dominant caste-class

codes. In the absence of functioning provision of ECCE by the state, the low-fee and low-quality private early childhood education was seen as a key site through which 'school readiness' could be secured. The study also illustrates how normative developmentalism in education has entrenched the marketisation of ECCE and reinscribed forms of caste-class domination.

Singh and Mukherjee (2019) analysed whether children who attended private preschools demonstrate higher cognitive skills and enhanced subjective wellbeing at the age of 12 compared to those who attended government preschools in India following mixed methods and drawing Young Lives India longitudinal data. Using linear logistic regression models, the analysis revealed that children who attended private preschools have significantly higher mathematics scores and more positive subjective wellbeing than those in government preschools. The study also proved that entering preschool before the age of 4 has a significant positive association with both cognitive achievement and subjective wellbeing at the age of 12.

Krishnamurthy and Venugopal (2018) discusses the strategies for the implementation of thinking routines in young children of Anganawadis. It is based on the fact that young children develop concepts through concrete experiences using their sensory organs. Through random sampling technique, 26 children from 20 Anganawadi Centres were selected from ICDS Yelahanka of North Bengaluru district. A single group quasi-experimental pre test-post test design was employed with repeated measures during the intervention. The intervention was executed for a period of 90 days and thinking routines were nurtured methodically and in developmentally appropriate stages. Open mindedness, sticking to the main point, being analytic, sensitive to the feelings of others, change decision based on evidence and try new ways were the components of creative and critical thinking dispositions considered and each of them was assessed before and after the intervention along with repeated measures throughout the intervention at regular intervals and rating was given. The intervention shows a steady and gradual progress in the thinking routine encompassing both creative and critical thinking dispositions. The findings also show that girls and boys showed minimum score in the pre-test but showed

steady and vertical progress through the process of intervention reaching almost a high in the post-test.

Elizabeth (2015) conducted a critical study on the efficacy of integrated child development service scheme with concern to growth progressions in early childhood. The sample of the study comprises four years old 1000 pre-schoolers; 500 who had attending the ICDS centres and the remaining 500 who had attended the Non ICDS centre of Kottayam, Pathanamthitta, Kollam and Thiruvananthapuram districts. The area of the research was on intelligence development, convivial development and substantial development. The findings revealed that the ICDS beneficiary pre-school children were significantly different from their non-ICDS beneficiary preschool children in intelligence development. There was a significant difference in the convivial development and substantial development of ICDS pre-schoolers from that of their non ICDS peers.

Mani (2002) explored the impact of ICDS with regard to the intellectual, social and physical development of preschoolers. The sample consisted of three hundred four-year-old Anganwadi (N =150) and Balwadi (N =150) attending pre-school boys and girls from Thiruvananthapuram, Kottayam and Kozhikode Districts of Kerala. Applying critical ratio, the variations in the three areas and subareas were identified. The results reported that the Anganwadi children exceeded Balwadi peers in their intellectual, social and physical development. The result also showed that the study variables: intellectual, social and physical development-are significantly interrelated and influenced each other.

Zaveri (2002) conducted a study 'the long term educational and behavioural effects of early childhood education in children from low income groups'. Using systematic random sampling procedure 300 balwadi children and 200 non-balwadi children were drawn. Questionnaires and semi-structured interviews were the major tools used for the study. Mother's Questionnaire includes a child rating scale adapted from a questionnaire developed by the High/Scope Educational Research Foundation for the Perry preschool study, preschool research studies in India and discussion with

eminent educationists. The questionnaire included the items about the psychosocial development of the child, mother-child interaction, availability of play material, description of the child's daily routine and a special section for the balwadi group about the presence and type of benefits accrued from exposure to the balwadi programme. The variables studied were development of self-care, emotional and social development, cognitive development and scholastic development. The Primary Teacher Questionnaire had items about the cognitive and psychosocial development and work habits of the children studying in the school. Some questions were related to the health of the child, his attendance and relative performance in class. The questionnaire was filled by the respective teachers. The variables studied were social growth, work habits, speaking and listening, arithmetic, and performance in school. Chi-square analysis, t-test and analysis of variance were employed for the analysis of the data. The result shows that the Balwadi experience has improved the child's ability to socialize with his mother, within the family, with peers and other adults in the community. In fact, the children's social behaviour has been further strengthened even two years after leaving balwadis. Teacher's ratings have supported these findings. The preschool experience has improved the child's school performance especially in the first year. These gains have been maintained even in the second and third years of schooling. Balwadi children scored higher in other abilities in school such as listening, reading, arithmetic, writing and other cognitive aspects of development although differences were not significant. Work habits in school and self-care at home scored higher in Balwadi children showing higher levels of independence as well as understanding of home and school requirements. One of the most important findings is that Balwadi parents have been highly sensitized especially mothers, regarding the educational and behavioural progress of their children. This has led to greater awareness and involvement in the children's development, a restructuring of family time and aspirations for their children.

Shabnam (2001) conducted a comparative study of the impact of preschool education on motor, cognitive, language and socio emotional development of under privileged children enrolled in CASP-PLAN and ICDS preschools of Delhi. The study

consisted of 120 children- 60 children from 4 balwadis of CASP plan and 60 children from 4 ICDS. Investigator employed various tools and techniques in the study: Interview schedule for preschool workers to know about structure, organization and function of preschools, Interview schedule for parents to get information about the child and developmental Scale for children in 3-4 years and 4-5 years. All the items in the scale is prepared on the basis of Gessel's Development Schedule. Both scale consisting of 85 items covering 3 aspects of development. Observation technique also employed for scaling motor development. Cognitive development was assessed through block building, drawing, number concepts, colour identification, immediate memory, comparative judgment and problem solving. Language development by checking the ability in following directions, following prepositions, use of objects, identification and naming of objects, sentence making, comprehension, ability to give one's name, age, sex and address, distinguish between whole and part, morning and evening, response to picture cards, picture and storytelling. Socio-emotional development was assessed by observing personal hygiene, eating, dressing, communication, co-operation and adjustment to school environment. Mean, Standard deviation, t-value and Pearson Product Moment Coefficient of Correlation were used for analysis. The result shows that there was significant difference between structure, organization and functions of CASP PLAN and ICDS preschool. There was significant difference in motor, cognitive, language and socio-emotional development between CASP PLAN and ICDS preschool. CASP PLAN children scored high in all these aspects than ICDS children. There was significant difference in motor, cognitive, language and socio-emotional development of male and female children of CASP PLAN and ICDS preschool. CASP PLAN male and female children scored better in all aspects than ICDS counterparts.

In 'A study of educational programmes at the pre-primary stage and their influence on cognitive, social and emotional development of children in Dimapur, Nagaland, Jamir (1999), used a combination of descriptive and experimental method. Historical-cum descriptive method was used to explicate trends in development of pre-schools in Nagaland. Primary and secondary sources were used in preparing the write-up on the development of pre-primary schools in Dimapur in

historical perspective. Experimental method using a single group, pre-test and post-test format was used to obtain information on the gains made by the pre-primary pupils in the cognitive, social and emotional aspects after attending the pre-primary classes. A sample of 65 preprimary school heads and 221 children representing both the gender groups and all levels of socio-economic status was taken for the study. A questionnaire for heads of pre-primary schools prepared by the investigator to gather data regarding the plans and programmes being followed by the schools and also the infrastructural facilities available in them. A test prepared by the investigator to assess simple proficiency in language, number skill, and general knowledge of pre-school going children. The investigator adapted Socio-economic status scale-Kuppuswamy (1962) (Revised edition, 1981) and 'the children- behaviour checklist by Leland H.Stott (1978) to check the influence of Pre-primary educational programmes on social development of children in Dimapur, Nagaland. Information regarding the institutional facilities and programmes were analysed qualitatively and in certain cases, percentages were also used to express the results. Analysis of the data on pre and post-test and gains in achievement and changes in social and emotional development aspects was made using inferential statistics. The findings of the study revealed that; educational facilities and programmes, at the pre-primary stage have shown positive gains not only in cognitive development but also in social and emotional development of the children. It is revealed that pre-school experiences contributed to the development of social attitudes, co-operative behaviour and also helped to learn to conform, to be assertive without being aggressive, to show independence, to be affectionate and also other 153 socially acceptable roles. The study found that, irrespective of gender of the children, an exposure to pre-school programme bestowed benefits to both categories of children in cognitive development. But the result indicated further that, girls benefited more as a result of exposure to pre-school experiences in terms of social attitudes like being co-operative, pleasant, friendly, original and talkative. The benefit is more for children from the middle and lower strata of society. Pre-school education, if planned well and executed effectively may act as a leveler of differences existing prior to school entry of children. The desirability of introducing an efficient system

of pre-primary education as part of universal compulsory education for all children is indicated by the findings of the present study. It has emphasized that in most of the schools, developing intellectual growth was the main goal when compared to the social attitudes and manners and developing good health habits. The study revealed that, attaining emotional maturity, which is one of the most important aspects in the development of the child, only some schools had considered it as an important goal for pre-primary education.

Konantambigi (1990) conducted a study on cognitive and social development of preschool children in home and daycare environments. 72 preschoolers in different daycare and 36 not in daycare from Bangalore formed the sample. Daycare children had employed mothers and non-daycare children's mothers were unemployed. The child should have attended the creche for at least one year continuously in the past year and the children aged 3 to 6 years were included in the sample. To get background information of the child, to know the stimulation provided and the social development of the child, interview and observation technique were employed in the ex-post-facto study. Cognitive development of the child was assessed using Muralidharan and Kaur's cognitive tests (Undated; 1986) which include the subtests of language development, cognitive tests, awareness of environment tests and Phatak's Draw-a-Man-test. Bradley and Caldwell's (1979) 'Home Observation for Measurement of the Environment' scale was employed to assess the social development. For analyzing the data t-Test, correlations, and multiple partial correlations, descriptive statistics were used. There were no significant differences in development between children of day care and those not attending daycare. Neither were there differences in home environment nor in the background variables of the children in daycare and those not in daycare. In the contexts of home parental pride, warmth and affection, and autonomy given to the child emerged as salient factors in most aspects of cognitive development. In the daycare setting, physical environment and caregiver's pride, warmth and affection emerged as factors contributing significantly to most aspects of development. Autonomy given to the child was a salient factor for some aspects of development. For certain subscales of development, democratic disciplining and recreative environment also emerged as significant

factors. Quality of home environment was a more salient factor influencing development of children than socio-economic status and years of preschooling. The study has revealed that stimulation given to the child is more significant than day-care or attendance by the child or employment of the mother.

Narula (1982) studied the play preferences of nursery school boys and girls as related to their cognitive development, socio-economic status, reactions to frustration and patterns of social behaviour. Play preferences and patterns of social behaviour were studied through the Obsen and Cunningham Observation chart. The data were analyzed and interpreted using correlation and analysis of variance supplemented with critical ratio. The findings of the study were most of the boys and girls preferred to play with building blocks, hole fixing boxes, musical instruments, picture boxes and water, in the case of outdoor games, boys and girls preferred to play with sand boxes, swings, merry-go-round, slides, seesaws, balls and rings. Play preferences of boys and girls did not differ significantly at junior levels both in case of indoor as well as outdoor games. Socio-economic status did not influence the play preferences of boys and girls at junior or senior stages if given equal opportunity. Boys and girls displayed different patterns of social behaviour. Boys displayed more patterns of rivalry and teasing whereas the girls displayed more patterns of cooperation and sympathy. On other patterns of social behaviour, the sexes differed but not significantly. The study has its implications for the nursery schools where different play activities need to be provided to the children, irrespective of sex and socio-economic status. These activities will help in cognitive development, handling reactions to frustrations and above all for proper social development.

Rao (1980) examined the effect of pre-school education on primary and secondary school education. The study was designed to find out the differences in academic achievement and acquisition of specific personal and social characteristics of children who attended a nursery school and those who did not. A rating scale was developed to assess the attainments of children with regard to aspects such as ability to mix with others, cooperation, leadership qualities, picture drawing ability, ability to narrate stories, health habits, ability to work independently and participation in

games and sports. The major findings of the investigation were the achievement of the children with pre-school education was higher than that of the children without such education in class I. Regarding personal and social characteristics, the children who had the benefit of pre-school education were superior to those children who did not receive any such education regarding picture ability, punctuality and participation in games and sports.

An evaluative study of the 'Balwadis in India' was conducted by Singh et al. (1978). The study aimed at finding out who benefited from the programmes, what services were provided, how children were prepared for school, what were the roles of the balsevikas and what kind of relationship existed between balwadis and the community. The sample consisted of 150 balwadis drawn from six states. The study was done by using observational techniques and interview schedules. Some of the important findings in the balwadis were found to be used more by the privileged children of the community. The position regarding health services were not satisfactory in terms of health checkups etc. The main impact of the balwadis appears to be in the area of education. The children who came from balwadis were perceived to be better in general behaviour, adjustment to school, neatness and cleanliness, regularity and punctuality in school, rate of learning and achievement in reading and writing. However, it was found that the activities in the balwadis were too structured and lacked flexibility and imaginative play.

Muralidharan (1970) conducted a study of adaptive, language, personal-social and motor development of children in the age group of 2 to 5 years in the urban, rural and industrial areas in seven different centres in Ahmedabad, Allahabad, Bombay, Calcutta, Delhi, Madras and Hyderabad. The study was done both longitudinally and cross-sectionally comprising more than 7000 children. The language tests encompassed naming and identification of pictures, use of objects, comprehension, concepts of time, right and left, and ability to give one's own name, age and address, humour, following directions, prepositions, naming parts of the body, responding to picture cards and responding to picture books. The results indicated that in language development rural children showed late development by 1 to IX years in almost all tasks as compared to urban children.

Though children from the industrial areas were found to be faster than rural children, but slower than their urban counterparts. For assessing adaptive development, block play, drawing, form-discrimination, number concept, colour identification, immediate memory, comparative judgement and problem solving were included. The nursery school going urban children were found to be faster than other two groups. Motor development was checked through different activities such as ball play, standing, walking and running, ascending and descending steps, skipping, hopping and jumping and hand skills such as threading beads and cutting. In this too, the urban children were found to be faster than the children from the other two sections. Personal social development was studied by interview schedules with mothers which covered behaviours of eating, sleeping, elimination, dressing, personal hygiene, communication, play and developmental detachment. The urban children were faster in the majority of tasks. In most of the tasks, the urban nursery school going children were found to do better than the rural children or children from the industrial area. The differences are prominent, particularly in all tests connected with school, such as all paper and pencil tests, number tests, picture vocabulary tests etc. Poor performance of the rural children implies that they enter school without having any kind of preparation for schooling which leads to the various issues like wastage and stagnation in the early primary classes.

Studies in India on Influence of Preschool Education on Cognitive Variables

Paul and Singh (2020) assert that early childhood adversities impair the development potential of children providing evidence of the effect of relevant biological and social risk factors during early childhood on the physical, cognitive and language development of Indian children. Panel data from India Human Development Survey (IHDS) was used to examine them. Multivariable ordered logistic regression models were used. The study scrutinized the association between the risk factors and the four indicators of development potential: stunting status, mathematical skill, reading skill, and writing skill. The findings show that malnutrition and a hostile community environment during early childhood impair

the physical development of children. The study also discloses that malnutrition, indoor air pollution, poor household sanitation condition, hostile community environment, lack of education among household adults, domestic violence on women in the community, and lack of autonomy among women in the household are the major biological and social risk factors that affect the cognitive and language development of Indian children.

Vikram and Chindarkar (2019) investigated the medium-term impact of ICDS services on subsequent reading and arithmetic achievement among children in the ages of eight to 11 in India. Utilizing data from the two waves (Wave 1 was conducted in 2004-05 where 41, 554 households from all states and union territories of India were interviewed and Wave 2 was carried out in 2011-12, where about 83% of the wave 1 households were interviewed) of India, it is found that ICDS has a positive impact on cognitive achievement, primarily for girls and children in low-income families. Since the influence of ICDS intervention is observed for these groups, investigators believe that the ICDS plays a critical role in reducing gender and income-related gaps in cognitive achievement in India.

Das (2018) studied the impact of ICDS scheme on the cognitive development of preschool children using descriptive survey research. 228 children from 76 Anganwadi centers was selected randomly for the study from two ICDS project of Lakhimpur and Morigaon Districts, namely Nowboicha and Bhurbandha. Activity Schedule for Children in Anganwadi was used to assess simple proficiency in language skills, number skills and general knowledge. The present study reported that significant gain score between pre- and post- stages on overall cognitive, social and emotional domains of development for the total sample of children covered in the study. It also showed that children receiving pre-school experiences showed gains in their overall development and particularly in respect of the cognitive domain. The study revealed that an exposure to pre-school programme given benefits to both categories of children irrespective of gender of the children. In the realm of cognitive development, inferred by the achievement levels in language, numerical and general knowledge, significant gains were shown by both the gender

groups. It is also concluded that children belonging to upper age group performed better than the children belonging to the lower age group on cognitive development.

Lalhlimpuii (2017) developed an interventional package for fostering cognitive development of Anganwadi and English medium preschool children. Employing mixed method approach, the investigator analysed the cognitive profiles of children of English Medium Preschools and Anganwadis. To study the SES of parents of children from English Medium Preschool and from Anganwadis, descriptive survey method has been followed. To test the effectiveness of the developed intervention, pre-test and post-test experimental design has been employed. The sample of the study were 100 preschool children, 50 each from English Medium Preschool and Anganwadi in Aizawl and 100 parents of sampled preschool children. Pandey's Cognitive Development Test for preschoolers and SES Scale were used. The cognitive profiles of children of the English Medium Preschools revealed that these children had performed significantly better than the preschool children of Anganwadis along different parameters. The findings on the socio-economic status of parents of children of English Medium Preschools and Anganwadis highlights that the socio-economic status of parents have implications on the cognitive profiles of their children. The findings on the cognitive profiles of children of English Medium preschools and Anganwadis indicate that children of English Medium Preschools have better cognitive development than the children of Anganwadis and this could be due to the fact that the parents of children of English medium preschools have significantly better socio-economic backgrounds than the parents of children of Anganwadis.

Sangwan et al. (2013) examined mental abilities of 3-5 years old preschool children. The sample for the study comprised of fifty children enrolled in preschool laboratory run under the department of Human Development and Family Studies COHS, CCSHAU Hisar district of Haryana State, India. Employing McCarthy Scale, it was found that significant gender differences were seen in the test scores, and comparatively more girls were mentally below their chronological age than boys. Regarding performance on different mental abilities it was observed that on

perceptual abilities the performance was better than standard on block building, tapping sequence and poor on puzzle solving, draw a design, draw a child and conceptual grouping. For verbal abilities, children had better performance on pictorial memory and word knowledge and lagged behind on verbal memory aspect. For quantitative abilities, some children were better on number question and numerical memory but poor on counting and solving. It implies that there is a need to educate the parents and school teachers and administrators to provide a congenial environment to facilitate overall development, to equip the teachers with skills in offering the pre-school programme and to appraise the early childhood education specialists and social workers, service personnel to offer good quality and meaningful programme for young children affordable by all socio-economic groups.

In the non-experimental study titled 'Cultural influences in sociodramatic play themes of preschool children in relation to gender, intelligence and language development' D'Cruz (2012) adopted naturalistic observation for collecting data. The sample for the study was 180 preschool children consisted of 90 boys and 90 girls from the Southern, Central and Northern parts of Kerala. Ten children consisting of five boys and five girls from rural, urban and coastal areas in six revenue districts of Kerala, namely, Thiruvananthapuram, Kollam, Kottayam, Ernakulam, Malappuram and Kannur. The tools employed were Hema Pandey's Cognitive Development Test for Preschoolers (PCDTP), time sampling schedule, a checklist of behavioural categories employed in the analysis of sociodramatic play and the standardized Malayalam Language Development Scale for the Preschool Children (Suresh & D'Cruz, 2009). A video camera as well as a radio microphone were used for recording the sociodramatic play sessions and the speech of preschool children during their sociodramatic play. Frequency of the observation converted into percentages. The study revealed the dominance of urban preschool children in the development of general and language concepts. The result also showed the influence of culture in relation to language development. The dominance of rural preschool children in modeling elders in their language development was worth noting. The language development scores of preschool children in rural area reveals varying levels of language development scores which are typical to the rural setup. It is noted that

urban preschool children dominated in the cognitive score when compared to other cultural settings such as rural and coastal. The result indicated that urban preschool children preferred play themes related to peer group and family activities, whereas coastal preschool children are more passionate to the play themes related to family. It was found that rural preschool children are more interested in fantasy play; here girls dominating over boys. In representational object play and in physical play, boys surpassed girls. In the preschool sociodramatic play, preschool boys with high and average scores in the cognitive development test, preferred material play. The preschool boys with low scores in the cognitive development test are interested in 'look and watch' play. The research has evidenced that the sociodramatic play themes of preschool children are rooted in their socio-cultural ethos. There are significant gender differences existed in the selection of sociodramatic play preferences and also shows that cultural difference between rural and urban preschool girl children.

Partani (2011) undertaken a study on preschool teachers and preschool children of 3-4 years, with the objective of studying the effect of teachers' training on multiple intelligences of preschool children. Among 100 teachers, 46 teachers were in the experimental group and 54 were in the control group. Teachers observed 364 children using a rating scale and the researcher observed 460 children using a time sampling method. A pre-post intervention trial has been conducted. Pretest was followed by three workshops and posttest in the experimental group while questionnaire and rating scale were administered without any intervention in control group. A self-structured questionnaire, rating scale and observation schedule were used with high reliability and construct validity to gather information about the knowledge level and preferences of teachers of the multiple intelligence theory and multiple intelligences of children respectively. The findings shown that teachers in the experimental group revealed significant changes from pre to post-test as compared to control group for all intelligences. For the MI preferences of teachers in the treatment group, significant differences existed only for bodily-kinesthetic and naturalistic intelligences. Though variables like age, educational qualification, work experience, marital status, and religion had effect on few of the intelligences and activities, which did not have a significant effect on the total level of knowledge of

teachers and MI preferences. It was observed that bodily kinesthetic intelligence was the most and naturalistic intelligence was the least employed by the preschool children. Children in the experimental group were better than those of the control group. Regarding gender differences, females found to be more intelligent than males on linguistic, musical and interpersonal intelligences. It is concluded that an intervention programme on Multiple Intelligence for teachers has a positive effect on the multiple intelligences of preschool children.

Balabantaray (2002) investigated the effect of ICDS programme on the cognitive, language and physical development of pre-school children in Orissa. Three hundred children of 3+, 4+ and 5+ age group from ICDS villages and one hundred children from non-ICDS villages of Kamakhyanagar rural ICDS block were studied. Cognitive developments were measured by RCPM and Draw-a-Man test and language development was measured by object vocabulary test whereas physical development was measured by height and weight of the children in comparison to national standards. The data were analysed using analysis of variance, t-test, correlation and chi-square. The results indicated that the groups who were exposed to ICDS programme had better intellectual, language and physical development than the non-exposed groups. The results also revealed that there was an incremental trend of intellectual development over age. The language development of the children was also related to the chronological development.

Lodh (1999) conducted a study on 'language content and form of the preschool children in a pictorially stimulated condition'. Twenty preprimary schools have randomly been selected from the two districts of Tripura, of which 12 are urban preprimary schools and 8 are rural preprimary schools. The researcher randomly selected 570 preschool children of the age group 3+, 4+ and 5+. Major tools employed were pictures from the Children's Apperception Test (Indian adaptation). For recording the responses given by the children, a tape recorder was used. A specially prepared information schedule was used to get data on personal identity, parent's level of education, parent's level of income, parent's report about their observation of children's language acquisition and level of intelligence and information about the family structure. The researcher has found that length of

speech in terms of total number of sentences does not improve significantly with age but it varies due to sex and habitat. Rural children are superior to urban children and girls are superior to boys in this regard. Word fluency improves significantly with age, sex and habitat but there is no interaction effect of sex and age on word fluency. It further reveals that rural children are superior to urban children in word fluency and female children are superior in regard to word fluency. Though total number of nouns does not improve with age and change with sex and habitat. Verbs, adverbs and adjectives improve with age but adverbs do not vary due to sex and habitat. Younger children use more one word utterances than older children and it varies due to sex and habitat. Longer sentences improve with age and it varies due to sex and habitation. Rural children are superior to urban children and female children are superior to male children in this regard. Simple sentences improve up to 4 years and then decline and it varies due to sex and habitation. Rural children are superior to urban children and female children are superior to male children in it. Complex sentence and compound sentence improves with age but only former varies due to habitation. Income level of the family has no impact on word fluency, total number of sentences, i.e. length of speech but sibling patterns has an impact on vocabulary or word fluency. Correct use of sentences increases with age. Violation of syntactic rule decreases with age. In order to produce correct sentences girls of rural and urban areas of all the age groups are better than boys of rural and urban areas regarding the length of speech. The study further reveals that children of urban areas of all the three age groups produced correct structural regularities of combining words into meaningful sentences than children of rural areas.

Kaul (1991) assessed the impact of non-formal preschool education of Integrated Child Development Services on children's specific abilities. The sample of 60 children who had the experience in ICDS were compared with 60 children who had no preschool experience with the age 3 ½ years up to first grade of primary school. Children's developmental abilities, reading readiness skills and specific school related behaviours were measured using developmental assessment checklist for preschool children, reading readiness test and teacher's rating of children's behaviours. For examining children's home environments, the home inventory as

well as qualitative observations were conducted. The data indicated that the mean performance of ICDS children was higher compared to NPSE children in all areas of development, i.e. conceptual, language, personal social and finer motor except gross motor skills. The difference was particularly large in conceptual and readiness skills. Findings also showed that Anganwadi programmes that differ on overall global indices do not account for differential influence on children's development. But the follow up pilot study indicated a trend that programmes which vary widely on specific preschool related features have differential influence on children's developmental abilities. Moreover, ICDS children continue to exceed their counterparts with no preschool experience in the first grade of primary school in reading readiness and specific school related behaviours. Though overall level of home stimulation does not account for significant variation in the scores obtained by children on reading readiness, language stimulation is seen to be an important feature affecting children's performance on reading readiness. Significant difference is noted between children coming from high and low language stimulation homes with the difference favouring children from high language stimulation homes. Existing environment in the primary schools is not conducive for child's learning. The observations also highlighted the role of teacher in affecting children's learning and development.

Pandey (1988) evaluated the impact of the preschool education component in Integrated Child Development Services Programme on the Cognitive Development of Children in Coimbatore City of Tamil Nadu. Out of 90 AWs, 25 were selected for collecting data through purposive sampling procedure. Seventy children (35 male and 35 female) were selected for each age class in the experimental group making the total of the experimental sample 210. The number of children studied under the control group was 90. Personal Data Sheet, Socio-Economic Scale (SES) by Vandal (1981), Home Stimulation Inventory, Anganwadi Observation Schedule and Health Status Inventory were used. The investigator constructed and standardized an instrument for measuring the cognitive development of preschoolers. Cognitive Development Test indicated significant superiority of the experimental group over the control. There was no difference in cognitive development between the male and female children. Family factors like elderly fathers, Mothers' age and family size

influenced the cognitive development of children. Correlation and regression analyses indicated that Home Related Factors such as children's superior health and nutritional status and mental stimulation provided to them at home consistently influenced the cognitive development of children who attended the ICDS programme as compared with their control counterparts, belonging to the same socio-economic background. On the basis of these findings it can be concluded that preschool children from the poverty background have profited considerably from systematic learning, interpersonal experiences and adequate health care. The study has suggested to conduct researches on impact of preschool education on social development, language development, motor development, habit formation and leadership qualities. It also reiterates to conduct follow-up studies on children subsequent to preschool education and the impact on primary education - enrollment, retention, achievement and follow-up studies on duration of the retention of the benefit of gains made through preschool education.

Patel (1982) investigated the role of general ability of pre-primary school children in relation to reading readiness. The sample of the study consisted of 2199 children for the establishment of norms of the general ability test. For the purpose of the study of the role of general ability on reading readiness, 400 children were randomly selected keeping area and sex. General Ability Test for the children of K.G, K.G and Standard I and Reading Readiness Test were constructed and implemented after establishing reliability and validity. By employing Correlation and Analysis of Variance the investigator found that the general ability and reading readiness along with its every component such as word meaning, visual discrimination, sentence meaning, copying, and auditory discrimination are significantly and positively correlated. The children of urban area show higher achievement in word-meaning and visual discrimination. The children of K.G.,I &II classes do not differ significantly in their achievement in sentence-meaning, copying skill and auditory discrimination on the basis of area-differences. The children who have above average level of general ability show higher achievement in reading readiness than those who belong to average and below average levels of general ability. The sex variable is not found as an influencing force in the total achievement of all the components of reading

readiness taken together. However, the sex variable has been found affecting the achievement in auditory discrimination of children of K.G. I & II, whereas it has been found affecting the achievement in copying-skill of the children of K.G. II. The boys show higher achievement than the girls in the components of auditory discrimination and copying skill. There is no interaction effect between IQ and area variables, between IQ and sex variables, between area and sex variables and among IQ, area and sex variable influencing achievement of children of K.G. I and K.G. II in every component of reading readiness as well as in the total components of reading readiness.

Pankajan (1979) undertook a study to find out the impact of pre-school education on the language development of children. Investigator made a comparative analysis of the language development of children among the age group of 2 to 5 years who were attending and who were not attending pre-schools. The language development of the children were observed in three different situations: While playing with a peer group, in the company of adults at home and their responses to a set of pictures of common objects and toys. The result of the study indicates that in certain aspects of language development those children who attend preschools perform better than the others. No significant difference was observed in the language development of boys and girls. Investigator concludes that attending pre-schools with good programme, especially in rural areas definitely plays a prominent role in language development of children. This asserts the value and necessity of strengthening pre-school education and making it compulsory in the educational system, to have a strong foundation for the future higher education.

The study conducted by Muralidharan and Banerji (1975) was on the effect of preschool education on the school readiness of underprivileged children of Delhi. The study was an investigation into the effect of preschool education as given by a public agency with its limitation of underprivileged children entering primary school. The sample consisted of 252 five-year old children from 27 Municipal Corporation primary schools of Delhi. All children belonged to the low and lower middle class families, the average income was Rs. 200 per month. 109 Children in the experimental group had received preschool education in corporation nursery schools before coming

to class I, whereas children in the control group (N = 143) came to class I without any preschool education. Children were tested immediately after they were admitted in class I. The tests consisted of reading readiness test were word meaning, sentence meaning, visual, perception and auditory discrimination. The results showed that the group with preschool education performed significantly better than the group without preschool education. The crucial points of the study were that the children under study were under privileged and the nursery schools were poorly equipped with toys and had limited play space but yet were able to produce results.

Bevli (1974) conducted a comparative study on the norms of language development of Indian children of ages 2 ½ to 5 years as obtained by the cross-sectional and longitudinal methods. Adapted form of Gassel's scale was used for the language test among the age group of 2 ½, 3, 3 ½, 4, 4 ½ and 5 years. The cross-sectional sample consisted of 2510 nursery school going children from urban population and the longitudinal consisted of 292 children. The result indicated that the development of language is very important in the pre-school period. It also specified that language ability is gradually integrated with other fields of behavior by the end of the preschool stage.

Muralidharan and Banerji (1974) conducted an intensive study the effect of pre-school education on their language and intellectual development of under privileged children. The sample consisted of children of semi-skilled and unskilled workers. The experimental group consisted of 14 children who were doing their final term in the pre-school and had a mean age of 5 years 11 months. The control group was drawn from class I of a primary school who had no any preschool experience and consisted of 15 children with a mean age of 6 years 6 months. The tests used were story narration for language and Pathak's draw-a-man test for intelligence. The results showed that the children in pre-school was better in all aspects of language development than their counterpart and the preschool children found to have a much higher score in intellectual development than primary school children.

An investigation on the language development of nursery and primary school children was undertaken by Chattopadhyay (1971). The objectives of the study were to find out the developmental problems relating to nine aspects of language skill of

nursery and primary school children of West Bengal and to find out whether the differences exist due to sex and locality. 600 children in the age range of 4 to 10 years belonging to nursery and primary school of West Bengal were selected. The investigator prepared Language Development Items (LDI) which had items corresponding to nine different aspects of language skills namely skill in handwriting, reading, immediate span of verbal consciousness, mean length of verbal response, sense of directional languages, sense of language regarding simple arithmetic, nature of sentence, story-telling, capacity through pictures and sense of language regarding causal relation. The findings showed that urban children surpassed the rural ones in language development. The differences in scores due to difference in sex were not significant. In language development, children of educated parents were better than the children of less educated ones. It is stated that language skill was directly related to age and hence to maturation.

In a study, Krishnamurthi (1971) prepared materials to develop reading readiness in children of preschool age and administer them. 342 sample consisted of 203 boys and 139 girls attending the nursery schools in the city of Madras. Reading Readiness was measured by word meaning test, sentence meaning test, visual perception test, auditory discrimination test and copying test. The major findings were Children of 4 + were ready to take instruction in reading, girls of 4+ to 5 + did better in reading readiness tests than boys of the same age, copying test was not so easy to the children as the visual perception test, nursery school children from the low income group were as able as those from high income group in their performance in the reading readiness tests, children exhibited equal ability in taking verbal and nonverbal tests and pre-school age children possessed essential language elements to profit by reading. The study suggested there was an urgent need for attractive get up of reading readiness work books.

Influence of Preschool Education on Socio-Emotional Variables

Khamrang (2014) attempted to find out whether preschool education really contribute to the socio-emotional developments of children attending private or government preschools in Ukhrul District of Manipur. The sample of the study comprised of 60 Headmasters and 120 teachers from 60 preschools attached to primary

schools and 622 Anganwadi Workers from 6 ICDS projects. A sample of 38 and 184 parents of preschool and Anganwadi children were also taken respectively. Interview and observation schedule were used for collecting data. The study reveals that in fact there had been a remarkable positive change in the socio-emotional behaviour of children when compared to the entry behaviour from that of terminal behaviour. It was found that when children first attended preschools in the beginning of the session majority of them shown emotional problems. There was a change in emotional and social manners like wishing teachers and friends, getting along with friends, learning to express feelings without crying, sharing things with others etc. at the end which denotes that preschool contributed to the all-round development of the children.

In the study 'The role of object play in problem solving and social development of pre-primary school children', Das (1995) selected the sample comprised of all the children within the age range of 4 to 6 years from one Municipal Corporation School and a Public School in Delhi. The Coloured Raven's Progressive Matrices (RPM) test was administered to each subject individually and it was used to match the subjects and group them for further study. Sixty subjects were taken from each school for the main study and matched for their level of intelligent by keeping the role of gender constant. All the subjects in a school were assigned to the two groups namely Playgroup (Group-I), and Instructed Group (Group-II). There were three sessions and in each session one convergent and the two divergent problems were presented to the children in each subgroup. Prior to the formal observations each subgroup children were allowed to explore the materials visually and tactually. Analysis of Variance and Spearman's correlation coefficient tests were employed. It has found that in sessions I and II, there was a significant difference between the schools on verbal interaction scores. There was significant difference between the group on verbal interaction scores in sessions II and III. The antagonism scores in the play group reduced by the last session. The scores took an upward trend in the last session in the instructed group. The verbal interaction scores were correlated positively with antagonism scores in both the groups. Children in the play group had a higher mean play scores than those in the instructed group.

In the study, “the impact of preschool education on the social development of children between the age group of three and six years” Goswamee (1994) observed spontaneous behaviour of children in the real situations of their daily social life. A sample of 240 subjects comprising of 120 school going and an equal number of non-school going children between the age group of 3 and 6 years were studied. Besides observation, facts were collected through interviews with parents and teachers using a tape recorder and a structured rating scale to record the responses of the parents. It has been found that there are significant differences between the school going and the non-school going children in such aspects of social behaviour as cooperative play, friendship, group activities, leadership, help and cooperation, social manners and sex- related behavior. The investigator also observed that children who attend preschools have a larger number of social contacts with peers and make better social adjustments than children who do not have pre - school experience. Analysis of the data has indicated that the children belonging to the middle income families take an active part in school activities and functions more frequently than the children of the lowest economic class families. It has revealed that children from disadvantaged homes do not experience the required stimulation needed for healthy social development. This is so because the parents in these homes are not quite able to contribute much to the child’s socio - emotional development. The study pointed out that as children advance in age, their play pattern also changes, i.e. from solitary play it gradually becomes group or cooperative play. The findings also showed that during the preschool period, there is a transition from egocentricity to increased socialization in the sense of increased cooperation and group activity. So far as the non - school going children were concerned, this change from individualization to socialization takes place slowly when compared to the school going children. It has been observed in this study that group play fosters the social development of children. It is also noteworthy that children who attend preschools have been found to form adequate friendship as compared to children without this pre-school experience and study of children at the preschool stage has exposed that there is greater stability of friendship with increasing chronological age.

A study on the social competence of 5-6 years old children in relation to the family structure and pre-school background was conducted by Shukla (1984). It was designed to determine the effect of the structural composition of the family, ordinal

position of the child, school environment and socio-economic status on the social competence of children. The data regarding social competence were collected with the help of the Social Behaviour Check List. Information regarding family composition was collected with the help of a Family Information Form. With the help of an unstructured interview schedule, responses from the mother about children's interaction with adults and siblings at home were collected. The main findings of the study were family size, family structure, ordinal position of the child, sex and presence of grand parents did not have any effect on children's ability for social interaction. Both reward and punishment had effect on social competence of children. With age, the students acquired greater social competence. School environment had a significant effect on social competence of children.

International Studies on Influence of Preschool Education on School Outcomes

The studies on influence of preschool education on school outcomes abroad India are given separately under the following heads.

Influence of Preschool Education on Cognitive and Socio-Emotional Variables

Gandotraa et al. (2022) examined the association of gross motor and fine motor skills with executive functions and prosocial behaviour in preschoolers. The study conducted among 111 participants between 3 and 5 years of age and they were assessed using the short version of the Bruininks-Oseretsky Test of Motor Proficiency, second edition (BOT-2); the head-toes-knees-shoulders task; the Corsi block-tapping test (CBTT); the dimensional change card sort test (DCCS); and a teacher-rated prosocial behaviour questionnaire (PBQ). There were significant positive associations between motor skills and executive functions as well as prosocial behaviour. Fine motor skills were twice as strong as a predictor for response inhibition compared to gross motor skills whereas gross motor skills dominated over fine motor skills in predicting prosocial behaviour. This findings emphasise the need to promote motor skills during preschool years.

Li-Grining et al. (2022) studied self-regulation and academic achievement from early to middle childhood among children in low-income neighborhoods. Data

were collected from African American and Latino children having mean age 4.84 years and 9.30 years ($n = 348$) in low-income communities in Boston, Chicago, and San Antonio. Preschoolers' overall self-regulation predicted their academic skills in middle childhood, net of child and family characteristics as well as academic competence during preschool. Moreover, when executive function (EF) and effortful control (EC) in early childhood were examined as simultaneous predictors of quantitative and literacy scores during middle childhood, there were moderate linkages from EF to academic domains. The findings suggest that the long-term gains of interventions that focus on fostering global self-regulation in preschool may yield more benefits for mathematics than for reading, especially if such programs target young children's executive function in particular.

Vasina (2022) studied the development of verbal and social interaction skills in preschoolers with Autism Spectrum Disorders (ASD), considering gender and age. The empirical methods such as Sundberg method VB-MAPP (2008) and observations were used. The longitudinal study (2018-2022) consisted of 54 preschoolers with ASD from different Kindergartens in Kazan. The strengths of the respondents were found in visual perception, echo skill, and group behavior whereas weaknesses are noted in requests, social skills, and intro-verbal aspects. The study found that the girls of the sample have higher linguistic skills in naming and listening, while the boys have better visual perception. The request skills and intro-verbal skills were the least developed properties during the year. The development of skills of children with ASD during the year of longitudinal study is minimal, inconsistent and does not depend so much on age as on the complexity of the defect. The second year of research did not bring any qualitative changes. The result showed there is no significant differences between the results of different years. The development of speech occurs at different times, but regardless of this, even after a year of correctional work, most children with ASD have violations of the formation of speech utterance and insufficient formation of the communicative function of speech.

Yang and Purtell (2022) studied the role of preschool children's individual engagement with teachers, peers, and tasks in facilitating children's skill development

across the school year. A sample of 895 preschoolers across 223 classrooms were drawn from the Professional Development Study. For measuring children's expressive vocabulary, the Picture Vocabulary subset of the Woodcock-Johnson III Psycho educational Battery and for assessing children's inhibitory control, the Pencil Tap test were used. Children's individual engagement with teachers, peers, and tasks within the preschool classroom was observed and rated using the Individualized Classroom Assessment Scoring System containing the dimensions namely (a) positive engagement with teachers; (b) communication with teachers; (c) conflict with teachers; (d) sociability with peers; (e) assertiveness with peers; (f) communication with peers; (g) conflict with peers; (h) engagement with tasks; (i) self-reliance with tasks; and (j) behavior control. The researchers examined engagement as both outcomes of children's vocabulary and inhibitory control in the fall of the preschool year and as mediators of linkages between them across the preschool year. The findings show that vocabulary skills and inhibitory control each shape different aspects of classroom engagement. Children's vocabulary was associated with positive engagement with teachers and peers, whereas inhibitory control was associated with positive task engagement and negative engagement. It was also found that negative engagement as composited by conflicts with teachers and peers and off-task behaviors mediated the association between fall inhibitory control with spring vocabulary and inhibitory control. These findings highlight the critical role of individual classroom experiences in explaining children's vocabulary and inhibitory control development. The implications point that optimizing children's vocabulary and inhibitory control development by improving teachers' abilities to minimize the negative engagement of children who enter preschool with lower levels of early skills.

In the national survey study, Zheng et al. (2022) aimed to explore the teachers' perceived impact of COVID-19 on the development of preschoolers in urban China. From 11 provinces of urban China, 22,466 teachers of two-six years old preschoolers were randomly selected and surveyed online. The questionnaire including i) demographic information which consists of teachers' teaching experience, educational background, the types and locations of the preschools they work in, and the age of preschoolers they taught when the epidemic occurred, ii) children's development and

learning changes during COVID-19 which included 28 questions and classified into six sub-scales: motor and physical health, daily routine and self-care ability, emotion and psychological health, social skills and interpersonal relationships, language and communication skills, general knowledge and learning quality, respectively and iii) parental involvement changes during the quarantine was employed. 86.5% teachers reported improvement in their children's development and learning, especially in social skills and interpersonal relationships which is not consistent with the previous studies that ascertained COVID-19 Pandemic was always associated with social isolation, limited face-to-face contact, impairment in social interactions, and loneliness. Researchers perceived least improvements in emotion and psychological health. The multiple regression analyses revealed that parental involvement significantly predict their children's development during COVID-19; the higher the parent's involvement, the scores changed positively. Although it impacted children's development, preschool type, region, and age had little predictive power for children's development. The findings imply that an increased focus on preschoolers' emotional and psychological health support is needed and to cope with the crisis, family-preschool collaborations are also essential.

Bozgun and Akin-Kosterelioglu (2020) studied the effects of some demographic variables on the social-emotional development, academic grit and subjective well-being of fourth-grade primary school students. The cross-sectional study data were collected using the Social-Emotional and Character Development Scale, the Academic Grit Scale, and the Subjective Well-Being in School Scale from 582 fourth grade primary school students. The study revealed that the levels of social-emotional development, academic grit and subjective well-being were higher in female students who received preschool education, and had a high frequency of daily book-reading. Moreover, the multivariate main effects of students' gender, pre-school education and frequency of daily book-reading were also significant. It is suggested that pertinent trainings should be organized in cooperation with universities and school counselling services for teachers and families.

Melhuish et al. (2019) explored the possible influence of group-based early childhood education and care (ECEC) offered to the general population on the risk

for Special Educational Needs (SEN) drawing from a large-scale longitudinal study in England. A sample of 2857 children from the 141 ECEC centers were studied. The children those who already in centres were recruited when they became three years old. In addition, when children started primary school at five years, children in the same classes as Effective Provision of Pre-school Education (EPPE) children but who had not attended an ECEC centre were recruited to the study as a 'home' or no ECEC group (n=317). The home children were considerably more disadvantaged overall, but with sufficient overlap in demographic characteristics to statistically control for demographic differences. Semi-structured interviews with parents or guardians were conducted at the beginning of the study. The data of Home Learning Environment (HLE) of the child were also collected at age three. The questions in HLE covered the frequency of seven activities at home. Quality was assessed using the Early Childhood Environment Rating Scale – Revised; ECERS-R focussing on emotional and social care and the Early Childhood Environment Rating Scale – Extension; the ECERS-E, focussing on activities supporting the curriculum namely: literacy, numeracy, science and diversity. The observational Caregiver Interaction Scale (CIS) was used to assess the quality of staff-child interactions (Arnett, 1989). Overall quality was defined as the mean of the ECERS-R, ECERS-E and CIS. A continuous measure of ECEC effectiveness was constructed. Children's attainment at the start of primary school (4-5 years) was analyzed in multilevel models controlling for prior attainment at entry to the study (3+years) and background characteristics. Follow-up interviews were also conducted when children were 6-7 years for additional data on family characteristics. The findings show that there was a reduced risk of a cognitive SEN at the age five associated with the ECEC effectiveness. The effect is large for those children who have had some ECEC as compared with no ECEC rather than with the difference between more and less effective ECEC. At age 11, there was a reduced risk of a literacy related SEN associated with both ECEC quality and effectiveness. There were reduced risks of numeracy and literacy related SEN at age 16 associated with both ECEC quality and effectiveness. There was a reduction in the overall risk of children having a cognitive SEN associated with both ECEC quality and effectiveness. When compared to cognitive SEN, the associations

between socio-emotional SEN risks and ECEC were limited. At age 5, there was an association between self-regulation problems and ECEC quality and at age 11, there was an association between problems related to externalizing behavior and both ECEC quality and effectiveness. In conclusion, there was an association between the overall risk of a child ever having a socio-emotional SEN and ECEC quality, but there was no such association with ECEC effectiveness. The current study also confirms that more disadvantaged children such as those with poor HLE, from low family income and low SES families with parents who have low levels of educational qualifications etc. are significantly more likely to be identified as showing SEN in primary school. It is suggested that the targeting of additional resources and professional development are effective strategies to enhance the quality of preschool provision and to combat the adverse effects of social disadvantage.

Mbugua and Barbara (2018) analysed eleven diverse articles on Early Childhood Education, Care, and Development (ECECD) as a contribution to the rich, on-going conversations about the importance of global ECECD programs and practices. The study highlighted that ECECD programs vary among and within continents, nation-states, and places within a country. It was intended to provide readers with perspectives expressed by authors of programs and practices found throughout the world. The investigators iterated that in most countries, ECECD programs advocate for quality in education, protection, health, and nutrition for children and families. Global seekers of quality programs and practices recognized variability in how quality is defined, developed, delivered, and assessed. The study also pointed out each nations' unique focus on culturally relevant aspects of programs and practices for specific contexts. Research indicated that well-designed ECECD programs of high quality contribute to children's holistic development, workforce productivity, international collaborations, sustainability of peace-building initiatives, and improved economies in the long run.

In the longitudinal study "Early Childhood Education: The Long-Term Benefits", Bakken et al. (2017) attempted to find out whether the children from a quality preschool programme have higher academic skills. 625 children attended

The Opportunity Project (TOP) Early Learning Centers in a Midwestern city in the United States in 2007 were matched with a control group on four variables namely gender, age, ethnicity, and socio economic status from Kindergarten through 4th grade. While first year's group was studied as a pilot group and 2008 TOP graduating group is taken as first actual sample for the study. The data of academics: reading and Math performance and attendance rates and special education placements for all grades were also collected. The TOP group scored significantly higher on math and reading tests in the 4th grade which shows academic performance increased for children provided with high-quality preschool. Placements in special education were fewer when compared to control group which evidence that the TOP emphasis on early identification and remediation of learning problems. Attendance rates of TOP children was also significantly higher than the control group. Teachers of TOP graduates completed questionnaires on appropriate behaviors, social interactions, and emotional maturity. Results indicated that TOP children have significantly more appropriate behaviors, were significantly better at social interactions, and emotional maturity than their non-TOP peers from 1st through the 4th grades. It also stressed that social skills for young children appears to have long-lasting. It has observed that by the 4th grade, TOP students had significantly fewer discipline referrals. Thus it can be concluded that, at least for five years, there is considerable evidence that a high-quality preschool education creates improved life outcomes.

Hong et al. (2016) investigated how a Reggio Emilia, inspired learning group approach works for children with and without disabilities. The sample of the study consisted of three children enrolled in pre-K and two in kindergarten. Three children were typically developing and two children with special needs included in the learning group. The learning group attended 14 sessions weekly within 6 months. Following a mixed method approach, researchers captured the intimate interactions across dyads (qualitative) and the growth of the children made over the data collection early childhood period (quantitative). Video recordings of two groups and observational data were used to assess children's engagement with peers and adults within a learning group. However, all children benefited from participating in

the Reggio Emilia inspired learning group approach. Cognition was the least affected area, in which many of the students did not show improvements. Among the five children, four children developed in the areas of relationship, communication, and play skills. There were significant improvements in social and play engagement in one child with special needs. The outcomes could impact both children with and without disabilities on friendships and caring, cooperation and collaboration, and communication and openness, resulting in the inclusion of everyone. Children within the learning group also exhibited increased interest, inclusion, friendship, and empathy toward children with special needs.

In OPRE Report 2014-10, Peck and Bell (2014) examines the influence of Head Start quality on children's selected cognitive and social-emotional outcomes. Three distinct dimensions of the Head Start setting: resources -the physical characteristics available in the program, interactions between teacher and child and children's exposure to academic activities in the classroom were studied. Applying the analytic innovations to the experimental Head Start Impact Study (HSIS) evaluation data, find little evidence that Head Start's impact varies systematically by the level of quality in the programme for the available, limited quality measures. The frequency of statistically significant differences in impacts by quality levels is no greater than one would expect to observe by chance alone when no true differences exist. One exception is that, for 3-year-olds, lower exposure to academic activities is associated with more favorable short-run impacts on social development. There is almost no indication that either high or low-quality Head Start in any dimension leads to Head Start impacts that last into third grade for either age cohort, consistent with the overall findings of the Head Start Impact Study not disaggregated by quality level.

Duncan and Magnuson (2013) summarized the available evidence on the extent to which expenditures on early childhood education programs constitute worthy social investments in the in the human capital of children. They overviewed existing early childhood education programs and found that many early childhood education programs appear to boost cognitive ability and early school achievement

in the short run. However, most of them show smaller impacts than those generated by the best-known programs, and their cognitive impacts largely disappear within a few years. Despite this fadeout, long run follow-ups from a well-known programs show lasting positive effects on such outcomes as greater educational attainment, higher earnings, and lower rates of crime. It also pointed out that since the findings regarding short and longer-run impacts on “non-cognitive” outcomes are mixed, it is uncertain that what skills, behaviors, or developmental processes are particularly important in producing these longer-run impacts.

Heckman et al. (2013) explained the sources of the Perry treatment, a project conducted from 1962–1967 as a research study seeking the answer to whether access to high-quality education could have a positive impact on preschool children and the communities where they live, effects in terms of improvements in early measures of psychological skills: cognitive and personality skills. At first, estimated the treatment effects for these skills and then estimated the relationship between skills and later life outcomes. 123 Perry sample were randomized which consists of 51 females (25 treatment and 26 control) and 72 males (33 treatment and 39 control). Among them 11 participants left the study by the time of the interview at age 40. The Stanford-Binet Intelligence Test (Terman & Merrill, 1960) was used for measuring cognitive development. The mean differences in Stanford-Binet scores between treatment and control groups were plotted by age and gender. It has found that a few years after the programme ended, the effect of treatment on IQ essentially disappeared for males but statistically significant small positive effect remained for females. In the analysis, IQs at ages seven, eight, and nine were used, since this is the period when the treatment effect on IQ becomes relatively stable for both genders, and IQ becomes rank stable after those ages. Perry Measures of Personality Skills include 43 child personality measures which belong to two separate psychological inventories of personality skills: Pupil Behavior Inventory (PBI) and Ypsilanti Rating Scale (YRS). Investigators analyzed the sources of programme treatment effects using experimental data from an influential early childhood program. Coupling

experimental variation with an econometric model, estimated the role of enhancements in cognition, externalizing behavior, and academic motivation in producing the Perry treatment effects. Persistent changes in personality skills played a substantial role in producing the success of the Perry program. The reduction in externalizing behavior, which explains the bulk of the effects of the Perry programme on criminal, labour market, and health behaviour outcomes, was strong. The study offered a new understanding of how a few hours per day of preschool at ages three and four with a curriculum that promotes social competency, planning, and organization can significantly and beneficially affect life outcomes. The importance and malleability of these skills deserve greater emphasis in public policies designed to promote skills and alleviate poverty. Experimentally induced changes in personality skills explain a sizable portion of adult treatment effects.

Barnett (2011) analyzed a broad range of early educational interventions including large public programmes and found that early educational practices produce meaningful lasting effects on cognitive development, socio-emotional development and school progress. (e.g., grade repetition, special education, and high school graduation). It was pointed out that preschool study control groups had higher rates of grade repetition and special education. While majority of the studies prove the preschool group had better classroom and personal behavior as reported by teachers, less youth misconduct and crime, fewer years of special education, and a higher high school graduation rate. Other studies mention there is no positive effects found on any teacher-reported measure of socio-emotional development or behavior. He has asserted that all the interventions are not equally effective; some have proved that the effect sizes declined over time however magnitude and persistence of effects differ greatly. Long-term effects may be smaller than initial effects, but they are not insubstantial. Some interventions have proved there is no association found between effects on cognition or school progress and age at start or duration. But some of them disapprove of it by claiming earlier is better to start education. Research provides some guidance regarding the features of highly effective programs, but much remains to be learned.

Camilli et al. (2010) conducted a meta-analysis of the effects of early education interactions on cognitive and social development. For the purpose of synthesizing the outcomes of comparative studies in this area. It included both quasi-experimental and randomized studies. The findings showed that significant effects were found for children who attend a pre-school programme prior to entering Kindergarten. The largest effects sizes were observed for cognitive outcomes, a pre-school education was also found to impact children's social skills and school progress.

Barnett (2007) reviews the research regarding the short- and long-term effects of preschool education on young children's learning and development. It has found that different preschool programs produce positive effects on children's learning and development, but those effects vary in size and persistence by type of program. Well-designed preschool education programs produce long-term improvements not only in higher achievement test scores and higher educational attainment but also in lower rates of grade repetition and special education. Some preschool programs are also associated with reduced delinquency and crime in childhood and adulthood. Economically disadvantaged children procure long-term benefits from preschool than the children from other socioeconomic backgrounds. Many of the studies echoed increasing public investment in effective preschool education programs for all children can produce substantial educational, social, and economic benefits. The researcher has stressed that current public policies for child care, Head Start, and state pre-K, do not ensure that most American children attend highly effective preschool programs. It has recommended the intensive supervision and coaching for teachers to improve the process for teaching and learning, regular assessment of children's learning and development to monitor how well they are accomplishing their goals.

In "School readiness and later achievement" Duncan et al. (2007) relate between three key elements of school readiness- early academic, attention, and socio-emotional skills and behaviors to later achievement. Using six longitudinal data sets, the authors estimate links between three key elements of school readiness – school entry academic, attention and socio-emotional skills and later school

reading and math achievement. In an effort to isolate the effects of these school entry skills, the authors ensured that most of their regression models control for cognitive, attention and socio-emotional skills measured prior to school entry, as well as a host of family background measures. Across all six studies, the strongest predictors of later achievement are school-entry math, reading and attention skills. A meta-analysis of the results shows that early math skills have the greatest predictive power, followed by reading and then attention skills. The socio-emotional behaviours, including internalizing and externalizing problems and social skills, were generally insignificant predictors of later academic performance, even among children with relatively high levels of problem behavior. Patterns of association were similar for boys and girls and for children from high and low socioeconomic backgrounds.

In the study “The effect of pre-primary education on primary school performance”, Berlinski et al. (2006) administered the student tests to a randomly selected stratified sample of primary schools of various grades across Argentina. The student tests were administered to third-graders in 1995 through 1999, to sixth-graders in 1996 and 1997 and then again in 1999 and 2000, and to seventh-graders in 1994 through 1997 and then again in 1999. The primary source of information on student performance is from the administrative records of the Argentine National Education Ministry. Standardized achievement tests in Mathematics and Spanish and the questionnaire for teachers covering student behaviour as well as teacher and school characteristics were implemented. It was found that one year of preprimary school increases average third grade test scores by 8 percent of a mean or by 23 percent of the standard deviation of the distribution of test scores. Attending pre-primary school had a positive effect on subsequent third grade standardized Spanish and Mathematics test scores. The result indicated that preprimary school attendance positively affects student’s self-control in the third grade as measured by behaviors such as attention, effort, class participation, and discipline. Investigators conclude that attending pre-primary school improves long-term academic performance and the non-cognitive behavioral abilities of children. The results also imply that separating children (3-5 age) from their mothers can have positive effects if they are placed in a high quality pre-primary education setting.

Goodman and Sianesi (2005) evaluated the effects of early schooling and pre-school on a cohort of British children born in 1958. In contrast to most available studies, investigators were able to assess whether any effects on cognition and socialisation are long-lasting, as well as to estimate their net impact on subsequent educational attainment and labour market performance. For cognitive development, separate measures of mathematical skills, language or reading skills were conducted. For the younger ages, verbal and non-verbal general ability and motor-perceptual ability such as copying design test, a non-verbal test of cognitive ability based on spatial awareness and eye-hand coordination were assessed. For the social skills, investigators derived data from both parental and teacher assessments at ages 7 and 11. The teacher assessed the child's behavior using the Bristol Social Adjustment Guides (BSAG), a test for measuring the extent of disturbance in children's social adjustment and behavior and for educational attainment and labour market outcomes data up to the age of 42 were collected. By controlling gender, birth order, father's and mother's social class, parental education, home environment, and mother's work status, the investigators found some positive and long-lasting effects from early education. Pre-compulsory education was found to yield large improvements in cognitive tests at age 7, though which is reduced in size, remained significant throughout the schooling years till the age 16. Investigators found that there is an improvement in mathematics test scores at 16 for later borns attending pre-school, but not for first/only borns. Children from families with severe difficulties benefit significantly more in terms of maths and reading tests at age 7 than other children. Attendance of pre-school was found to yield a positive but short-lived impact on test scores. In adulthood, pre-compulsory schooling was found to increase the probability of obtaining qualifications and to be employed at 33. For both pre-compulsory education and pre-school, investigators found evidence of a marginally significant 3-4% wage gain at 33.

The effects on socialisation appear to be more varied, with adverse behavioural effects from parental reports at age 7 persisting, for pre-school participants, up to age 11. Pre-school attendance may be more damaging to boys rather than girls in terms of some measures of social skills: specifically, investigators find a higher probability of

delinquent behaviour at age 11, and a larger number of poor social skills reported by teachers at 16 for boys rather than for girls as a result of attending preschool. The study also found some weak evidence that the benefits of pre-school education accrue in more instances to second born and other children, rather than to first or only borns, and that what negative effects there may be on social skills, affect first or only borns more than 2nd borns. It is interesting to note that pre-school attendance appears to have some more positive effects on average for children in families with serious difficulties than for those without such difficulties, suggesting that in the early years, pre-school may play an important role in protecting such children from some of the potentially harmful effects of growing up in their family environment. The effects of pre-compulsory education on parental reports of poor self-control skills at age 7 are driven by the effects on first born children; for second born and others, early education does not appear to have negative effects on self-control. At age 11, pre-compulsory education has a beneficial effect on teacher reports of social adjustment for 2nd borns, but not for first borns. The study has concluded that investments in human capital before the age of 5 appear to have had long-lasting and positive effects on the children.

Using national data from the Early Childhood Longitudinal Study (ECLS-K), Loeb et al. (2005) examined whether there are optimal levels of center care duration and intensity and whether these levels vary by race or income. Considering pre-reading and math skills as measured at the beginning of kindergarten, as well as teacher-reported social-behavioral measures, investigators found that on average attending center care is associated with positive gains in pre-reading and math skills, but negative social behavior. And also, children who start center care between ages two and three see greater gains than those who start centers earlier or later. But it also shows starting earlier than age 2 is related to more pronounced negative social effects. Results for center intensity vary by income levels and race: poor and middle-income children confirm academic gains in attending center intensively i.e., more than 30 hours a week, but wealthier children do not. Whereas intense center care negatively impacts Black and White's social development, but it does not have any negative impact for Hispanic children.

In the study “The Effectiveness of Early Childhood Development Programs: A Systematic Review”, Anderson et al. (2003) explored five computerized databases: PsychINFO, Educational Resource Information Center (ERIC), Medline, Social Science Search, and the Head Start Bureau research database and selected 16 studies which dealt with cognitive, social and emotional variables. Stanford-Binet, the Wechsler Intelligence Scale for Children, Woodcock Johnson or California Achievement Test and standardized tests relevant to Kindergarten curricula were the major cognitive assessment tools employed in different studies. The systematic review claimed that early childhood development programs work directly improving preschool participants’ cognitive and intellectual performance in early childhood. This early gain not only increases participants’ motivation and performance in subsequent years, but also leading to higher educational attainment and a reduced drop-out rate. It reiterates that early childhood development programs have a positive effect on preventing delay of cognitive development and increasing readiness to learn, as assessed by reductions in grade retention and placement in special education classes. More than 70% of the effects reported were in the cognitive domain, with limited evidence available for health screening, and family outcomes. Within the cognitive domain, reliable improvements were found in measures of intellectual ability (IQ), standardized academic achievement tests, standardized tests of school readiness, advancement to the next grade level, and lessened placement in special education. Interventions that improve children’s opportunities to learn and develop capacity are particularly important for children in communities disadvantaged by high rates of poverty, violence, substance abuse, and physical and social disorder. One of the studies reported a negative effect in academic achievement for students enrolled in early childhood development programs. Student retention rates were measured as cognitive outcomes in five qualifying studies. Four of these studies demonstrated decreases in retention rates for students. Another study reported a positive effect for early childhood development programs on retention rates but provided no data to calculate effect sizes. The median effect size for retention was a 13% difference in retention rates for participants enrolled in early childhood development programs. Retention in

grade is highly predictive of failure from high school to graduate, and high school graduation is an important precursor to socioeconomic well-being and improved health status. Out of sixteen, only five studies examining social outcomes which shows limited evidence available for social outcomes. The social outcomes were assessed by measuring child's social competence, i.e., behavioral assessments of social interaction and social risk behaviors, viz., teen pregnancy, teen fatherhood, high school drop-out, unemployed, and use of social services, delinquency, arrests, and incarceration. Three studies measured increases in social competence especially in reductions in impulsivity and improvements in classroom behavior and intrinsic motivation. At 1-year post-intervention, two studies demonstrated benefits in social competence for students enrolled in an early childhood development program, and one showed a negative effect for programme participants. Two studies examined long-term social outcomes for students enrolled in early childhood development programs. Both studies demonstrated long-term decreases in social risk behaviors. The team highlighted that early childhood programs improve children's social competence and social interaction skills, which, combined with higher educational attainment, helps to decrease social and health risk behaviors. There is a positive correlation between education and income: both factors are associated with improved health status and a reduction in mortality and many morbidities.

Gutman and Sameroff (2003) examined the main and interactive effects of multiple social risk factors and the preschool child factors of IQ and mental health on students' academic trajectories from 1st grade to 12th grade among 145 families. The investigators assessed child verbal intelligence and mental health and school outcomes also checked. The total environmental risk score had been calculated by summing the number of risk factors present at 4 years of age. These risk factors included disadvantaged minority status, low education, low occupational status, large family size, father absence, multiple negative life events, rigid parenting values, maternal anxiety, maternal mental illness, and poor parent-child interaction style. Interviews for mothers of 4 year children about their children's social-emotional competence was conducted with the Rochester Adaptive Behavior

Inventory. The study provides substantial support for the hypothesis that the more risk children experience, the worse are their academic trajectories. However, early personal characteristics of high intelligence and good mental health appear to have no protective effects for children experiencing multiple risks. Hierarchical linear modeling showed that high-risk students had lower grades and more child factors for students' grade point average (GPA) revealed that child factors had significant effects only for low-risk students. Higher IQ and better mental health improved the GPA trajectories of low-risk children but did not influence the GPA trajectories of high-risk children. It has been noticed that early school experiences such as having positive relationships with preschool and primary school teachers influence the educational outcomes of economically disadvantaged youth in adolescence. In light of these results, prevention and intervention programs may be more effective if they lessen the multiple social risks in children's lives rather than focus solely on strengthening children's personal characteristics. It suggests that future studies should examine how risk may heighten children's negative outcomes over time and how specific risks may become more detrimental as children and reiterate that future longitudinal studies should expand this finding by examining the protective effects of family, school, and peer characteristics on student's academic trajectories.

In the longitudinal study 'Early childhood education: Young adult outcomes from the Abecedarian project', Campbell et al. (2002) dealt with the high risk infants who initially enrolled in the Abecedarian Project were followed up till 21 years. Among 111 infants in the sample; 57 infants (28 girls and 29 boys) were assigned to the experimental group and 54 (31 girls and 23 boys) were assigned to the control group and 104 took part in the follow up. Selection criteria of the samples were based on 13 socio demographic factors that were weighted and combined to create a high risk index. The service delivery model was child centered, with treated children having full-day child care year round. A systematic curriculum involving "educational games" emphasizing the development of skills in cognition and language was provided. Key domains were measured using Wechsler Adult Intelligence Scale – Revised (WAIS-R; Wechsler, 1981), Woodcock- Johnson Psycho educational Battery – revised (WJ-R; Wood-cock & Johnson, 1989). Broad reading scores were based on subtests labeled Letter Word Identification and Passage Comprehension.

Mathematics subtests included Calculation and Applied Problems. Key domains measured at age 21 were degree of self-sufficiency and social adjustment using a young adult interview (YAI) which covered topics such as living circumstances, family composition, educational and vocational history, leisure and recreational activities, community involvement and any involvement in law breaking and current employment. Substance abuse questions were taken from the Youth Risk Behaviour Survey which covered a variety of behavior associated with injury or illness in young adults. The study also employed Scale of independent living- comprised of four 5 point Likert- type scales summarizing self-sufficiency in economic support, living arrangements, transportation and medical care. The study revealed that cognitive scores of the preschool groups differed significantly on full scale IQ and Verbal IQ and the absolute differences in mean full scale IQs and Verbal IQs for the treated and control individuals were modest. Main effects for gender were not found. The treated group earned significantly higher in the academic scores (significant for calculation) and got grade equivalent scores almost 2 years higher than those of preschool controls in math. Women with preschool treatment were more educated than women without. Educational attainment was greater in preschool group by age 21 than preschool controls. Preschool treatment group attained significantly more years of total education, were more likely to attend a 4- year college, and showed a reduction in teenaged pregnancy compared with preschool controls. Though Individuals in the preschool treated and control groups did not differ significantly in the percentage employed, young adults with preschool treatment were more likely to be engaged in skilled jobs. In-depth study of the lives of multi-risk families and their children proved that the treated and control groups did not significantly different in the degree to which they had attained economic self- sufficiency. A few were living in homes of their own at age 21 and about one half of each preschool group had cars of their own by this age. Those with preschool treatment were slightly more likely to have medical coverage than control group. The reported incidence of marijuana use was significantly less among treated individuals. The incidence of self-reported violence and law breaking was not significantly reduced, although trends in the data favoured the treated group. The positive findings with respect to academic skills and increased years of post- secondary education support policies favouring early childhood programmes for poor children. The important policy implication of the

study show that a high quality child care programme can have a lasting impact on the academic performance of children especially from poverty backgrounds.

Prince (2001) studied the longitudinal effects of Kindergarten. The study included that the students with Kindergarten experience, either public or nonpublic achieved more than those having no Kindergarten experience, on composite scores, English scores and science scores.

Barnett (1998) tries to find out the extent to which early childhood programs produce long-term benefits in children's cognitive development, socialization and school success. The article reviews 36 studies of both model demonstration projects and large-scale public programs which include studies of preschool education, Head Start, child care, and home visiting programs. The achievement test results of the large scale programme studies were quite variable. Some has no effects at any time and some found initial effects that faded and ceased to be statistically significant by the end of third grade. The others found statistically significant effects in third grade or later, though the patterns of effects over time are variable. Results indicate that early childhood programs can produce large short-term benefits for children on intelligence quotient and substantial long-term effects on school achievement, grade retention, placement in special education and socialization. In addition, several model ECCE programs were found to increase pride in school achievement. Long-term positive effects on were obvious not only in teacher ratings, but also in parent ratings and in data on delinquency and crime. In short-term effects of Model Interventions, smaller changes were found for socio-emotional outcomes such as self-esteem, academic motivation, and social behavior immediately after the end of the intervention. Research supports the view that large-scale public ECCE programs can produce long term cognitive, academic and socialization benefits for disadvantaged children and found larger effects on achievement test scores for low-income girls than boys. Not all programs produce these benefits because quality and funding varies across programs. Some of the studies has pointed out that these effects declined over time and were negligible several years after and were negligible several years after children exited the programs. Comparison of estimated long-term effects between model programs and large-scale programs shows that the latter tend to have smaller effects, perhaps because model programs provided higher

quality services than many of the large-scale public programs. There is a risk that today's public programs will not produce the desired benefits because they are lower in quality, i.e., larger classes, fewer staff members, less educated staff, poorer supervision than the model programs. Cross-study and within-study comparisons suggest that Head Start has been less effective than better-funded public school programs. Hence it can be concluded that effects depend on programme quality, and cross-study comparisons indicate that effects are larger for well-designed, intensive ECCE interventions than for ordinary child care.

Lee et al. (1989) investigated the sustained effects of Project Head Start for disadvantaged, black children in Kindergarten and first grade. This longitudinal follow up of a study consists of 646 Black children with some test data in the three follow-ups in 1970, 1971 and 1972 and family background and test data at the base year 1969. Independent measures included a variety of familial and demographic measures obtained through interviews with mothers. The subset used includes: sex, father's presence in the household, the proportion of children to adults in the household, and social class. Using cognitive measures such as verbal achievement (Cooperative Primary Test), and perceptual reasoning (Children's Embedded Figures Test, and the Raven's Colored Progressive Matrices), participation in Head Start was compared to other forms of preschool experience and no preschool experience of disadvantaged children. Both preprogramme background and cognitive differences were controlled in a covariance analysis design. Social competence was measured by using California Preschool Competency Scale and the Schaeffer Classroom Behavior Inventory. Items measure work habits, communication, interpersonal relations, frustration, and help seeking through teacher ratings. Head Start is favored on the Cooperative Primary Test where compared to children do not have preschools. Head Start effects are lowest on the Schaeffer Inventory and they do not reach educational significance. In terms of sex differences, there were significant effects in social competence favoring girls. Findings indicated that children who attended Head Start maintained educationally substantive gains in general cognitive and analytic ability, especially when compared to children without preschool experience. Initial findings of greater effectiveness of Head Start for

children of below-average. Initial ability was reduced but not reversed. It is concluded that the lessening of effects over time, especially for low-ability children, may reflect differences in quality of subsequent schooling or home environment.

Tough's (1977) pre-school language project was concerned with the influence of early social experiences on the child's development and use of language. The study was conducted at the university of Leeds school of Education which was supported by the schools council of the U.K. It sought to examine the use of language by children from unfavoured home backgrounds who received nursery education with those from a similar home background who did not. It was a longitudinal investigation of language development in middle and working class children. Investigator found that even at the age of 3, there were differences in both the linguistic structure and language functions of middle and working class children. The working class children less often used language to report on past experiences or to predict the future, to give explanations, justify behaviour, and reflect on feelings. In addition, their mean length utterance shorter and their sentence structure was less complex.

It was concluded that the educational problem was not to teach working class children to talk more often, or in longer or more complete sentences, the problem is rather that they have had little practice in using language for certain purposes. In high socio-economic status families the mother recalls the past and anticipates the future, she reads him stories, encourages the child to make comparisons, offer explanations and look for differences; she encourages creative indoor activities and imaginative play. The working class child on the other hand has much less of these kinds of experience and enters school with a different set of meanings and does not respond in the way the other child does. Investigator suggested that teachers should help the child to ask questions, solve problems, explore the meaning of particular situations, and in general to use language as a means of learning.

Kellaghan and Jane (1973) conducted factorial study of the characteristics of preschool disadvantaged children. The sample consisted of 96 children attending a pre-school centre in Dublin where majority of families were economically poor and in which the local school had a record of high educational failure. Twenty-four

measures were obtained from the following areas: cognitive development, pre-school achievement, visual perceptual development, auditory perceptual development, language, personality and home environment. Stanford-Binet test also conducted. The Illinois Test of Psycholinguistic Abilities-Grammatical Closure sub test; in this subtest, the child's ability to make use of redundancies in oral language is assessed and The English Picture Vocabulary Test; this is the British version of the Peabody Picture Vocabulary Test and measures listening vocabulary were measured for language development. Children's Behavior Rating Scale developed at the Institute for Developmental Studies at New York Medical College which contains the name, together with a definition of eight traits; each trait is subdivided into five descriptions ranked from high to low. The eight traits are: self-determination, persistence, stimulus-seeking behavior, competitiveness, response to direction, dependence, emotional control in situations of failure or frustration, mood: cheerful-depression. The children were rated by their teachers after the children had been in school for full term. Cognitive dimensions namely information, writing, mathematical thinking and moral dimensions namely cooperativeness, respect for the teacher and work were checked. The findings revealed that the relative lack of differentiation in cognitive ability must be regarded as a major feature of the study. Only one major factor was isolated and that is best described as general ability or intelligence. The analyses indicate that investigators should look beyond the well-worn paths of traditional test procedures and seek new approaches in their search for information about the abilities of disadvantaged children. Of the other tests examined, the one of auditory discriminations seems useful in supplementing the information gained from the test of intelligence. Measures based on teachers' ratings also show promise, at least as far as discriminating between pupils on personality factors is concerned. The value of all such tests in the context of the child's education, of course, remains to be determined. An iterative principal factor analysis followed by a varimax orthogonal rotation yielded seven factors which accounted for 57 per cent of the total variance of the variables. One cognitive factor (general ability or intelligence) accounted for nearly one-third of the common variance and about one-fifth of the total variance of the variables.

Influence of Preschool Education on Cognitive Variables

Idris (2022) stated that students' achievement in the subject of Mathematics is actually closely related to students' mastery of learning Early Mathematics in preschool. Researcher developed a pattern learning module for Early Mathematics using Augmented Reality (AR). The methodology used is the TUP Bednarik Consumer Assessment Model which focuses more on aspects of the learning environment than the three main elements of technology, usability, and pedagogy. 60 teachers, 60 parents and 30 students were included in the study. Findings from teachers revealed that the use of modules was formulated as interesting, able to build students' ideas, involved two-way communication, and students were found to be more proficient in group activities. The findings from the parents showed that AR applications attract students to explore the topic of patterns and interaction. It was found that the students were more proficient in the exercises in the form of simple pattern rules compared to the addition pattern rules. The study found that there was a gap in student mastery in the pattern title where students mastered the exercises in the form of simple pattern rules compared to incremental pattern rules.

See et al. (2022) studied the relationship between students' years spent in early childhood education and their educational outcomes at age 15. The study was based on the Organisation for Economic Cooperation and Development (OECD)'s Programme for International Student Assessment (PISA) survey data for fourteen European countries from 2015 and 2018. It was conducted to determine the extent to which young people have acquired the wider knowledge and skills in reading, mathematical and scientific literacy. The investigators estimated the partial effects of years of attendance of ECE within a very broad specification controlling number of fixed effects and include a set of student and household specific covariates. The findings showed that attending early childcare is associated with better assessments at age 15, though the benefit is nonlinear and peaks at 3-4 years of childcare attendance and both ECE settings and for all three outcomes. It is also found that there are no gender differences in the relationship between childcare participation and test outcomes in the later years. The study estimated coefficients of the ECE variables differentiating between unitary and separate settings. It is emphasized that the role of different institutional characteristics of the ECE system, and educational

components in the unitary setting provide the strongest benefits. The results have potential implications to inform policies relating to investment in early education, especially in terms of the duration of ECE provision, and the educational and schooling components associated with it.

Baji (2021) surveyed the opinions of school personnel on influence of early childhood education on academic performance of primary pupils in Paikoro Local Government Area of Niger State, Nigeria. A sample of 82 head teachers and 106 teachers was selected through proportionate and simple random sampling techniques. Employing “Early Childhood Education Questionnaire” (ECEQ), pupils’ academic performance, writing skills and extra-curricular activities were measured. The data analysis was made through the use of mean, standard deviation, and t-test statistics. The finding of the study revealed that there was a significant difference in opinions of school personnel on influence of early childhood education on academic performance and writing skills of primary pupils in Paikoro Local Government Area of Niger State, but not in extra-curricular activities by the primary pupils.

Cueto et al. (2016) conducted a longitudinal study in Peru to explore whether preschool improve cognitive abilities among children with early-life stunting. The study tried to seek if the type of pre-school and number of years attended is associated with children’s skills in vocabulary and early numeracy by age five and whether there is an interaction between height-for-age z-scores (HAZ) at age one year and attending either type of preschool from ages three to five years on the above-mentioned skills at age five years.

Investigators analyzed data from the Young Lives (YL) longitudinal study, an international study that tracks the development of 12, 000 children in four countries, viz., Ethiopia, India, Vietnam and Peru since 2002, which has information on two cohorts of children that were born around 1994 and 2001. The current study used data from the younger Peruvian cohort only and included two rounds of household surveys gathered in Peru and administered at home to children and their caretakers in 2002 and 2006. From the sample of 1963 children, investigators only included the 72.5% of the children who attended either a Jardin or a PRONOEI pre-

school or no pre-school. Mixed cases, i.e., children who attended both in successive years as well as children who attended other types of childcare programs from ages three to five years were excluded from the analysis. For measuring receptive vocabulary and early numeracy, Peabody Picture Vocabulary Test (PPVT) and Subtests of Child Development Assessment (CDA) were used. Using OLS regression models, investigators found that, for receptive vocabulary a positive effect of attending Jardines (formal) preschools; the effect of attending PRONOEI (community-based) preschools was not significant. More years attending Jardines was more beneficial for children who were better nourished. It was found that HAZ had a positive and significant effect on PPVT and CDA test scores. Investigators suggested to improve the quality of PRONOEIs, and with teachers on targeting children of lower nutritional status.

Macours et al. (2012) analyzed the impact of a cash transfer programme on early childhood cognitive development in Nicaragua, a low-income country. Baseline data for the evaluation were collected in 2005 and a first follow-up survey was collected in 2006, nine months after the households had started receiving payments. The sample comprises the 3, 002 eligible households in the treatment group, and 1, 019 eligible households in the communities that were assigned to the control group. A second follow-up survey, covering the same households as those included in the first follow-up, was collected between August 2008 and May 2009. At this point, households had stopped receiving transfers for an average of two years. All surveys included comprehensive information on household socioeconomic status, including detailed expenditure modules, extensive information on child health and nutrition, including child height and weight, and one measure of child cognitive development, the TVIP. The TVIP is the Spanish-speaking version of the Peabody Picture Vocabulary Test (PPVT), a test of receptive vocabulary that can be applied to children 36 months and older (Dunn et al., 1986). Both follow-up surveys included a large number of tests to assess child development. Social-personal, language, fine motor, and gross motor skills for all children were assessed using the four sub-scales of the Denver Development Test (Frankenberg and Dodds 1996). The findings indicate that magnitude of the effects estimated is modest, but not trivial. The effects on cognitive outcomes (language and memory) for these older children

are 0.19 standard deviations in 2006, and 0.20 in 2008. The result shows that there is no fade-out of programme effects two years after the programme ended. One of the treatment groups had significantly higher per capita expenditure both during the programme and after the programme ended and found no evidence that child development outcomes are better for these households.

In the study 'The Influence of Education and Home Environment on the Cognitive Outcomes of Preschool Children in Germany', Biedinger (2010) used data of the project "Preschool Education and Educational Careers among Migrant Children". The researcher surveyed 625 Turkish and 610 German families with preschool children. After the computer assisted personal parent interview with the person spending the most time with the child, investigator measured children's cognitive development using three subtests of the German version of the "Kaufman Assessment Battery for Children" (K-ABC) which included magic window: identifying a picture through a slit; face recognition: a picture with one person was shown, after that the child has to recognize this person out of a group; and gestalt closure: examinee looks at incomplete "inkblot" drawing and identifies pictures. The parents were asked about the frequency of the following activities using a 7-point scale ranging from 1 "never" to 7 "daily": (i) telling stories to child; (ii) reading books aloud to child; (iii) playing cards or board games with child. For testing significance of indirect and direct and total effect, Sobel test and t-test were used accordingly. Both family and home environment have a significant influence on the cognitive outcome. The influence of the home environment is bigger than the direct influence of education. Higher educated parents really are able to stimulate their children better. This effect is even stronger than the influence of a stimulating home environment. The results show that social inequality exists even in very early preschool years. As a main result, the study shows that it is very important to control for earlier abilities of the children and to encourage low educated parents to be active with their children, since in that way they can compensate for their lower educational background.

Aboud and Hossain (2011) checked the impact of preprimary school on primary school achievement in Bangladesh. Data concerning the changes over 3 years in the quality of a preprimary programme in rural Bangladesh and differences

in school achievement of children who did and did not attend were collected. Using the ECERS-R (Early Childhood Environment Rating Scale – Revised) and ECERS-E (Extension) the quality of 30 preprimary schools was evaluated. Results showed that the quality improved overall from 3.50 in 2006 to 5.24 in 2008. 180 graduates of these schools were annually followed into first and second grades. Five competencies: speaking, writing, reading, oral mathematics and written mathematics were tested. While compared the achievement scores with students in their classrooms and students in neighboring schools who did not have the opportunity to attend preprimary schools, it is observed that first graders in 2008 performed significantly better than comparisons in all competencies, and better than earlier graduates. Second graders performed considerably better than comparisons on all. Qualities of the math preprimary programme correlated with math achievement in Grade 1 only. Hence it can be concluded that the quality of the preprimary programme improved over time along with higher achievement for its graduates. The findings suggest to expand highquality programs in developing countries to help children succeed in the early primary grades.

Melhuish and Phan (2008) aimed to investigate the influence of aspects of home and preschool environments upon literacy and numeracy achievement at school entry and at the end of the third year of school. In order to fulfill the objectives, demographically adjusted groups such as overachieving, average, and underachieving were recognized and 2857 children from 141 preschool centres were recruited into the longitudinal study. The mean age at entry to the study was 3 years 5 months. Full data exist for 2603 children and families at 3 and 5 years and 2354 at 3, 5, and 7 years. Four subscales from the British Ability Scales II (BAS II; block building, picture similarities, verbal comprehension, and naming vocabulary) (Elliot, Smith, & McCulloch, 1996) were employed to give a general cognitive ability score. Upon entering primary school at age 5, children were assessed again with the BAS II. In addition, literacy was assessed by combining the Letter Recognition Test (Clay, 1993) and subscales on the Phonological Awareness assessment (Bryant & Bradley, 1985); numeracy was assessed by the Early Number Concepts subscale of

the BAS II. At the end of the third school year (7+ years) nationally standardized, teacher conducted, national assessments of the children's achievement in reading and mathematics were obtained. The semi structured interview was conducted for one of the child's parents or guardians (usually the mother) which is followed with some open-ended questions.

The multilevel analyses indicate powerful effects for the Home Learning Environment (HLE). Multinomial logistic regressions confirm that children with a higher HLE are more likely to be overachievers, while lower HLE scores are associated with underachievement. The effects were also significant for numeracy, but not as strong as for literacy. Though unsupportive HLE was associated with increased likelihood of underachievement for reading and mathematics, supportive HLE did not have a statistically significant effect on overachievement at age 7 relative to predicted achievement. The results clearly support the influence of the HLE was over and above that of standard proxy measures of parental education and SES. The study also highlighted that specific preschool characteristics and experiences have a decisive role with regard to preschool center effects on children's development.

The goal of the project done by Early et al. (2007) was to consider the links between teachers' education, specifically educational degree and major, and important outcomes of classroom quality as well as children's academic skills in the year before kindergarten entry. Seven major studies of early care and education were used to visualize classroom quality and children's academic outcomes from the educational attainment. Models contain a common set of control variables; however, different instrumentation in the various studies prevented specifying the variables identically across studies. Academic skills include receptive vocabulary, pre-reading skills, and early math skills. For the classroom-level analyses, the control variables were adult-to-child ratio, class size, length of school day, and teacher ethnicity, proportion of White students in class, and proportion of poor students in class. The analyses used hierarchical linear modeling to adjust for dependencies in the data as multiple children from the same classroom were included. The findings show largely null or contradictory associations, indicating that policies focused solely on increasing teachers' education will not suffice for improving classroom quality or

maximizing children's academic gains. Instead, raising the effectiveness of early childhood education likely will require a broad range of professional development activities and supports targeted toward teachers' interactions with children. Thus in order to provide high-quality preschool education, policymakers are increasingly requiring public preschool teachers to have at least a Bachelor's degree, preferably in early childhood education.

To determine the long-term effectiveness of a federal center based pre-school and school based intervention programme for urban low-income children, Reynold et al. (2001) used 15-year follow-up of a nonrandomized, matched-group cohort of 1539 low-income, mostly black children born in 1980 and enrolled in alternative early childhood programs in 25 sites in Chicago. The Chicago Child Parent Center (CPC) Programme (n=989 children) provides comprehensive education, family, and health services and includes half-day pre-school at ages 3 to 4 years, half or full day kindergarten and school age services in linked elementary schools at age 6 and 9 years. The comparison group consisted of 550 children who participated in the alternative early childhood programmes (full day kindergarten): 374 in the preschool comparison group from 5 randomly selected schools and 2 others that provided full day kindergarten and additional resources and 176 who attended full day KG in 6 CPC's without preschool participation. Rates of high school completion and school dropouts by age 20, Juvenile arrest for violent and non-violent offences, and grade retention and special education placement by 18 years were the major aspects checked. The findings of the study indicate that relative to preschool comparison group and adjusted for several covariates, children who participated in the preschool intervention for one or two years had a higher rate of high school completion, more years of educated completion and lower rate of juvenile arrest and school dropout. There were significantly associated with lower rates of grade retention and special education services for both preschool and school age participations. The effects of preschool participation on educational attainment were greater for boys than girls, specifically in reducing school dropout rates. Children with less extended programme participation from preschool through second or third grade also experienced lower rates of grade retention and special education. The study

concluded that participation in the established early childhood intervention for low income children was associated with better educational and social outcomes up to the age 20 years. These findings assure that the established programmes administered through public schools can promote children's long-term success.

In the article "The Role of Schools in Sustaining Early Childhood Programme Benefits", Entwisle (1995) focuses on the process of early schooling, and identifies several factors in the family and the elementary school that influence children's success in school and that could play a part in sustaining the performance of disadvantaged youngsters who have attended preschool. The author discusses the process of schooling in the early elementary grades, focusing on how children's achievement is influenced by the expectations of parents and teachers, and by school practices such as assignment to within-class ability groups, retention in grade, and placement in special education. Mounting evidence testifies to the powerful effects that early schooling can have on children's life chances and ultimate well-being, in part because educational stratification begins in earnest during these years. It also asserts that the examination of research on preschool and the process of schooling in the primary grades suggests that the link between preschool and first grade is key to understanding and explaining the long-term effects of preschool. The evidence confirms that even a temporary cognitive lift empowers children from disadvantaged backgrounds to make a successful transition into school. It appears to be the school's response to the preschooled children that produced the lasting benefits. These children are easier for the first grade teacher to teach and their parents will be more impressed by their abilities. They may have found the transition into school negotiable which will yield large return especially for children from economically disadvantaged families. In any event, processes of schooling must play a vital but little-understood part in the preschool story. It also suggested more research is needed to determine how best to structure these programs and make them more accessible to disadvantaged children.

Influence of Preschool Education on Socio-emotional Variables

Mondi et al. (2021) highlighted that a few studies have investigated the effects of ECE programs on Socio-Emotional Learning (SEL), particularly smaller-scale

skills-based SEL interventions. Investigators discussed conceptual and methodological issues related to developmentally and culturally sensitive assessment of young children's socio-emotional functioning reviewing the empirical research literature on the impacts of general prekindergarten programs, multi-component prekindergarten programs and universal skills-based interventions on SEL. The study suggested that investments should be made to support children's SEL at multiple ecological levels from home and school based interventions to public policies that support healthy development. It also asserted that early childhood educators should place SEL skills along with literacy and numeracy skills as an important part of a balanced early childhood curriculum. Policymakers, parents, and early childhood leaders can assist teachers in instigating SEL interventions into existing programming by encouraging to provide sufficient funding and materials for these efforts.

Purtell et al. (2021) examined the initial implementation of the Kindergarten Transition Practices intervention, its impacts on parental engagement, and how these impacts varied by family race/ethnicity, maternal education, and children's behavior problems. 391 Children were randomly selected and assigned to one of three groups namely KTP-Classroom - a classroom-level intervention; KTP-Plus - both the classroom intervention and an additional home visiting component; or the business-as-usual control group. Transition coordinators worked with both teachers and parents throughout the intervention to build connections between parents and their children's teachers and schools. Parental engagement was measured by Parent-Teacher Involvement Questionnaire (PTIQ, Kohl, Lengua, McMahon, & Conduct Problems Prevention Research Group, 2000). Findings reported that the classroom intervention (KTP-Classroom) led to significantly higher levels of teacher-reported parent involvement especially for Hispanic families and the classroom plus home visiting intervention (KTP-Plus) led to more positive teacher perceptions of parent involvement, parent-teacher relationships, and parent values. It is also showed that intervention effects did not vary by maternal education or children's behavioral problems. The study concluded that connection-focused models may be one way to enhance parental engagement during preschool that provides a powerful advantage for students in both the short- and long-term.

Almazeedi (2019) studied the impact of Kindergarten on children's socio-emotional development. The study revealed that the elements of family, school and community factors, as well as play, relationships, and environments, work in synergy to support children's socio-emotional development. The present research stressed that to improve status of the educational institutions, it is necessary to address issues that minimize the quality of education and render kindergartens irrelevant.

Thinley and Kumar (2019) studied the effect of ECCE on social development of children who attended the ECCE and those who did not attend the ECCE in Bhutan with respect to their gender and locale. A total of 158 preschoolers comprising 81 children who attended the ECCD programme and 77 children who did not attend the ECCD programme of age 6 years were selected. The questionnaire on Social Development by Miriam Mani (2002) was used to collect the data. The study established that there exists a significant difference in social development of preschoolers who attended ECCE and those who did not attend ECCE. The study also proved that there is no significant difference in social development of preschoolers who attended early childhood care and education with respect to gender and locale.

Anderson et al. (2017) implemented a school-based intervention to increase the positive social interaction of kindergarten students on the playground. The sample consisted of three students from a kindergarten class at a suburban university laboratory school in central Utah. The intervention includes social skills training, peer and adult mediation, self-evaluation and reinforcement, and parent involvement through home notes. The teachers completed the Preschool and Kindergarten Behavior Scales, a 76-item scale, designed to measure social skills and internalizing or externalizing behavior problems of students during the ages three to six. The Social Skills Scale, a 34 items scale, addresses social cooperation, social interaction, and independence. The Problem Behaviour Scale contains a total of 42 items, 15 of which are specific to internalizing problems, and addresses social withdrawal, somatic complaints, anxiety, and depressive symptoms. During recess the effects of this intervention were assessed on the playground using partial interval recording of target students' positive interactions. The findings uncovered a relationship between

dependent and independent variables during intervention and post-intervention phases by teachers, parents, and target students, with a marked increase in positive social interaction. Results of the Tau-U statistical analyses indicated a significant difference in student performance for each of the three participants. The findings suggest that the intervention package was the reason for the increase in target students' positive social interaction and it also reiterates further research is needed to determine the contribution of individual intervention components.

Kourmoussi et al. (2017) evaluated the "Steps for Life" Personal and Social Skills Greek K-Curriculum' for young students aged 4 - 6. In addition to classroom-appropriate methods such as dialoguing, story-telling, role-playing and diffusion in formal and hidden curriculum, it incorporates a considerable degree of parental involvement. The 50 whole-day lessons conducted twice a week and its material includes the teacher's manual including the theoretical basis and specific implementation instructions; the structured and analytical lesson guide ensuring an easy implementation; 3 hand-puppets used to introduce most of the lessons and demonstrate the taught skills; 96 pictures used to initiate discussion at most lessons; and the letters to the family which inform parents of the newly taught skills and provide them with specific instructions and indicative ways of dialoguing, thus supporting the continuation of the child's learning at home. The 50 lessons are divided into four modules: a) adaptation period activities; b) instruction of basic concepts; c) emotions' identification and management; and d) problem solving.

The sample consisted of 998 kindergartners from Greece, with 518 of them forming the experimental group and 480 the control group. The items of questionnaire included information regarding demographics, Behavioural Academic Self-Esteem scale and 8 more subscales, namely concentration of attention, participation and cooperation in the class, emotions' identification and management, physical and verbal aggressiveness control, victimization control, self-esteem, empathy, friendship skills, and problem solving. The 96 items examined students' behaviors as exhibited in the school environment and as observed and rated by their teachers. It was administered in the beginning and at the end of the school-year, namely two weeks prior to intervention and three weeks post intervention. The

regression analysis indicated the intervention students showed significantly higher improvement in all targeted abilities except friendship skills and suggest it is important for schools and communities to identify and effectively implement evidence-based interventions.

Graziano and Hart (2016) evaluated the benefits of social-emotional or self-regulation training for preschoolers with behavior problems. 45 preschool children with at-risk or clinically elevated levels of Externalizing Behaviour Problems (EBP) were participated in the study. Three intervention programs were conducted to improve school readiness in preschool children with EBP. During the summer between preschool and kindergarten, children were randomized to receive three newly developed intervention packages. The first and most cost effective intervention package was an 8-week School Readiness Parenting Programme (SRPP). Families were randomized into the second and third intervention packages and received the weekly SRPP. Children attended two different versions of an intensive kindergarten summer readiness class. One version included the standard behavioral modification system and academic curriculum (STP-PreK) while the other additionally contained social-emotional and self-regulation training (STP-PreK Enhanced). Baseline, post-intervention, and 6-month follow-up data were collected on children's school readiness outcomes including parent, teacher, and objective assessment measures.

BASC-2 was used as a measure of children's adaptive functioning. To assess social-emotional functioning, children completed a standardized emotion knowledge task, which required children to both expressively and receptively identify eight different emotions, i.e. sad, happy, angry, afraid, surprised, disgusted, embarrassed, guilty as presented visually via cartoon faces (Denham, 1986). Children also completed the Challenging Situation Task (CST) (Denham et al., 1994) to assess their social problem-solving skills. In the CST, children are presented with six hypothetical peer provocation situations and are asked to provide an effective response and how they would response to that situation. A prosocial composite was created by subtracting the number of aggressive responses from the prosocial responses with higher scores indicative of better social-problem solving. Children

were administered four subtests from the Automated Working Memory Assessment (AWMA; Alloway, 2007), a computer-based assessment of working memory skills for children and adults ages 4 to 22, including: (a) Word Recall (auditory short-term memory); (b) Listening Recall (auditory working memory); (c) Dot Matrix (visuo-spatial short-term memory); and (d) Mister X (visuo-spatial working memory). Children were administered the head-toes-knees-shoulders task (HTKS; Ponitz et al., 2008) to assess Executive Functioning.

Parents and teachers completed the Behavior Rating Inventory of Executive Function (BRIEF; Gioia et al., 2000 or BRIEF-P; Gioia et al., 2003), items are rated on a three-point Likert scale. Both the BRIEF-P and BRIEF are well-established, psychometrically sound measures (Mahone & Hoffman, 2007) that yield five non overlapping but correlated clinical scales viz., inhibit, shift, emotional control, working memory, and plan-organize and two validity scales. Scores in these clinical scales are summed to create composite indices of inhibitory self-control, flexibility, emergent metacognition and an overall global executive composite.

Analyses using linear mixed models indicated that children's behavioral functioning significantly improved across all groups in a similar magnitude. Children in the STP-PreK Enhanced group, however, experienced greater growth across time in academic achievement, emotion knowledge, emotion regulation, and executive functioning compared to children in the other groups. The result showed that teacher and parent ratings on behavioral outcomes indicated that children across all three intervention groups (STP-PreK, STP-PreK Enhanced, and PT only) experienced significant improvements in not only their EBP, but also the impairment such symptoms were causing at school and at home. It also pointed out that parent training is sufficient to address children's behavioral difficulties and intensive summer programme that goes beyond behavioral modification and academic preparation by targeting socio-emotional and self-regulation skills can have incremental benefits across multiple aspects of school readiness.

Kilgus et al. (2016) conducted a study with the purpose of continuing validation efforts relative to the Social, Academic, and Emotional Behavior Risk

Screening -Teacher Rating Scale (SAEBRS-TRS) and examining whether SAEBRS-TRS efficiency might be enhanced by embedding it within a multiple gating procedure akin to the Systematic Screening for Behavior Disorders (SSBD). Two studies were conducted with elementary and middle school student samples. Study 1 includes 567 Elementary and 297 middle school grade students from the southeastern United States. Across both schools, 34 elementary teachers and 12 middle school teachers were participated. Two brief screening tools i.e., BESS and SAEBRS-TRS with regard to each individual student participant in their classroom were completed by teachers. Teachers also finished a SAEBRS-based teacher nomination form once for their entire classroom. In Study 2, 712 Elementary and 822 Middle school students from the southwestern United States participated. 33 elementary teachers and 38 middle school teachers also included. It replicated Study 1 procedures and supported the SAEBRS-TRS' psychometric defensibility in terms of reliability, validity, and diagnostic accuracy. The results supported SAEBRS-TRS defensibility, revealing acceptable to optimal levels of internal consistency reliability, concurrent validity, and diagnostic accuracy. Findings were favourable for a combined multiple gating procedure, which demonstrated acceptable levels of sensitivity and specificity for both studies.

Klucznioka et al. (2016) examined the effects of the KiDZprogramme on child socio-emotional development. In order to establish the effects of participation in KiDZ, a German preschool programme, a longitudinal quasi-experimental design due to the lack of randomisation was implemented. Children entered KiDZ classes or comparison groups at age 3 on average. The intervention group and comparison group consisted of 138 children and 53 children respectively. Three indicators chosen for socio-emotional outcomes were joy of learning, well-being, and worry. For preschool-related joy of learning and well-being, a standardised individual interview with children was developed and used (Schroter, 2006). Following the approach of Harter and Pike (1984), pictograms were used in which children had to answer 6 questions on a four-point scale concerning their joy of learning in the domains of mathematics and language. The scales show good or acceptable internal consistency. Standardized questionnaires and interviews were used for the

comprehensive data from parents on child and family background variables. The domain-specific process quality was measured with the German research version of the Early Childhood Environment Rating Scale – Extension (RossbachandTietze, 2014; Sylva et al., 2003). The instrument assesses the quality of preschools in the domains of verbal literacy, mathematics, and science literacy, and caters to diversity and individual learning needs. The result shows that the KiDZ children report higher well-being and joy of learning (not significant) during the last year of preschool. It has found that significant differences in the domain-specific preschool quality is also favourable to the KiDZ classes.

Wangu and Ruth (2016) carried out a critical analysis on the transition dynamics and student transition adjustment from preschool to lower primary school in Kenya. The process by which transition occurs for children to the primary school from pre-school is perceived as disparity and readjustment for many students. The pre-schoolers may experience difficulties in adjusting to the new school environment which may cause immense excitement and enthusiasm. This paper sought to critically analyze the transition concept against a portrait of theories of child and transition with regard to the change of environment, parent teacher relationship, student teacher dynamics and treatment that meet the preschooler at transition stage. Social adjustment is important and leads to ability to negotiate and work alongside peers. Transition adjustment is a time of considerable disparity and readjustment for many students and this entail changes in social cultures and shifts in peer groups which can be difficult to negotiate. The qualitative study reveals that many students worry about making new friends and it became intimidating for them to enter a new environment without anyone to familiarize with. There is a poor teacher relationship in most of the public schools. Most teachers underestimate parents' views and this had a discourse in parent-teacher relation. Parents should be enlightened on various ways of parental roles such as diet, cleanliness and etiquettes by teachers. Investigators therefore strongly promote for extra chiseling of teacher parent relations dynamics for smooth transition by student to primary schools. The researchers appeal for the need of the development programs that make transition easy for children from one academic level to another. Thus it has recommended that there must be a training for

teachers about transitions, formulation of agreed framework on transition, need of families to take into account effective transition approaches, parent and teachers should cultivate a good relationship to ease the dilemma related to transition and cultural diversities of learners should be merged in school for a healthy interaction among students.

Gagne et al. (2015) conducted a longitudinal study from preschool to preadolescence aiming to examine the socio-emotional outcomes associated with maternal autonomy support during the preschool period. It also explored the contextual specificity of the relationships between maternal autonomy support and children's later socio-emotional outcomes and investigated the indirect effect of maternal autonomy support on children's later socio-emotional outcomes through earlier children's socio-emotional outcomes. Sixty-six mothers and their forty-one pre-school aged girls were participated in all three assessment time points: preschool, elementary school and preadolescence. Maternal behaviors were rated in both the free-play and interference contexts using an adaptation of Whipple, Bernier and Mageau's (2011) rating system. Maternal autonomy support (Time 1) was measured in two contexts (free-play and interference task) using observational coding. Teachers were asked to complete questionnaires including a series of teacher reported measures of children's socio-emotional development at Time 2. Furthermore, the children's socio-emotional developments were measured at Times 2 and 3, mothers completed the Child Behaviour Checklist (CBCL; Achenbach 1991). At Time 3, preadolescents also completed the Revised Children's Manifest Anxiety Scale and the Children's Depression Inventory. The findings indicate that the significance of the early stages of the socialization process in laying the foundation for future development and highlight the contextual specificity of the relationship between maternal autonomy support and children's socio-emotional development across time.

Shala (2013) examined the impact of preschool social-emotional development an important factor in child development on academic success of elementary school students. It consists of the relationships an individual has with others, the level of self-control, and the motivation and perseverance a person has during an activity. This

study included 96 children from Pristine, 28 of them in the first grade, 32 in the second grade, 15 in the third grade and 21 in the fourth grade. The ELDS assessment form was used to determine the relationship between children's social and emotional development during their preschool years. The preschool teachers completed an evaluation form for the achievement of each child during the year. The investigator estimates social-emotional development with grades of E (excellent = 3), S (satisfactory = 2), or N (needs improvement = 1) of 24 observed behaviors, divided into five factors: differentiations between known and unknown people, interaction with the persons around, experience, recognize and properly express emotions, demonstrate that she/he knows the concept of her/himself and ability of self-regulation of emotions. Academic grades from first to fourth grade especially in Mathematics and Albanian language (reading and writing) were checked. The method of linear regression analysis was used. A specific child code for the identification of information was used. A series of multiple regressions were used to determine the relationship between the social and emotional factors and student academic success from preschool through grade four. Hierarchical regressions were also performed. Results show that there is a greater association between social-emotional development and academic achievement in elementary school, especially during the first three years and it has clearly specified that there were no significant correlations between social-emotional development and academic success in the fourth grade. Investigator opined that the ineffectiveness in the fourth grade may be due to the fact that students were assessed almost three years ago and during this time their social-emotional development may have been affected by changes in a child's environment.

Adelaa et al. (2011) evaluated the efficiency of socio-emotional competencies programme conducted in kindergarten. The programme offered training for 9 preschool educators and implemented specific activities with 100 children age 3-7 years old during a one-month period. Socio-emotional competencies of children were assessed before and after the programme using PEDa (Developmental Evaluation Platform). Findings revealed that there is a significant improvement of socio-emotional competencies in children aged 5 and 7, involving understanding and

regulating emotions, prosocial behavior and rule compliance. At age 3, the progress made by children was not statistically significant, may be due to the short duration of the programme and language development of children. It is proved that such programs are efficient and necessary and preschool educators need to focus not only on cognitive development of children but also on socio-emotional aspects relevant for adjustment later in school and life.

Gormley et al. (2011) examined the effects of early childhood education programs on social-emotional outcomes of children at Tulsa, Oklahoma. Teacher ratings of children's behavior from the Adjustment Scales for Preschool Intervention and a measure of attentiveness were used among 2, 832 kindergarten students in 2006, of whom 1, 318 participated in the Tulsa Public Schools (TPS) pre-K programme and 363 participated in the CAP of Tulsa County Head Start programme the previous year. Programme participation was associated with lower timidity and higher attentiveness for TPS pre-K alumni and a marginally significant reduction in timidity for Head Start alumni. The study concluded that high-quality school-based preschool programs can enhance social-emotional development of young children.

Mccabe and Altamura (2011) reviewed the importance of social and emotional competence in young children as it relates to immediate and long-term outcomes. It also reviewed intervention programs with demonstrated empirical efficacy and assessments of social and emotional development and behavioral adjustment. It has stressed that children who are socially and emotionally competent have increased socialization opportunities with peers, develop more friends, have better relationships with their parents and teachers, and enjoy more academic and social successes whereas children who lack social and emotional competence are at risk for reduced socialization opportunities, rejection, withdrawal, behavioral disturbance, and achievement problems. Intervention programs that target social – emotional development in preschool are ideal for strengthening these skills before the problems exacerbate. Although preliminary evidence supports the utility of these intervention programs, it is recommended that additional research on short and long term efficacy and more programs designed specifically for early childhood are needed.

Hotulainen and Lappalainen (2011) conducted a 15-year longitudinal study to examine the pre-school socio-emotional behaviour and its correlation to self-perceptions and strengths of young adults. The design comprises the basic phase (preschool year) and two follow-up studies after 10 years and 15 years. 78 children comprising 43 girls and 35 boys participated in all these phases. Harter's (1983) Revised Self-Perceived Competence Scale for Children (SCSC) was used to explore the self-concept profiles of the children which consists of 18 statements that measured the following six domains using three items each: physical appearance, social acceptance, satisfying hobby, health perception, behavioural conduct and parental relationships. Final school reports also checked. Academic strengths were assessed with a 13-item skill and aptitude scale which is based on Sternberg's (1999) developing expertise model consists of six elements: thinking skills (analytical, creative and practical), metacognitive skills (self-regulation), learning skills, motivation (self-concept), context (communication skills) and knowledge. Outcome dimensions were assessed with a nine-item scale. The subscales assessed two aspects of outcome dimensions: person-placement fit and global self-worth. Pearson correlation and a multiple analysis of variance were employed for the analysis. Parents' vocational status was used as an indicator of socio-economic status (SES) and ninth-school year grade-point average (GPA) was used as a mediator variable in both sets of analyses. Initial socio-emotional behaviour ratings that were done in 1989 by their kindergarten teachers through observation. In 1999, the students in grade 9 rated as part of the risk group in kindergarten, were found to achieve significantly lower final school grades and to have higher perceptions of their own physical appearance but a higher sense of global self-worth. Students in the risk group perceived themselves as less competent than their peers in social acceptance, global self-worth areas, strength perceptions related to learning skills and self-regulation in 2005 early adulthood. The path analysis indicated that socio-emotional behaviour assessed at pre-school age had long-term effects on participants' self-perceptions and global self-worth.

Rosenthal and Gatt (2010) designed a programme 'Learning to Live Together' to provide early childhood educators with (a) research-based knowledge on socio-emotional development, and on social 'learning opportunities' offered by daily social

and emotional events in the group setting; (b) specific intervention skills that support socio-emotional development; (c) the programme further explores and clarifies the overt and covert attitudes and beliefs educators may hold concerning children's socio-emotional development, and concerning their own role in promoting this development. 82 caregivers working in these 12-day care centers participated in the study: 44 worked with young toddlers 15-24 months and 38 worked with older toddlers 24-36 months. The sample was divided into two groups -an intervention group that participated in the LtLT training consist of 40 caregivers in six-day care centers and a comparison group that received other training offered by the child care organization, i.e., training that focuses mainly on curriculum and daily activities with children consist of 42 caregivers in six other day care centers. Seventy-eight children comparing 39 boys and 39 girls participated in the study, 38 in the intervention group and 40 in the comparison group. Two children were randomly selected from the group of children cared for by each caregiver. Caregivers' behavior was rated using two observation scales: 'Caregiver Interaction Scale-CIS', includes 26 items and 'Socio Emotional Interaction Scale – SEIS' developed for this study. The overall quality of the day care center was evaluated using the 'Infant/ Toddler Environmental Rating Scale. Children's behavior was assessed using: 'Minnesota Preschool Affect Checklist –MPAC 'Howes' scale assessing a child's level of social play; and (iii) ratings of the child by the caregiver on the 'Social Competence and Behavior Evaluation -SCBE-30'. The findings of the study revealed that caregivers who participated in the LtLT training were significantly more likely, than caregivers who did not participate in offering verbal and emotional support to children during moments of emotional arousal, such as moments of crying or conflicts; and engaging in behaviors that promoted conflict resolution skills and group entry skills. The differences between the intervention and the comparison groups were much more pronounced among caregivers working in groups with older toddlers than younger toddlers. At the end of the year, caregivers of older toddlers who participated in the LtLT training behaved significantly different from those in the comparison group on many of the behavioral measures. They expressed greater warmth towards the children in their care, listened to them more attentively, and enjoyed them more and offered more support to children's conflict resolution skills and group-entry skills. Interviews with participants

suggest that caregivers need to receive continuous support following the one-year training in order to sustain its effectiveness.

Raver (2002) analysed the importance of young children's emotional development for their school readiness. By reviewing recent researches, the study tried to determine whether children's emotional adjustment can be significantly affected by interventions implemented in the preschool and early school years. It also advocates that family, early educational, and clinical interventions offer policy makers a wide array of choices in ways that they can make sound investments in young children's emotional development and school readiness. It also stressed that young children's emotional and behavioral problems are costly to their chances of school success, hence these problems have to be identified early and amenable to change which lead to reduce these problems over time. The author also analysed what kinds of investments should policy makers be advised to make, at what point in young children's development, and in what settings. The findings suggest that policy makers should consider targeting young children's emotional adjustment prior to school entry, in diverse settings such as Head Start, child care settings, as well as in the first few years of school.

Smilansky's (2002) Kindergarten Children Adjustment Scale (CAS) was employed to evaluate each kindergarten child in four domains. CAS, composed of 18 items, divided into three factors – organizational or academic, social, and emotional adjustment. Behavior problems scale also employed to identify eight behavior problems such as crying for no reason; bullying; malingering; impudence; dramatic mood swings; daydreaming; walking alone in the kindergarten playground; and school tardiness. Before meeting each parent, the mentor had already worked with that parent's child for 3-7 sessions, and gained reasonable knowledge about the child's characteristics. Mentors completed a revised version of the HOME scale to rate their impressions of the child's social and physical environments. A rotated factor analysis of the mentors' evaluations yielded two sub-scales: parental positive behavior, composed of with 6 items, refers to whether the observer witnessed positive parental behavior and child-oriented items in the home, a 3-item scale, assesses the presence of items like toys, books, etc. that enhance exploration and

positive involvement in the environment. Parents were interviewed, about 30 minutes regarding the family's and child's past and present milestones. The Child's Coping Behaviour (CCB) items assessed parental subjective perceptions of the child's typical coping behavior when facing stressful events. Respondents rated each item on a 4-point Likert scale. Parental investment in child (PI) examines the parent's subjective evaluation of his/her own parental investment in the child ie, reads to the child before going to bed; plays games with the child; encourages the child to play with family relatives; walks the child to the playground; reads books about child rearing, etc. These items compromise the "nurturing" subscale of Fox's (1991) Parenting Inventory: Young children. The subscale refers to those behaviors a parent adopts in order to nurture their child's physical, cognitive, social, behavioral, and emotional development. The result shows that inter-correlations among teachers' evaluations and inter-correlations among mentors' evaluations are positive, but not among parents' evaluations. Unlike inter-correlations among each informant's evaluations, correlations among the three informants' evaluations were not significant. This is true for most of the measurements except for one topic: parental investment (PI). Both teachers' evaluations of the child and mentor's evaluation of parental behavior during the home visit are significantly correlated with parents' own evaluations of parental investment. Investigators performed multivariate two-way analysis of variance to explore cultural differences, with child's gender and child's culture as fixed variables and all study measurements as dependent variables. Analysis produced significant main effects for culture which indicate that Arab children received higher evaluations than Jewish children in most cases. Neither gender effects nor interactions were found. One exception was the gender X culture interaction effect for teachers' evaluations of behavior problems (PROB) in the kindergarten. In which Jewish boys were rated as having more behavior problems than all other kindergarten children. Results of the hierarchical regression analyses of parents' perceptions of their child's coping behavior, with the predicting variables indicated that parent's culture was the only significant predictor of parental perception of their child's resilience. Data ensures that cultural differences between cross-informant evaluations exist, and that such differences are profound. Cultural

differences were found among all three evaluators—teachers, parents and observers. Moreover, such cultural differences were neither accompanied by gender differences nor a culture X gender interaction. Though contents of the various evaluations were only partially overlapping, the difference between the Arab and the Jewish informants' evaluations was consistent across domains. The relatively large overlap between the culture of the child (and parents), the teacher, and the observer cancels out the possibility of attributing the differences simply to informants' lack of knowledge about other cultures. Rather, it seems that a more substantial difference exists in the way people from various cultures evaluate preschoolers. Additional support for the possible inherent cultural differences in preschoolers' evaluations can also be seen in the analysis of teachers' evaluations. In this analysis, a significant gender X culture interaction was found, with Jewish boys rated more negatively, i.e., having more problem behaviors, than both Arab boys and girls. Hence the finding cannot be explained by language or by other test related problems, it suggests more exploration in these areas for more profound cross-cultural explanation.

Ashiabi (2000) explored the evidences concerning the emotional development of preschoolers and describes emotional expression, emotional understanding, the regulation of emotions, and their developmental significance. The role of the caregiver-child relationship as indicated by the security of attachment. It is argued that caregivers influence the emotional development of children, as they model, coach, and contingently respond to children. The implications of emotional development and the quality of the caregiver-child relationship for teachers as they pertain to affective displays, negotiation skills, affect regulation, and expectancies of children are discussed. The strategies such as acknowledgment time, feelings time, affection activities, emotional management techniques and social problem-solving approach for enhancing emotional development are suggested. The study summarizes that caregivers enhance children's emotional development by reading the child's cues exactly and responding thoughtfully. The consistent and appropriate responsiveness of caregivers instruct children how to regulate their emotions which in turn contributes to emotionally competent behaviors throughout life. It also

implies that teachers have to be available and responsive to the needs of all the children in their classrooms. Teacher's responses in a consistent manner help children to develop alternative views of the world and relationships. Dependable and responsive nature teach children that emotional experiences need not be overwhelming and that they can be controlled. It also helps children to regulate their emotions with little or no help in time.

Balleyguier and Melhuish (1996) investigated the relationship between infant day care and socio-emotional development with French children aged 3-4 years. The sample consisted of 125 children among them fifty-two were from families with at least one parent in a professional or managerial occupation, forty-three were from the lower middle class and thirty were from parents with semiskilled and unskilled occupations. Interviews for mothers, questionnaires for mothers and teachers, and direct observation were employed. The interview with the mother included parental education and occupations, parental work histories since the child's birth, the day care history of the child, family structure, child health, separations and child temperament. The questionnaires for mothers consisted the Baby's Day Questionnaire covering temperament and the Behaviour Screening Questionnaire covering behaviour problems. The Social Behaviour Questionnaire as adapted by Melhuish (1991) was used for teachers which provided measures of positive social behaviours, sociability, aggression, independence and timidity. During the home visit, standardized stranger approach - separation - reunion sequence (Melhuish, 1987) was used and the child's reaction to being separated from the mother and the reaction upon reunion with the mother were rated. It has been indicated that aggression and behaviour problems would be associated with non-parental care in the first three years has not been supported by the results. The higher levels of social competence would be associated with group care experiences. The Creche group and the mixed care group, both of whom had substantial group care experience scored higher on the subscales contributing to the social competence factor. The lower level of separation anxiety shown by children in the Creche group may well reflect the greater experience amongst these children of being separated from their mother and being with a wide range of alternative care givers. The range of quality of care predominantly available are markedly different for the countries where conflicting

results have been found. Therefore, the interpretation of the differences in findings between studies is that there are quality of care effects influencing the results.

Conclusion

The review of studies on preschool education demonstrates the attention of researchers from various disciplines on the area during the last few decades. Numerous programmes have been implemented worldwide for preschool children and various assessments have been conducted to assess the effect of them. While analyzing many of research conducted in different countries from the 1970s to 2022, it became obvious that as in the other education levels and social sectors, preschool education in third-world countries continue to rely on western models and inferences. The major findings of the literature are summarized here under.

Preschool Programmes have a Large Influence on the Life Outcomes of an Individual

Many studies have proved that the effects are large for those who have early childhood education than those who have no early childhood education (Melhuish et al., 2019; Elizabeth, 2015; Goswamee, 1994; Kaul, 1991 & Rao, 1980). In the meta-analysis, Barnett (2011) has specified the positive effects of preschool education on cognitive, social and emotional outcomes. The major cognitive aspects assessed were language skills, numeracy, academic engagement and academic achievement. The social and emotional aspects assessed were cooperation, friendship, group activities, leadership, helping others, peer relations, relations to teachers, social manners, well-being in school and sex-related behavior. For assessing the cognitive aspects, many studies followed standardized tests relevant to curriculum (Anderson, 2003) and for socio-emotional aspects, questionnaires, interviews and observation were extensively used.

Among cognitive and socio-emotional outcomes, varied effects are found. Duncan and Magnuson (2013) established that early childhood education programs boost cognitive ability and early school achievement in the short run. Campell et al., (2002) found that preschool treated group earned significantly higher in the

academic scores and got grade equivalent scores almost 2 years higher than those of controls. Jamir (1999) revealed that educational facilities and programmes, at the pre-primary stage have shown positive gains not only in cognitive development but also in social and emotional development of the children. Goswamee (1994) found that there are significant differences between the school going and the non-school going children in such aspects of social behaviour as cooperative play, friendship, group activities, leadership, help and cooperation, social manners and sex-related behavior. Camilli et al. (2010) emphasised that pre-school education was also found to impact children's social skills and school progress, but the largest effects sizes were observed for cognitive outcomes.

Some of them highlighted the effects of preschool on language and mathematical scores. A meta-analysis of the results shows that early math skills have the greatest predictive power, followed by reading (Duncan et al., 2007). Berlinski et al. (2006) stressed the positive effect on standardized achievement tests in Mathematics and Spanish and Loeb et al. (2005) mentioned the positive gains in pre-reading and math skills. Campell et al. (2002) ascertained that the result was favourable for letter word identification and passage comprehension and Mathematics subtests including calculation and applied problems. Baji (2021) confirmed the effects on academic performance, writing skills and extra-curricular activities.

Although the stimulation of socio-emotional skills is a central issue of early childhood education, analysis of international, cross national and national studies show that this domain has received less research attention than the cognitive domain especially in India. Among them, only some studies have highlighted the potential benefits of preschools for children's socio-emotional development (Melhuish & Phan, 2008; Anderson 2003), but these effects are smaller than for the cognitive outcomes. Out of sixteen, only five studies examining social outcomes shows limited evidence for social outcomes and the results vary (Anderson et al., 2003). But some studies affirmed that preschool education has positive effects on aspects of social behaviour, social competence and non-cognitive behavior of children (Goswamee, 1994; Anderson et al., 2017; Jamir, 2015 & Berlinski, 2006). Smaller

evaluation studies found clear effects of preschool programmes on socio-emotional outcomes. Meta-analysis found moderate positive effects of preschool programmes on the socio-emotional development of children that are slightly smaller than for cognitive outcomes. With a broader view, most curricula and preschool programmes show a little effect on children's socio-emotional development when compared to cognitive development. Reddy (2022) pointed out that preschool curriculum and teaching are more concerned about academic skills and do not give much attention to the dimensions of social-emotional development.

Studies Indicate the Lasting Effects of Preschool Education on the Development of Children

There are very few studies conducted to determine both short and long term benefits of preschool education among primary school students. Goodman and Sianesi (2005) found the improvement in Maths test scores at 16 -years old. Berlinski et al. (2006) pointed out that one year of preprimary school increases average third-grade Spanish and Mathematics scores. Educational attainment was greater in the preschool group by age 21 than in preschool controls (Campell et al., 2002).

The longitudinal studies (Cueto et al., 2016; Duncan et al., 2007; Gutman and Sameroff, 2003; Campell et al., 2002; Reynold et al., 2001 & Tough, 1977) followed children's progress from Kindergarten to the adolescent period highlighted that preschoolers were less likely to be retained in grades or assigned to special education. Moreover, preschoolled children were more likely to have opted for higher education and were employed. It also indicated the better academic achievement of preschool children which lasts till their high school years. The Opportunite Project (TOP) group scored significantly higher on math and reading tests in the 4th grade which shows academic performance increased for children provided with high-quality preschool and for TOP students, social skills were long-lasting which was observed by the 4th grade and they had significantly fewer discipline referrals (Bakken, et al., 2017). Melhuish (2019) mentioned that at age 11, there was a reduced risk of literacy related SEN associated with both ECEC quality and effectiveness and there were reduced risks

of numeracy and literacy-related SEN at age 16 associated with both ECEC quality and effectiveness.

Long-run follow-ups from well-known programs show lasting positive effects on educational attainment, higher earnings, and lower rates of crime (Duncan and Magnuson, 2013). Berlinski et al. (2006) mentioned that attending pre-primary school improves long-term academic performance and the non-cognitive behavioral abilities of children. See et al. (2022) proved that participation in early childcare is associated with better assessments at age 15, but the benefit is nonlinear and peaks at 3-4 years of childcare attendance. Singh and Mukherjee (2019) proved that entering preschool before the age of 4 has a significant positive association with both cognitive achievement and subjective well-being at the age of 12.

Studies Abroad Suggests that the Type of Preschooling has Positive Effects on Outcomes

It has been found that different preschool programs produce positive effects on children's learning and development, but those effects vary in size and persistence by type of program. Well-designed preschool programs produce long-term improvements not only in higher achievement test scores and higher educational attainment but also in lower rates of grade repetition and special education (Barnett, 2007). Children who participated in preschool programs such as Perry Preschool Project, Head Start Programme, Reggio Emilia, etc. showed improvements in performance on standardized intelligence tests, academic and social-emotional aspects, and school readiness (Duncan & Magnuson, 2013; Barnett, et al., 2012; Cunningham, 2010; Invernizzi, et al., 2010). Persistent changes in personality skills played a substantial role in producing the success of the Perry programme (Heckman et al., 2013). All children; with and without special needs benefited from participating in the Reggio Emilia-inspired learning group approach (Hong et al., 2016). Findings indicated that children who attended Head Start maintained educationally substantive gains in general cognitive and analytic ability, especially when compared to children without preschool experience" (Lee et al., 1989). Mani (2002) reported that Anganwadi children exceeded Balwadi peers in their intellectual, social, and physical

development. But Zaveri (2002) shows that the Balwadi experience has improved the child's ability to socialize with his mother, within the family, with peers, and other adults in the community than the non-Balwadi child. Shabnam (2001) pointed out that CASP PLAN children scored high in motor, cognitive, language, and socio-emotional development than ICDS children.

Studies show that private preschool children have more effect on life outcomes than government preschoolers. Singh and Mukherjee (2019) revealed that children who attended private preschools have significantly higher mathematics scores and more positive subjective well-being than those in government preschools and Sharma (2020) reported that a moderate positive correlation between physical and social development of students of private preprimary schools of urban areas and positive correlation between the physical and cognitive; and physical and social development of students of private preprimary schools of rural areas.

High-quality Preschooling Contribute to Children's Holistic Development

It is proved that well-planned early intervention programs are essential for improved academic performance and non-cognitive behaviour of children. Most of the studies iterated that high-quality programmes produce better results (Melhuish & Phan, 2008, Barnett, 1998; Pankajan, 1979). Mbugua and Barbara (2018) reported that well-designed ECECD programs of high quality contribute to children's holistic development.

Preschool Education Effects may vary by Many Factors Including Gender and SES

Economically disadvantaged children procure long-term benefits from preschool more than the children from other socioeconomic backgrounds (Barnett, 2007). Most of the evaluations have opined that the effectiveness is more for the children who belong to disadvantaged sections of society rather than other sections (Gutman & Sameroff, 2003; Campell, et al., 2002, Reynold, et al., 2001; Entwisle, 1995, Tough, 1977 & Kellaghan and Jane, 1973). Children from families with severe difficulties benefit significantly more in terms of maths and reading tests at age 7 than other children (Goodman & Sianesi, 2005).

Das (2018) revealed that exposure to preschool programme gives benefits to both girls and boys. But Bozgun and Akin-Kosterelioglu (2020) revealed that the levels of social-emotional development, academic grit, and subjective well-being were higher in female students who received preschool education. It has been found that a few years after the programme ended, the effect of treatment on IQ essentially disappeared for males but a statistically significant small positive effect remained for females (Heckman et al., 2013). Campell et al. (2002) reported that though the main effects for gender were not found, women with preschool treatment were more educated than women without. But Reynold et al. (2001) pointed out that the effects of preschool participation on educational attainment were greater for boys than girls, specifically in reducing school dropout rates.

Studies Suggest Inconsistent Results

The promising lines of research became discouraging when some researchers demonstrated that immediate advantages to participant children gradually diminished over some time. Indeed, all the preschool interventions are not equally effective; some have proved that the effect sizes declined over time. However magnitude and persistence of effects differ greatly. Long-term effects may be smaller than initial effects, but they are not frail.

Although most of the studies show positive results, few studies show discouraging results (Anderson, Shinn, et al. 2003; Barnett, 1998) of preschooling. In a study, Zheng et al. (2022) found that preschool type, region, and age had little predictive power. Peck and Bell (2014) discovered little evidence that Head Start's impact varies systematically by the level of quality in the programme for the available, limited quality measures. Loeb et al. (2005) mentioned negative effects on social behavior. Mohan (1990) said that there were no significant differences in development between children of daycare and those not attending daycare.

Shala (2013) said that there is a greater association between social-emotional development and academic achievement in elementary school, especially during the first three years, but not in fourth grade. But Barnett and other researchers said that though preschool effects declined over time they are not insubstantial. Some

interventions have proved there is no association found between effects on cognition or school progress and age at start or duration. But some of them disapprove of it by claiming earlier is better, to start education (Barnett, 2011). Goodman and Sianesi (2005) concluded that investments in human capital before the age of 5 appear to have long-lasting and positive effects on children. Lee et al., (1989) found that initial findings of greater effectiveness of Head Start for children below average were reduced but not reversed. Macours et al. (2012) asserted that there is no fade-out of programme effects two years after the programme ended.

One of the studies (Campell et al., 2002) stressed that though individuals in the preschool treated and control groups did not differ significantly in the percentage employed, young adults with preschool treatment were more likely to be engaged in skilled jobs. But, statistically, significant differences in the attainment of full economic independence were not found at this age. It is clear that the literature shows positive and some negative impacts of preschool education on different aspects of an individual.

Lack of Studies in India, Particularly in Kerala

When compared to the status studies of preschool education, preschool impact studies are less in India, especially in Kerala. While interpreting essential features of studies conducted in the Indian context, it would be important to mention Integrated Child Development Services, a major early childhood care and education programme initiated in India. Although the ICDS programme has generated a great deal of research in different states, the other categories of preschools such as Kindergarten and Montessori are less explored. Thus it can be realized that research also needs to be expanded to closely examine the core characteristics of various preschool programmes in Kerala.

Most of the studies (Sulyman, 2022; Chen et al., 2021; Hong et al., 2013; Edwards, 2002) examined the status of preschools, i.e. the facilities and availabilities of different play and learning materials to ensure the quality of the program. Some of them tested the effectiveness of preschool education in different developmental aspects of preschool children and suggested further studies to strengthen the result

(Mondi et al., 2021; Thinley & Kumar, 2019; Anderson et al., 2017). In Kerala, the search for suitable studies evaluating the effectiveness of early childhood development programs on factors such as cognitive, specifically on socioemotional functioning showed significant gaps in research. The finding of insufficient evidence to determine the effectiveness of preschool education in the areas of children's social and emotional outcomes should not be seen as evidence of ineffectiveness. There is an absence of the kind of rigorous longitudinal studies that have had such an influence on policy development in our country. Rather, it identifies a need for additional quality research.

The important linkage between preschool and schooling has yet to be explored in depth and over a longer period. Most of the studies that link preschool to schooling have not proceeded beyond the first year of schooling. This research attempts to understand the processes that link preschool to schooling are urgently needed. In the process of planning and formulating policies related to ECCE, one major drawback has been the paucity of a well-developed body of research in this field.

Thus the current study 'The influence of preschool education on cognitive and socio-emotional variables among primary school students of Kerala' is substantial in this milieu. The findings and the implications of the current study will pave the way to compare the relative effectiveness of various national systems of early childhood care and education and to save the information for planning and implementing future preprimary programmes to enhance the quality holistic development of the child.

Chapter III

METHODOLOGY

- *Design of the Study*

- *Phase I*

- *Procedure*

- *Tools and Techniques Used*

- *Sample Used*

- *Statistical Techniques Used*

- *Phase II*

- *Variables*

- *Procedure*

- *Tools and Techniques Used*

- *Sample Used*

- *Statistical Techniques Used*

The study analyses the current practices of preschools in Kerala and examines the influence of preschool education on cognitive and socio-emotional variables among primary students. This chapter conveys a detailed description of the design, variables, and procedure of the study, tools used for data collection, samples selected for the study, and statistical techniques used for data analysis.

Design of the Study

The purpose of the study is to gauge the influence of preschool education on cognitive and socio-emotional abilities of primary students. It will be incomplete without the adequate knowledge of different preschools in Kerala. Hence it was decided to assess the current practices of preschools in Kerala. Consequently, the study has two-phases and employs mixed method (qual→QUAN) research design; involving approaches, both qualitative and quantitative data collections and analysis though it has some characteristics of Exploratory Sequential Design and Follow-up Explanatory Design, it has deviances from those designs.

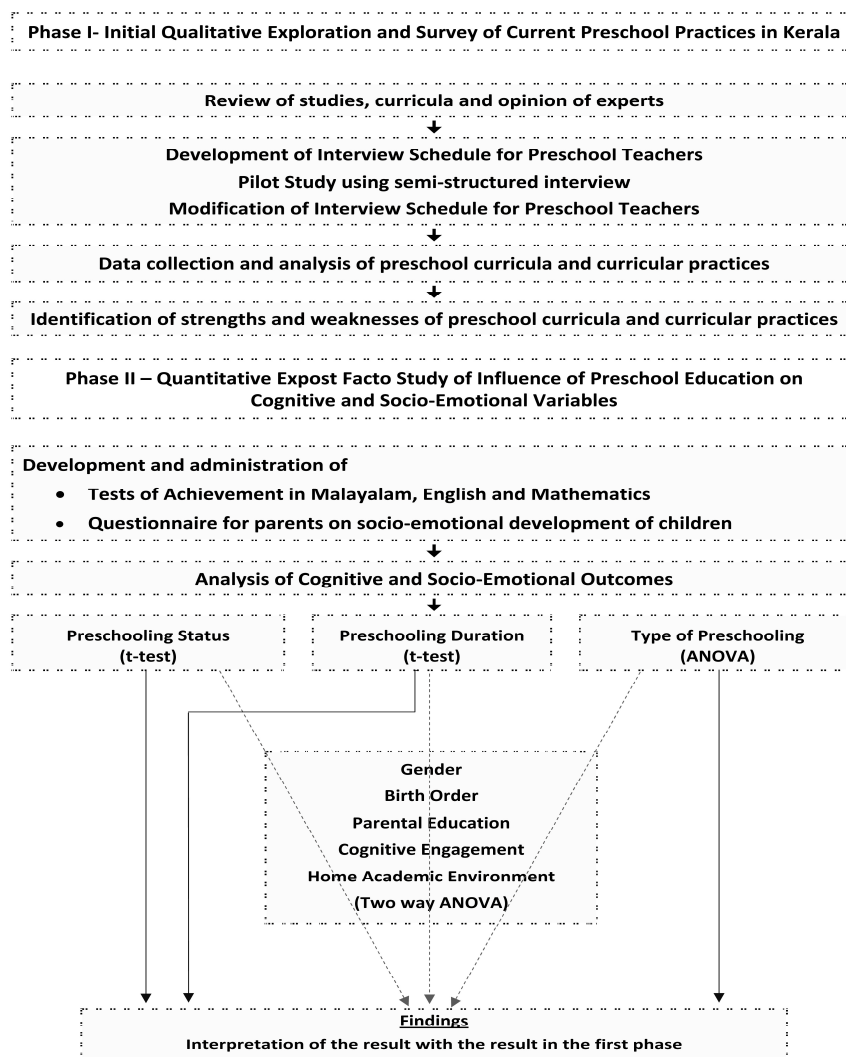
The study begins with qualitative phase which encompasses two stages - initial exploration and survey of current practices of preschools. The review of related literature and various documents regarding preschool education and opinion of experts led to the identification and selection of major categories of preschools in Kerala and the development of a semi-structured interview schedule which was carefully designed to include the major aspects of preschool education such as curriculum, teaching-learning materials, teaching-learning practices, assessment and material and human resources. A pilot study helped in modifying and improving the interview schedule. The survey using interview revealed the strengths and weaknesses of Anganwadis, Kindergarten and Montessori preschools in Kerala. As this phase led to the identification of the categories of sample, this study follows the characteristics of Exploratory Sequential approach, but the qualitative phase is secondary in this study. The exploratory-sequential approach is a sequential approach and is used when the researcher is interested in following up qualitative findings with quantitative analysis. This two-phase approach is particularly useful for a researcher interested in developing a new instrument, taxonomy, or treatment protocol (Creswell & Plano Clark, 2011). The researcher uses the qualitative (exploratory) findings from the first phase to develop the instrument or treatment and then tests this product during the second phase (quantitative). In general, when variables are unknown, this approach is useful to identify important variables (Phase 1) for subsequent quantitative analysis

(Phase 2). It is also a useful approach for revising existing instruments and treatment protocols, as well as for developing and testing a theory.

The second and major phase of the study follows the quantitative method by employing ex-post facto research design to check the cause-effect relation of preschool education on cognitive and socio-emotional variables. Achievement tests for students and scale for parents, developed after extensive review of the literature and content analysis, were employed among samples in three educational districts in Kozhikode. Results in the quantitative phase is to some extent interpreted in view of the results in the qualitative phase. Hence the study in toto has the characteristics of the Follow-up Explanatory Design, but the quantitative phase is not preceded by qualitative phase. Abridged sketch of the design of the study is given as Figure 1.

Figure 1

Outline of the Design of the Study



As the study has two phases; survey of the current status of preschool education and survey of influence of preschool education on cognitive and socio-emotional outcomes among primary school students, which is given in detail separately.

Phase I-Survey of the Current Objectives and Practices of Preschool Education in Kerala

The procedures, tools, samples and analysis used in the first phase of the study is given under specific heads.

Phase I Procedure

For identifying and comparing the current objectives and practices of different types of pre-schools, the succeeding procedures were followed. By reviewing the literature and curriculum of preschools and consulting the experts in the field of preschool education, the study identified and selected major categories of preschools in Kerala. It also led to the development of an interview schedule for preschool teachers focusing the different aspects of preschool education. The survey was conducted among three major categories of preschool teachers: Anganwadi, Kindergarten and Montessori. The survey led to the identification of the strengths and weaknesses of preschool curricula and curricular practices.

Interview Schedule for Preschool Teachers. Interview Schedule for Preschool Teachers was used to identify and compare the current objectives and practices of different types of pre-schools. A thorough analysis of the intended curricular objectives of preschool education and discussion with experts on preschool education and with preschool teachers were done for the preparation of the interview schedule. The schedule has two sections, general information and the current objectives and practices of pre-school education.

Section A - General Information. General information has two parts: personal information and institutional information. Personal information consists of items on name (optional), gender, qualification, type of pre-primary teacher training course attended and experience. Institutional data sought were category of preschool,

type of institution, locality, building, number of students, teachers and helping teachers, working days and working hours.

Section B - Information Regarding the Current Objectives and Practices of Pre-schools. Information regarding the current objectives and practices of different types of pre-schools. The interview schedule for preschool teachers from different types of preschools consisted of both close and open ended questions on five major areas of preschool education—aspects of curriculum, teaching- learning materials, teaching-learning practices, assessment and material and human resources. Aspects of curriculum included curriculum, curricular objectives, syllabus, subjects and time table. Teaching-learning materials consists of text book, hand book and teaching aids. Teaching – learning practices is divided in to two major heads: curricular and co-curricular activities. Curricular activities comprise notebook and activity book practice, home works, various activities in language, physical, social, emotional aspects. Co-curricular activities include indoor and outdoor activities, art and craft, arts and sports festival, special day celebrations and field trips. In assessment, techniques and tools used for assessment and the frequency of assessment are included. The interview schedule for preschool teachers is given as Appendix A1.

Sample used in Phase I

The phase I has two stages: initial exploration and survey of current practices of preschools. For the initial exploration, 10 preschool teachers from Anganwadis and Kindergartens and seven from Montessori preschool teachers (N=27) were randomly selected. The final survey consists of randomly selected thirty preschool teachers from Anganwadis and Kindergartens and seventeen Montessori school teachers (N=77) of Kannur, Kozhikode, Malappuram, Ernakulam, Kollam and Thiruvananthapuram districts including the samples in the initial exploration.

Interview Procedure and Coding Data

For collecting data, the investigator approached the head of the institutions and explained the relevance of the study. After getting the permission, one of the preschool teachers was allotted for interview. After giving a brief description of the study to the preschool teachers, each items were asked in the order and the responses were noted down.

For the items of the structured form, the frequency of the responses based on the nature of responses were calculated. In the case of unstructured items, the responses were pooled and categorized and the frequency of responses in each category were tabulated and consolidated.

Percentage Analysis

Percentage analysis was carried out for the analysis of the data collected through interview. The results obtained were interpreted qualitatively by cross checking the data on the different aspects.

Validity and Reliability

The interview schedule for preschool teachers was constructed by reviewing the studies. It is believed that the tool is valid to yield the required data adequately as they cover the major aspects of preschool education. Cross checking of the data with that of other tools, helped to ensure that the data were reliable and valid.

Phase II- Survey of the Influence of Preschool Education on Cognitive and Socio-Emotional Outcomes among Primary Students

The variables, procedures, tools, samples and analysis of the survey of the influence of preschool education on cognitive and socio-emotional variables among primary students is as following.

Variables of the Study

The independent, dependent and moderator variables, are as follows.

Independent Variables. Preschool education is denoted as three independent categorical variables, i.e., preschooling status, preschool duration and type of preschooling. Hence the influence of preschool status, preschool duration and type of preschooling on cognitive and socio-emotional outcomes among primary standard students were studied.

Preschooling Status. There are preschooled and non-preschooled students in primary standards. Therefore, preschooling status of primary standard students has two levels- pre-schooled and non-preschooled.

Preschool Duration. The duration of preschool is categorized as two levels, i.e., up to 2 years (1 or 2 years) and >2 years (3 or 4 years).

Type of Preschooling. Type of preschooling has three levels, corresponding to the three categories of preschools, i.e., Anganwadi, Kindergarten and Montessori.

Dependent Variables. The dependent variables of the study is cognitive and socio-emotional variables. Cognitive variable consisted of language and mathematical ability whereas socio-emotional variable consists of personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions.

Cognitive Variables. The cognitive variables studied are vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics.

Vocabulary in Malayalam. The level of students' achievement in the areas such as identifying and naming objects, rhyming words, spelling, plural form, antonyms, synonyms, gender, adjectives, prepositions, and dissolution of words were denoted as vocabulary in Malayalam.

Malayalam Comprehension. Achievement in Malayalam comprehension comprised of test scores on sentences, hints, riddles, poems and passages comprehension.

Vocabulary in English. The level of students' achievement in the areas such as identifying and naming objects, rhyming words, spelling, noun, verb, plural form, antonyms, synonyms, prepositions, pronoun, article, adjectives, adverb and contracted form were denoted as their vocabulary in English.

English Comprehension. The comprehension in English consisted of test scores on sentences, hints, riddles, poems and passages comprehension.

Achievement in Mathematics. The level of students' achievement in the areas viz: numbers, shapes and patterns, time, days, weeks and months, arithmetic operations, measures, fraction, and decimal were assessed.

Socio-emotional Variables. The socio-emotional variables included in this study are personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions.

Personal Independence. It is abilities of the child to do the personal activities without the assistance of others such as eat, comb hair, bath, etc.

Academic Independence. It is abilities of the child to do the academic activities without the assistance of others such as read, write, packing school bags, etc.

Work Habits. It is a measure of habits of doing the activities regularly or promptly such as remembering what is supposed to do, doing works on time, etc.

Interpersonal Relationship. It is the extent to which the child expresses the behaviours such as spending time together, bonding, and communicating etc. with the members of the family and peers including other gender in and outside the school in preferring, expressing happiness, interest, etc.

Cooperation. It denotes behaviours of the child such as taking turns, cooperating and sharing with others, handling the belongings of others with care etc.

Communication. It denotes abilities of the child such as conveying the ideas clearly, responding suitably, talking with respect, etc.

Leadership. It denotes abilities of the child such as dominating peers in play and related activities, initiating age appropriate activities, taking up responsibilities, etc.

Expressing Emotions. It is measure of behaviours of the child such as being curious about new things, smiling, pleasing nature, etc.

Controlling Emotions. It denotes ability of the child to identify and regulate emotions and respond in a socially tolerable and flexible way such as keeping calm when get angry or in stressful situation, taking criticisms positively, etc.

Moderator Variables. Gender, birth order, medium of instruction, educational qualification of father, educational qualification of mother and cognitive engagement of the students were incorporated as moderator variables.

Gender. Gender of the child is considered as moderator variable because it is decisive in the development of a child.

Birth Order. As birth order (single child, first and later born) has a great influence in the development of a child, it was considered as moderator variable for the study.

Medium of Instruction. Medium of instruction is the language used in teaching (Malayalam and English medium) in the relevant grades of primary schools.

Father's and Mother's Educational Qualification. Educational qualification of father and mother ranged from Below SSLC to Post Graduation or professional education and above. Hence it is categorized as below secondary, secondary and above secondary.

Cognitive Engagement. Cognitive engagement in this study comprises varied academic engagements outside the school or at home such as learning, tuition, hobby, religious education, play, use of various devices such as T.V., computer, mobile, internet, etc. These activities at different times on working days and holidays were frequency counted and categorized as high and low groups.

Procedure of the Phase II

Content analysis, review of literature and developmental theories on socio-emotional aspects of the children led to the development of the tools. The survey was conducted among primary standard students.

Content Analysis. Content analysis of textbooks of preschools and primary classes (standard 1 – 5 of SCERT, 2016) in Malayalam, English and Mathematics was done for the identification of the major areas in each subjects.

Development of Tools. On the basis of content analysis of the textbooks and achievement tests used in preschools and primary classes, the major areas in

Malayalam, English and Mathematics were identified and the achievement tests in Malayalam, English and Mathematics for standards I, III and V were developed.

By extensive review of literature including on developmental theories on socio-emotional aspects of the children, a scale on socio-emotional development of children for parents was developed which consists of interpersonal relationship, cooperation, communication, leadership, personal independence, academic independence, work habit, expressing emotions, and controlling emotions. These tools were tried out and validity and reliability were ensured.

Preparation of Tools. For the preparation of tools, draft tools were tried out in different samples drawn from 6 schools of Kozhikode district. The achievement tests in Malayalam, English and Mathematics for standards I, III and V were administered among 200 students each.

The scale on socio-emotional development of children for parents was administered among the parents of the students who have attended the achievement tests. The list of schools from where the sample drawn for the preparation of tools are given in Table 1.

Table 1

List of Schools Drawn for the Tryout Sample

Sl.No.	Name of Schools
1	GUPS Ramanattukara
2	GUPS Mayanad
3	GUPS Mavoor
4	Himayathul Islam Higher Secondary School
5	AUPS Poilkav
6	SNBGM UPS Vadakara

Administration of Tools. For studying the influence of preschool education on cognitive and socio-emotional outcomes among primary students, the tests were administered in 17 schools in three educational districts in Kozhikode: Kozhikode, Thamarassery, and Vadakara and Malappuram district. The achievement tests in Malayalam, English, and Mathematics were administered for standards I, III and V students. The scale on the socio-emotional development of children for parents was also administered among the parents of the students who have completed the achievement tests.

Tools and Techniques used for the Study

As the second phase of the study has two set of dependent variables: cognitive and socio-emotional outcomes, tests of achievement and scale used are described in detail.

Measures of Cognitive Variables

Plenty of studies (Bakken, Brown & Downing, 2017; Jamir, 2015, Frances, Abouda & Hossain, 2011; Berlinski, Galiani, & Gertler, 2006; Goodman, & Sianesi, 2005; Anderson, et al., 2003; Campell, et al., 2002; Shabnam, 2001, & Barnett, 1995;) used achievement tests in academic subjects, especially in language and Mathematics, for the assessment of cognitive aspect of children from preprimary to senior secondary. Hence this study used achievement tests in Malayalam, English and Mathematics for measuring cognitive outcomes of primary standard students.

Tests of Achievement. As available standardized tests were inadequate for students of Standard I, III and V in the context of Kerala, newly constructed tests of achievement in Malayalam, English and Mathematics were used. The intended learning outcomes of cognitive domain in Standard I to V (NCERT, 2017 & SCERT, 2016) and the comprehensive analysis of the textbooks of primary classes (SCERT, 2016) led to the identification of the language and mathematical abilities proposed for select three levels. The teacher-made achievement tests used in primary classes were also analyzed. Only multiple choice items were included in Standard III and V considering the feasibility for administration and scoring. For standard I, filling and matching type items also were included. The procedure adopted for the construction of tests of achievement in Malayalam, English and Mathematics is described in detail, separately.

Tests of Achievement in Malayalam. Grade-appropriate tests of achievement in Malayalam were designed and constructed to assess the students' proficiency in vocabulary and reading comprehension in Malayalam for Standard I, III and V students.

Planning. The tests of achievement in Malayalam for Standard I, III and V focusing on vocabulary and reading comprehension, basing on Bloom's revised taxonomy of cognitive objectives (Krathwohl, 2001) covers areas viz., alphabets, words, sentences, passages and poems. Varied types of multiple choice items appropriate to the skills to be measured are included and logically ordered in the test. The number and types of items in each content area for the three grade levels and the

total scores were also decided. All three tests were planned for an hour. The weightage for each content area and the scores of the tests of achievement in Malayalam for Standard I, III and V are given in Table 2.

Table 2

Weightage for Content Areas in the Tests of Achievement in Malayalam for Standard I, III and V

Content areas		Standard wise scores		
		I	III	V
Vocabulary	Alphabets			
	Identify letters and	4		
	a. Match with pictures			
	b. Make meaningful words using the given letters	7		
	c. Order the letters		1	1
	Words			
	a. Identify and name the objects	8		
	b. Rhyming words	2		
	c. Spelling	2	3	3
	d. Plural form	2		
	e. Synonym		6	6
	f. Antonyms	2	3	3
	g. Gender	2	2	3
	h. Adjectives		3	3
i. Dissolution of words		3	3	
j. Expanded and contracted form		3	3	
Vocabulary Total		29	24	25
Comprehension	Sentences			
	a. Match the words	3		
	b. Find the correct sentence	1	1	1
	Picture / Hints	4	2	2
	Riddles	3	3	3
	Passage	9	10	9
Poem		10	10	
Comprehension Total		20	26	25
Grand Total		49	50	50


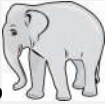

Test of Achievement in Malayalam for Standard I

A draft blueprint was prepared incorporating skills as per Bloom's revised taxonomy for the test of achievement in Malayalam for Standard I is given as Appendix B1.

Item Writing. The items in tests of achievement included with the help of experts in Malayalam language teaching were precise, unambiguous and relevant. The draft test consisted of 49 items in Standard I which is given as Appendix B2. Besides multiple choice items, filling and matching type items also were included considering the level of students. Multiple type items have 4 responses, out of which one is the right response and the rest are distractors. The responses are carefully chosen and logically ordered so as to minimize the ambiguity for students to decide upon the choice. Instructions for responding are given clearly. Illustrative items from Standard I achievement test in Malayalam from each Cognitive Domain Objectives are given in Table 3.

Table 3

Illustrative Items from Standard I Test of Achievement in Malayalam for Cognitive Domain Objectives

Item No. (draft test)	Cognitive Objectives	Illustrative Items					
17	Remembering	ശരിയായ പദത്തിന് വട്ടം വരയ്ക്കുക a) ധനം b) ദനം					
14	Understanding	ചിത്രത്തിന്റെ പേര് കണ്ടെത്തി വട്ടം വരയ്ക്കുക  a)ഞണ്ട് b)വണ്ട് c)ചെണ്ട					
5	Applying	ശരിയായ അക്ഷരം ചേർത്ത് പൂരിപ്പിക്കുക വ (a. ന b. ര c. മ)					
27	Analyzing	ഉചിതമായ വാക്ക് തിരഞ്ഞെടുത്ത് എഴുതുക  വലിയ ആന , -----  -ഉറുമ്പ് a) നീളമുള്ള b) തടിച്ച c) ചെറിയ					
49	Evaluating	താഴെ കൊടുത്തിരിക്കുന്ന വരികൾ വായിച്ച് ചോദ്യത്തിന്റെ ഉത്തരം കണ്ടെത്തി അടയാളപ്പെടുത്തുക കാവിൽ നാല് മാവ് മാവ് നിറയെ പൂവ് പൂവ് നിറയെ തേന് തേൻ കുടിക്കാൻ വണ്ട്. തേനിന് നല്ല-----ആണ് a) കയ്പ് b) എരിവ് c) മധുരം					
9	Creating	കള്ളിയിൽ കൊടുത്ത അക്ഷരങ്ങൾ മാത്രം ഉപയോഗിച്ച് വാക്ക് ഉണ്ടാക്കുക <table border="1" style="display: inline-table; text-align: center;"> <tr> <td>ല</td> <td>ന</td> <td>വ</td> <td>ത</td> <td>പ</td> </tr> </table>	ല	ന	വ	ത	പ
ല	ന	വ	ത	പ			

Administration and Scoring Procedure. The draft test of achievement in Malayalam for Standard I consists of 49 items. In the test, each right response carries one score and a wrong response, zero. The total score on the draft test ranged from zero to forty nine. Administrator read the instructions clearly for responding each items and provided appropriate time for marking the responses in the question booklet itself according to the question pattern.

Item Analysis. Item Analysis was done by administering the test on a sample of 200 students by examining students' responses to each items in order to assess the quality of items and of the test. Discrimination Power and Difficulty Index were calculated based on responses of upper and lower 27 percent students (54 in each group). Difficulty Index (DI) and Discriminating Power (DP) of each item were calculated using the following equations in Standard I, III and V.

$$DI = \frac{U_H + L_H}{2N} \text{ and } DP = \frac{U_H - L_H}{N}$$

Where,

DI - Difficulty Index

DP - Discriminating Power

U_H - Number of right responses among the 27% of students with the highest test scores.

L_H - Number of right responses among the 27% of students with the lowest test scores.

N - Number of students in lower / upper group

Data and result of item analysis of test of achievement in Malayalam for Standard I are given as Appendix B3. Items with discriminating power greater than 0.3 and difficulty index between .25 and .75 were selected for the final test, which made 42 final items test. Blueprint of final test is given in Appendix BI. final tool and final scoring key of Test of Achievement in Malayalam for Standard I is given as Appendices B4 and B5 respectively.

Test of Achievement in Malayalam for Standard III

The development of the test of achievement in Malayalam for Standard III was given in detail. The blueprint of draft test of achievement in Malayalam for Standard III is given as Appendix C1.

Item Writing. The items of tests of achievement were precise, unambiguous and relevant which were included with the help of experienced teachers in Malayalam. The draft test consisted of 50 items in Standard III which given as Appendix C2. Each items had 4 choices out of which one is the right answer and the rest are distractors. The choices are made carefully and ordered logically so as to minimize the ambiguity in selecting the choice. Instructions for responding to the test were given clearly and spaces for marking responses were provided in the question booklet itself. Illustrative items from each Cognitive Domain Objectives are given in Table 4.

Table 4

Illustrative Items from Standard III Test of Achievement in Malayalam for Cognitive Domain Objectives

Item No. (draft test)	Cognitive Objectives	Illustrative Items
3	Remembering	ശരിയായ പദം കണ്ടെത്തുക. a) വൃത്യാസം b) വാത്യാസം c)വ്യത്യാസം
10	Understanding	അടിവരയിട്ട പദത്തിന് പകരം പദം കണ്ടെത്തുക വൃദ്ധന്റെ ദീനം മാറിയില്ല a) രോഗം b) സന്തോഷം c)സങ്കടം
6	Applying	പിരിച്ചെഴുതുക. ആയിരമായിരം a) ആയിരം + ആയിരം b) ആയിര + മായിരം c) ആയിരം + മായിരം
26	Analyzing	ഉത്തരം കണ്ടെത്തുക ഒരമ്മ പെറ്റ മക്കളൊക്കെ തൊപ്പിക്കാർ. a) മാങ്ങ b) അടക്ക c) ചക്ക
25	Evaluating	ശരിയായ വാക്യം കണ്ടെത്തുക a) കാണാതായ പേന കിട്ടിയില്ല വീടു മുഴുവൻ എത്ര അന്വേഷിച്ചിട്ടും b) വീടു മുഴുവൻ എത്ര അന്വേഷിച്ചിട്ടും കാണാതായ പേന കിട്ടിയില്ല c) എത്ര അന്വേഷിച്ചിട്ടും വീടുമുഴുവൻ കാണാതായ പേന കിട്ടിയില്ല
49	Creating	താഴെ കൊടുത്തിരിക്കുന്ന കവിത/പദ്യശകലം വായിച്ച് ചോദ്യത്തിന് ഉത്തരം കണ്ടെത്തി അടയാളപ്പെടുത്തുക <i>മക്കളായ് നാലുപേരുണ്ടെങ്കിലും അമ്മ ഏകയാണേകയാണീ ഊഴിയിൽ അച്ഛൻ മറഞ്ഞൊരു കാലം മുതൽക്കമ്മ ഭാരമായ് തീർന്നുവോ നാലുപേർക്കും?</i> ഈ വരികൾക്ക് ഉചിതമായ തലക്കെട്ട് തെരഞ്ഞെടുക്കുക. a) നാലു മക്കൾ b) മറഞ്ഞൊരു കാലം c) ഏകയായമ്മ

Administration and Scoring Procedure. Test of achievement in Malayalam for Standard III is an objective-multiple choice test with 50 items. Each item has four choices out of which one is the correct response and the rest are distracters. Each right response is scored one and wrong response zero, with the possible total score on the test ranging from zero to fifty. Administrator read the instructions clearly for responding each questions.

Item Analysis. Item Analysis was done by administering the test on a sample of 200 students by examining students' responses to each items in order to assess the quality of items and of the test. Discrimination Power and Difficulty Index were calculated based on responses of upper and lower 27 percent students (54 in each group). Difficulty Index (DI) and Discriminating Power (DP) of each item were calculated using conventional procedure. Data and result of item analysis of Achievement tests in Malayalam for Standard III is given in Appendix C3 with the selected items.

Items with discriminating power greater than 0.3 and difficulty index between .25 and .75 were selected for the final test, which made a 43 item final test. The blueprint of final test is given in Appendix C1. Final tool and final scoring key of Test of Achievement in Malayalam for Standard III is given as Appendices C4 and C5 respectively.

Test of Achievement in Malayalam for Standard V

The development of the test of achievement in Malayalam for Standard V was given in detail. The blueprint of draft test of achievement in Malayalam for Standard V is given as Appendix D1.

Item Writing. The items of tests of achievement in Malayalam were precise, unambiguous and relevant which were included with the help of experienced teachers. The draft test consisted of 50 items in Standard V. Each items had 4 choices out of which one is the right response and the rest are distracters. The choices are made carefully and ordered logically so as to minimize the ambiguity in selecting the choice. Instructions for responding were given clearly and spaces were provided in the question booklet itself to mark the responses. Illustrative items from each Cognitive Domain Objectives are given in Table 5.

Table 5

Illustrative Items from Standard V Test of Achievement in Malayalam for Cognitive Domain Objectives

Item No. (draft test)	Cognitive Objectives	Illustrative Items
3	Remembering	<p><u>ശരിയായ പദം കണ്ടെത്തുക</u></p> <p>a) അധ്യാപകൻ b) അദ്യാപകൻ c) അധ്യാപകൻ d)അത്ഥ്യാപകൻ</p> <p><u>അടിവരയിട്ട പദത്തിന് പകരം പദം കണ്ടെത്തുക.</u></p>
10	Understanding	<p><u>അച്ഛൻ കോപിച്ചു</u></p> <p>a) സന്തോഷിച്ചു b) സഹായിച്ചു c) ദേഷ്യപ്പെട്ടു d) വിഷമിച്ചു</p>
6	Applying	<p><u>ശരിയായത് തിരഞ്ഞെടുക്കുക</u></p> <p>മഹോന്നതം</p> <p>a)മഹ+ഉന്നതം b)മഹാ+ഉന്നതം c)മഹോ+ഉന്നതം d)മഹൊ+ഉന്നതം</p>
25	Analyzing	<p><u>വിശേഷണപദം തിരഞ്ഞെടുക്കുക</u></p> <p>a) അവർ/ b) പരുപരുത്ത/ c) പാറക്കുഴലങ്ങൾ/ d) കണ്ടു</p>
26	Evaluating	<p><u>ശരിയായ വാക്യം തിരഞ്ഞെടുക്കുക</u></p> <p>a) എല്ലാ വെള്ളിയാഴ്ച തോറും പ്രാർത്ഥനയുണ്ട്</p> <p>b) എല്ലാ വെള്ളിയാഴ്ചയും പ്രാർത്ഥനയുണ്ട്</p> <p>c) വെള്ളിയാഴ്ച തോറും സ്ഥിരമായി പ്രാർത്ഥനയുണ്ട്.</p> <p>d) എല്ലാ വെള്ളിയാഴ്ചതോറും സ്ഥിരമായി പ്രാർത്ഥനയുണ്ട്.</p>
50	Creating	<p><u>പദ്യശകലം വായിച്ച് താഴെ കൊടുത്തിട്ടുള്ള ചോദ്യത്തിന് ഉചിതമായ ഉത്തരം തിരഞ്ഞെടുക്കുക</u></p> <p><i>വേനലിലമരുന്ന മലർക്കാലത്തിലെന്റെ ആശകളൊന്നൊന്നായി വാടിവീണലിയവേ ഒരു തുള്ളി നീരിനായി കേഴുന്ന വേഴാമ്പലായ് ഇനിയുമണയാത്ത കുളിരു കാക്കുന്നു ഞാൻ</i></p> <p>ഉചിതമായ തലക്കെട്ട് തിരഞ്ഞെടുക്കുക?</p> <p>a) വേനൽ b)ജലം c)വേഴാമ്പൽ d) വേനൽമഴ</p>

Administration and Scoring Procedure. Test of achievement in Malayalam for Standard V is an objective-multiple choice test with 50 items. The draft test is given as Appendix D2. Each item has four choices out of which one is the correct response and the rest are distracters. Each right response is given score one and wrong response is given zero, with possible total score ranging from zero to fifty. Administrator read the instructions clearly and provided appropriate time for marking the responses in the question booklet itself according to the question pattern.

Item Analysis. Data and result of item analysis of Achievement tests in Malayalam for Standard V is given as Appendix D3. After item analysis 7 items in vocabulary and comprehension could not pass the criteria for DI and DP. As some items were too easy for the students, that could not discriminate between high and low groups. Thus all those items were excluded from the final version of tool. Items with discriminating power greater than 0.3 and difficulty index between .25 and .75 were selected for the final test, which made a 43 item final test. Blueprint of final test is given in Appendix D1. Final tool and final scoring key of Test of Achievement in Malayalam for Standard V is given as Appendices D4 and D5 respectively.

Validity and Reliability. Validity of test of Achievement in Malayalam for Standard I, III and V is confirmed by covering major learning objectives of Malayalam topics of preschools and of Standard I to V till the second terminal examination. Investigator also consulted experienced primary teachers in Malayalam. Each item was judged on the basis of age of students, content level and pattern of responding. Ambiguous and difficult items were modified according to the suggestions of experienced teachers.

Reliability is estimated by split- half method. The items were grouped based on their discriminating power. Index of reliability of Malayalam vocabulary and Malayalam comprehension of Standard I, III and V (N=200) is given in Table 6.

Table 6

Reliability (Split-half Method) of Subtests of Test of Achievement in Malayalam of Standard I, III and V Students

Dimensions	Standard I	Standard III	Standard V
Malayalam Vocabulary	0.92	0.80	0.83
Malayalam Comprehension	0.86	0.85	0.85

Tests of Achievement in English

Tests of achievement in English were developed for assessing the competence in English language of primary students. A thorough analysis of the related studies was done to design the tests. The tests consist of two parts, vocabulary and reading comprehension.

Planning. A comprehensive analysis of the textbooks and teacher's handbook of English in primary classes (SCERT, 2016) led to the identification of learning outcomes and language elements introduced in the texts. Previous teacher made achievement tests in English in primary classes were also analyzed. The elements of language such as alphabets and words were included in the vocabulary part; and, sentences, passages, poems and picture description were included in the comprehension part. Appropriate weightage was given to different language elements.

Items in tests of achievement in English were planned based on revised Bloom's taxonomy of objectives viz., remembering, understanding, applying, analyzing, evaluating and creating. The items of easy, average and difficult level were included. Number of items and time duration of the tests for each Standard were fixed. All three tests were planned for an hour. The tests were developed for Standard I, III and V according to the level of the students. To ensure item quality, conventional item analyses procedures were applied for each tests separately, on a sample of 200 students each. The tests of achievement in English for Standard I, III and V is further described in detail below.

Varied item tasks were included according to the skills involved and logically ordered. The details of categories of items and scores for each test category in English for Standard I, III and V are given in Table 7.

Table 7

Weightage for Content Areas in the Tests of Achievement in English for Standard I, III and V

Parts	Categories of Items	Standardwise Score		
		I	III	V
Vocabulary	Alphabets			
	Identify letters			
	a. and order the letters	5		
	b. and match capital and small letters	4		
	c. of objects	2		
	a. Name the object	4, 2		
	b. Rhyming words	2	2	2
	c. Spelling	3	3, 3	3, 2
	d. Noun		2	
	e. Verb		4	3
	f. Plural form		3	3
	g. Antonyms	2	3	2
	h. Animals -young ones, homes & sounds	2	3	4
	i. Preposition	2	2	3
	j. Pronoun		2	4
	k. Article		3	3
l. Adjectives	3	2	2	
J. Adverb			2	
K. Contracted form			2	
Vocabulary Total		31	32	35
Comprehension	Sentences			
	a. Match sentences with pictures	3		
	b. Fill the words	3		
	c. Use of "can"	2		
	d. Find correct one			1
	e. Make single word/ family vocabulary		2	
	Picture		3	
	Passage	10	16	20
Hints		2		
Comprehension Total		18	23	21
Grand Total		49	55	56



Test of Achievement in English for Standard I

The development of the test of achievement in English for Standard I is given in detail. The blueprint of draft test of achievement in English for Standard I is given as Appendix E1.

Item writing. From the analysis of the textbooks of English in preschools and Standard I (SCERT, 2016), it is identified that alphabets, words, sentences and comprehension passages are introduced in this stage. The items were developed not only on the basis of learning outcomes and level of cognitive behavior expected in each domain of English language learning but also considering the age level of students. The draft test consists of 45 multiple choice items comprising 27 questions in vocabulary and 18 questions in comprehension which is given as Appendix E2. The first item carries 5 marks. So the total score of the test is 49. In vocabulary, questions like of missing letters and capital and small letters, spelling, matching picture and word, rhyming words, opposites and prepositions were included. The reading comprehension items consisted of passages and picture comprehension. Illustrative items from each Cognitive Domain Objectives are given in Table 8.

Table 8

Illustrative Items from Standard I Test of Achievement in English for Cognitive Domain Objectives

Item No. (draft test)	Cognitive Objectives	Illustrative Items
7	Remembering	<p><u>Look at the picture and tick the missing letter</u></p>  <p>c _____ p</p> <p>a) a b) e c) u d) i</p>
12	Understanding	<p><u>Underline the word which rhyme with the given word</u></p> <p>can</p> <p>a) mat b) pan c) fat d) bad</p>
25	Applying	<p><u>Look at the pictures and tick the right option to complete the sentences</u></p>  <p>The ball is _____ the table</p> <p>a) in b) at c) on d) under</p>
14	Analyzing	<p><u>Circle the opposite words</u></p> <p>small a) short b) big c) heavy d) long</p>
45	Evaluating	<p><u>Read the following passages and choose the right answers for the questions</u></p> <p><i>Tinu has a pet dog and a pet cat</i> <i>Her dog has a yellow and black cap</i> <i>Her cat has a red and blue cap</i> <i>She loves cats and dogs.</i></p> <p>a. dog b. cat c. pets</p>
35	Creating	<p><u>Write two things you can do alone</u></p> <p>I can.....</p>

Administration and Scoring Procedure. The tests were administered among the Standard I students. Administrator read the instructions clearly. The students have to mark their responses in the test booklet itself according to the pattern of item. The space for writing name and class was provided in the booklet. One score was assigned to each correct response. Sum of scores of the items was taken as the total score on the tests. The lowest score is 1 and highest score is 49.

Item Analysis. Item Analysis was done by administering the test on a sample of 200 students by examining students' responses to each item in order to assess the quality of items and of the test. Discrimination Power and Difficulty Index were calculated based on responses of upper and lower 27 percent students (54 in each group). Data and result of item analysis of tests of achievement in English for Standard I is given Appendix E3. Items with discriminating power greater than 0.3 and difficulty index between .02 and .80 were selected for the final test, which made a 39-final items test which carries the total score of 43. Blueprint of final test is given as Appendix E1. Final tool and final scoring key of Test of Achievement in English for Standard I is given as Appendices E4 and E5 respectively.

Test of Achievement in English for Standard III

The development of the test of achievement in English for Standard III is given in detail. The blueprint of draft test of achievement in English for Standard III is given as Appendix F1.

Item Writing. After analyzing the textbooks in English in Standard I to III (SCERT, 2016), alphabets, words, sentences and comprehension passages were included in the test. The items were developed not only on the basis of learning outcomes and cognitive behavior expected in each domain of English language learning but also considering the age level of students. The test consisted of 55 multiple choice items in draft test comprising 32 items for assessing vocabulary and 23 items for assessing comprehension which is given as Appendix F2. In vocabulary, items on of missing letters, spelling, matching picture and word, rhyming words, opposites and prepositions were included. The reading comprehension consisted of passages and picture comprehension. Illustrative items from each Cognitive Domain Objectives is given in Table 9.

Table 9*Illustrative Items from Standard III Test of Achievement in English for Cognitive Domain Objectives*

Item No. (draft test)	Cognitive Objectives	Illustrative Items				
7	Remembering	<p><u>Tick the words which spelt correctly</u></p> <p>a) bicycle b) bycikle c) bycicle d) bicycel</p>				
4	Understanding	<p><u>Circle the word which does not belong in the group.</u></p> <p>a) get b) wet c) vat d) pet</p> <p><u>Choose appropriate pronouns from the box to fill the blanks.</u></p> <table border="1" style="margin-left: 40px;"> <tr> <td>a) he</td> <td>b) she</td> <td>c) it</td> <td>d) they</td> </tr> </table> <p>Smitha dances well. ____ has won awards</p> <p><u>Underline the action words.</u></p> <p style="margin-left: 40px;">Sam/ plays/ football/ well.</p> <p style="margin-left: 40px;">a b c d</p> <p><u>Circle the correct one.</u></p> <p style="margin-left: 40px;"><i>I can fly.</i></p> <p style="margin-left: 40px;"><i>I sleep during the day.</i></p> <p style="margin-left: 40px;"><i>I have round face.</i></p> <p style="margin-left: 40px;"><i>My eyes are sharp.</i></p> <p style="margin-left: 40px;"><i>I eat rats.</i></p> <p style="margin-left: 40px;">a) parrot b) crow c) robin d) owl</p> <p><u>Read the passage and answer the questions that follow</u></p> <p>Once upon a time there were three goats. One of them made a house of grass. A fox came and blew at the house, which broke. The second one made a house of wood. The fox came and blew again and the house broke. The third goat made the house of bricks. The fox again blew at the house, but the house did not break because it was strong.</p> <p>Write a suitable title to the passage.</p> <p style="margin-left: 40px;">a) Three goats b) The house of bricks</p> <p style="margin-left: 40px;">c) The intelligent goats d) The house of grass</p>	a) he	b) she	c) it	d) they
a) he	b) she	c) it	d) they			
21	Applying					
17	Analyzing					
38	Evaluating					
50	Creating					

Administration and Scoring Procedure. The tests were administered among the Standard III students. Administrator read the instructions clearly for responding each questions. The students have to mark their responses in the test booklet itself according to the item pattern. The space for writing name and class was provided in the booklet. One score was assigned to each correct response. Sum of scores of the items is taken as the total score on the tests. The lowest score is 1 and highest score is 55. The first item was completion type.

Item Analysis. Item Analysis was done by administering the test on a sample of 200 students by examining students' responses to each item in order to assess the

quality of items and of the test. Discrimination Power and Difficulty Index were calculated based on responses of upper and lower 27 percent students (54 in each group). Data and result of item analysis of Achievement tests in English for Standard III is given in Appendix F3.

After item analysis, six items in vocabulary and reading comprehension in English could not pass the criteria for DI and DP. As some items were too easy for the students, that could not discriminate between high and low groups. Those items were excluded from the final version of tool. Items with discriminating power greater than 0.3 and difficulty index between .25 and .75 were selected for the final test, which made a 49 items final test. Blueprint of final test is given Appendix F1., final tool and final scoring key of Test of Achievement in English for Standard III is given as Appendices F4 and F5 respectively.

Test of Achievement in English for Standard V

The development of the test of achievement in English for Standard V is given in detail. The blueprint of draft test of achievement in English for Standard V is given as Appendix G1.

Item Writing. After analyzing the textbooks in English in Standard I to V (SCERT, 2016), as in Standards I and III, alphabets, words, sentences and comprehension passages introduced in this stage. The items were developed not only on the basis of learning outcomes and cognitive behavior expected in each domain of English language learning but also considering the age level of students. The draft test consisted of 56 multiple choice items test, comprising 35 items for assessing vocabulary and 21 items for assessing reading comprehension (Gafoor & Iqbal, 2018) which was adopted and restandardised. In vocabulary, items on missing letters, spelling, matching picture and word, rhyming words, opposites and prepositions were included. The comprehension items consisted of passages and picture comprehension. Illustrative items for each Cognitive Domain Objectives are given in Table 10. The draft test is given as Appendix G2.

Table 10*Illustrative Items from Standard V Test of Achievement in English for Cognitive Domain Objectives*

Item no. (draft test)	Cognitive Objectives	Illustrative Items
6	Remembering	<u>Tick the correctly spelt words</u> a) remembar b) remambar c) rimember d) remember
5	Understanding	<u>Find the rhyming words</u> cream a) stem b) dream c) from d) drum
28	Applying	<u>Pick the suitable verb forms to fill the blanks.</u> Motherthe food everyday. a) cook b) cooked c) cooks d) cooking
10	Analyzing	<u>Cross odd one</u> a) dinner b) lunch c) tea d) break fast
36	Evaluating	<u>Select the correct sentence</u> a) Rema is book reading. b) Rema book is reading. c) Rema reading is book. d) Rema is reading book.
20	Creating	<u>Read the passages from I to V has three responses A B or C for each question choose the correct answer there below</u> <i>Tom is going on a trip to the mountains. Tom needs to take his bag. The bag is small and brown. Tom opens the bag and he wants to put things in the bag. Tom wants to pack his bag. Tom puts a map, a camera, a book and boots in the bag. Tom closes the bag. But the bag cannot close! Tom takes the boots out of the bag. He puts them on his feet.</i> What is the best title for this passage? (a) ATrip to the Mountains (b) Tom Packs His Bag (c) Tom Puts a Camera in the Bag

Administration and Scoring Procedure. The tests were administered among the Standard V students. The instructions were given before the commencement of the tests. The students have to mark their responses in the test booklet itself according to the item pattern. The space for writing name, class and division was provided in the booklet. One score was given to each correct response. Sum of scores on all the items is the total score, this can range from zero to 56.

Item Analysis. Data and result of item analysis of tests of achievement in English for Standard V, using the conventional method is given in Appendix G3.

After item analysis, 51 items could pass the criteria for DI and DP. As some items were too easy for the students, that could not discriminate between high and low groups. Thus five items were excluded from the final version of tool. Items with discriminating power greater than 0.3 and difficulty index between .25 and .75 were selected for the final test, which made a 51-item test. Blueprint of final test given as Appendix G1, final tool and final scoring key of Test of Achievement in English for Standard V is given as Appendices G4 and G5 respectively.

Validity and Reliability. Content validity of test of achievement in English for Standard I, III and V is confirmed by covering major learning objectives of English topics of preschools and Standard I-V till the second terminal examination. Investigator also consulted experienced primary teachers. Each item was judged on the basis of age of students, content level and pattern of responding. Ambiguous and difficult items were modified according to the suggestions of experienced teachers.

Reliability is estimated by split-half method. The items were grouped based on their discriminating power. Index of reliability of English vocabulary and English comprehension of Standard I, III and V (N=120) is given in Table 11.

Table 11

Reliability (Split-half Method) of Subtests of Tests of Achievement in English of Standard I, III and V Students

Dimensions	Standard I	Standard III	Standard V
English Vocabulary	0.94	0.93	0.86
English Comprehension	0.91	0.91	0.89

Tests of Achievement in Mathematics

Tests of achievement in Mathematics were prepared to measure the achievement in Mathematics of the students in Standard I, III, and V. A thorough analysis of the related studies was done to design the tests. The tests assess students' mathematical ability. The items included in these tests were based on the grade level of the students.

Planning. The tests of achievement in Mathematics were planned to assess the level of students' achievement in Mathematics in the areas such as numbers, measures, shapes and patterns, time, days, weeks, months, addition, subtraction, multiplication and division. These areas were measured based on Bloom's revised taxonomy of

cognitive objectives. The number and type of items in each content area, total scores and time of the tests were also planned. All items were multiple choice. In the test, logically ordered varied item tasks were included according to the skills involved. The duration of the test is an hour for each Standard. The details of categories of items and score for each tests in Mathematics for the Standard I, III and V are given in Table 12.

Table 12

Weightage for Content Areas in the Tests of Achievement in Mathematics for Standard I, III and V

Categories of items	I	III	V
Numbers			
a. Identification	5, 3	2	2
b. Count	1,4	1	1
c. Ascending or Descending	4	1	1
d. Place value		3	3
e. Number names	3	2	2
Sub Total	20	9	9
Arithmetic Operations			
a. Addition	2	3,1,11	3
b. Subtraction	2	2,2	3
c. Multiplication		4	4
d. Division			3
e. Different arithmetic operations		3,1	4
Sub-Total	4	16	17
Shapes	1, 1, 4,	4,4	3, 4
Patterns	5	3	3
Days, weeks and months	3	3	3
Time	3	4	3
Measures / Dimensions	5, 1, 1	3	4
Fraction			1
Decimal			1
Sub-Total	24	21	22
Total	48	48	48

Tests of Achievement in Mathematics for Standard I

The development of the test of achievement in Mathematics for Standard I is given in detail. The blueprint of draft test of achievement in Mathematics for Standard I is given as Appendix H1.

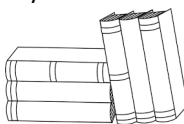

Item Writing. After analyzing the textbooks in Mathematics in preschools and Standard I (SCERT, 2016), it is identified that numbers, measures, shapes and pattern,

time, days, weeks, months, addition, subtraction, multiplication and division are introduced in this stage. The items were developed not only on the basis of learning outcomes and cognitive behavior expected in each domain of Mathematics learning but also considering the age level of students. The items precision, unambiguity and relevance were ensured with the help of experienced teachers in Mathematics teaching in primary schools. The test consisted of 38 items in Standard I, but item numbers 1, 23, 24 and 25 carry multiple questions. Hence the total score of test is 48.

Each items have four responses out of which one is the right response and the rest are distractors. The response choices are developed carefully and ordered logically so as to minimize the ambiguity in selecting the choice. Instructions for responding were given clearly as in the administrator’s version and spaces were provided in the question booklet itself to mark the responses. Illustrative items for each Cognitive Domain Objectives are given in Table 13.

Table 13

Illustrative Items from Standard I Test of Achievement in Mathematics for Cognitive Domain Objectives

Item no. (draft test)	Cognitive Objectives	Illustrative Items
		<u>Read the instructions of each items carefully and mark the responses accordingly</u>
1	Remembering	Circle the answers of the questions Find the numbers in the boxes <div style="border: 1px solid black; display: inline-block; padding: 2px; text-align: center;"> 5 N 8 L 3 1 U T 6 H </div>
		<u>Read the instructions of each items carefully and mark the responses accordingly</u>
2	Understanding	Identify more books  
35	Applying	Manu has five sweets and Baby has three sweets. How many sweets are there altogether? a) 7 b) 8 c) 9 d) 10
10	Analyzing	Complete the pattern <div style="border: 1px solid black; padding: 5px; display: flex; align-items: center; gap: 20px;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">□</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">○</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">□</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">○</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div>
36	Evaluating	To get 6, we can add a) 4+3 b) 3+4 c) 3+ 3 d)3+2
24	Creating	<u>Write the missing numbers</u> 5 ____ 3 ____ 1

Administration and Scoring Procedure. The tests were administered among the Standard I students. Administrator read the instructions clearly for responding each questions. The students have to mark their responses in the test booklet itself according to the question pattern. The space for writing name and class was provided in the booklet. One score was assigned to each correct response. Sum of scores was calculated as the total score on the tests. The lowest score is 1 and highest score is 48.

Item Analysis. Item Analysis was done by administering the test on a sample of 200 students by examining students' responses to each question in order to assess the quality of items and of the test. Discrimination Power and Difficulty Index were calculated based on responses of upper and lower 27 percent students (54 in each group). Data and result of item analysis of achievement tests in Mathematics for Standard I is given as Appendix H4.

After item analysis some of the items in Mathematics could pass the criteria for DI and DP. As some items were too easy for the students, that could not discriminate between high and low groups. Thus all those items were excluded from the final version of tool. Items with discriminating power greater than 0.3 and difficulty index between .20 and .80 were selected for the final test, which made a 33-item test carrying the score 43. The copies of blueprint of final test is given as Appendix H1. Draft tools, final tools and final scoring key of Test of Achievement in Mathematics for Standard I is given as Appendices H2, H3, H5, H6 and H7 respectively.

Tests of Achievement in Mathematics for Standard III

The development of the test of achievement in Mathematics for Standard III is given in detail. Blueprint of draft test of achievement in Mathematics for Standard I is given as Appendix I1.

Item Writing. After analyzing the textbooks in Mathematics in Standard I, II & III (SCERT, 2016), it was learnt that numbers, measures, shapes and pattern, time, days, weeks, months, addition, subtraction, multiplication and division were included in this stage. The items were developed not only on the basis of learning outcomes and cognitive behavior expected in each domain of Mathematics learning but also considering the age level of students. The items were made precise, unambiguous and

relevant with the help of experienced teachers in Mathematics. The test consisted of 48 items. Each items had 4 choices out of which one is the right response and the rest are distractors. The choices are made carefully and ordered logically so as to minimize the ambiguity in selecting the choice. Instructions for responding were given clearly and spaces for responses and to write respondent name and class were provided in the question booklet itself. Illustrative items for each Cognitive Domain Objectives are given in Table 14.

Table 14

Illustrative Items from Standard III Test of Achievement in Mathematics for Cognitive Domain Objectives

Item no. (draft test)	Cognitive Objectives	Illustrative Items (Cognitive Objectives)
2	Remembering	Find the odd number a) 24 b) 32 c) 48 d) 51
5	Understanding	3 tens and 2 ones = _____ a) 302 b) 203 c) 32 d) 23
30	Applying	One Sunday of a month is on 10 th . What is the date of the next Sunday? a) 16 b) 17 c) 18 d) 19
31	Analyzing	August 18 is Monday. School youth festival is on 25 th and 26 th August. Choose the days of youth festival. a) Sunday and Monday b) Monday and Tuesday c) Tuesday and Wednesday d) Saturday and Sunday
29	Evaluating	Which of the following is not suitable to 52 = _____ a) 62 - 10 b) 72 - 20 c) 82 - 20 d) 92 - 40
11	Creating	<u>Complete the number patterns</u> 3, 6, 9, _____ a) 10 b) 11 c) 12 d) 13

Administration and Scoring Procedure. The tests were administered among the Standard III students. Administrator read the instructions clearly for responding each questions. One score was assigned to each correct response. Sum of scores was calculated as the total score on the test. The lowest score is 0 and highest score is 48.

Item Analysis. Item Analysis was done by administering the test on a sample of 200 students by examining students' responses to each question in order to assess

the quality of items and of the test. Discrimination Power and Difficulty Index were calculated based on responses of upper and lower 27 percent students (54 in each group). Data and result of item analysis of Achievement tests in Mathematics for Standard III is given as Appendix I4.

After item analysis, seven items in Mathematics could not pass the criteria for DI and DP. As some items were too easy for the students, that could not discriminate between high and low groups. Thus all those seven items were excluded from the final version of tool. Items with discriminating power greater than 0.3 and difficulty index between 0.2 and .80 were selected for the final test, which made a final 41 item test. The copies of blueprint of final test which is given as Appendix I1. Draft tools, final tools and final scoring key of Test of Achievement in Mathematics for Standard III is given as Appendices I2, I3, I5, I6 and I7 respectively.

Tests of Achievement in Mathematics for Standard V

The development of the test of achievement in Mathematics for Standard V is given in detail. The blueprint of draft test of achievement in Mathematics for Standard V is given as Appendix J1.

Item Writing. After analyzing the textbooks in Mathematics in Standard I-V (SCERT, 2016), items on numbers, measures, shapes and patterns, time, days, weeks, months, addition, subtraction, multiplication and division were included in the test. The items were developed not only on the basis of learning outcomes and cognitive behavior expected in each domain of Mathematics learning but also considering the age level of students. The items were made precise, unambiguous and relevant with the help of experienced teachers in Mathematics. The test consisted of 48 items. Each items had 4 choices out of which one is the right response and the rest are distractors. The choices are made carefully and ordered logically so as to minimize the ambiguity in selecting the choice. Instructions for responding were given clearly and spaces were provided in the question booklet itself to mark the responses and write name and division. Illustrative items for each Cognitive Domain Objectives are given in Table 15.

Table 15

Illustrative items from Standard V Test of Achievement in Mathematics for Cognitive Domain Objectives

Item no. (draft test)	Cognitive Objectives	Illustrative Items
13	Remembering	1. hour is equal to a)100 minutes b) 80 minutes c)70 minutes d) 60 minutes
8	Understanding	430 is _____ a) Four hundred and three b) Four hundred and thirteen c) Four hundred and thirty d) Three hundred and forty
17	Applying	An iron rode of 7 m has cut in to small pieces of 50 cm. How many pieces will get from it? a) 12 b) 14 c) 16 d) 18
15	Analyzing	A train reaches station at 11 a.m. But it runs 80 minutes late. At what time it will reach at the station? 11. 80 a.m. b) 11. 80 p.m. c) 12.20 a.m. d) 12.20 p.m.
36	Evaluating	There are 85 oranges in a basket and 62 oranges in another basket. Select the suitable one from the following to find how many oranges are more in first basket. a) $85 + 62$ b) $85 - 62$ c) 85×62 d) $62 + 85$
24	Creating	Which of the following is suitable to make a rectangle? a) 6 cm, 4 cm, 4 cm, 6 cm b) 5 cm, 8cm, 5 cm, 4cm c) 10 cm, 10cm, 10 cm, 10cm d) 3cm, 5 cm, 6cm, 3 cm

Administration and Scoring Procedure. The tests were administered among the Standard V students. The instructions were given before the commencement of the tests. The students have to mark their responses in the test booklet itself according to the question pattern. One score was assigned to each correct response. The sum of scores of question was calculated as the total score on the tests. The lowest score is 0 and the highest score is 48.

Item Analysis. Item Analysis was done by administering the test on a sample of 200 students by examining students' responses to each question in order to assess the quality of items and of the test. Discrimination Power and Difficulty Index were calculated based on responses of upper and lower 27 percent students (54 in each). Data and result of item analysis of Achievement tests in Mathematics for Standard V is given as Appendix J4.

After item analysis, seven items in Mathematics could not pass the criteria for DI and DP. As some items were too easy for the students, that could not discriminate between high and low groups. Thus all those seven items were excluded from the final version of tool. Items with discriminating power greater than 0.3 and difficulty index between 0.2 and .80 were selected for the final test, which made a 41item final test. The copies of the blueprint of final test which is given as Appendix J1. Draft tools, final tools and final scoring key of Test of Achievement in Mathematics for Standard V is given as Appendices J2, J3, J5, J6 and J7 respectively.

Validity and Reliability. Content validity of tests of achievement in Mathematics for Standard I, III and V were confirmed by covering major learning objectives of Mathematics topics of preschools and Standard I to V till the second terminal examination. Investigator also consulted experienced teachers in Mathematics. Each item was judged on the basis of age of students, content level and pattern of responding. Ambiguous and difficult items were modified according to the suggestions of experts.

Reliability is estimated by split- half method. The items were grouped based on their discriminating power. Index of reliability of Matematics of Standard I, III and V (N=200) is given in Table 16.

Table 16

Reliability (Split-half Method) of Test of Achievement in Mathematics of Standard I, III and V Students

Dimensions	Standard I	Standard III	Standard V
Mathematics	0.91	0.94	0.90

Measures of Socio-Emotional Variables

One of the major objectives of the study is to find out the influence of preschool education on the socio-emotional development of primary school students. Hence it was decided to develop a scale for evaluating the social and emotional development of students.

Scale on Socio-Emotional Development of Children for Parents

Scale on the socio-emotional development of children was planned to administer among parents because parents know the child best and their responses give an insight into their observations of the child's development.

Planning. A thorough analysis of the related studies depicts that various aspects of social competence were extensively used in studies. Among them, personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions were decided to include as the components of socio-emotional development in this study.

The discussion with the experts in preschool education and teachers of preschools and primary schools, and parents also helped the development of the scale. It is a Likert scale with four item-response options namely always, often, rarely and never. The number of component-wise items in draft scale is given in Table 17.

Table 17

Component-wise Number of Items in Draft Scale on Socio-Emotional Development of Children (for Parents)

Components	Number of draft items
Interpersonal relationship	7
Cooperation	3
Communication	3
Leadership	12
Personal - Independence	6
Academic - Independence	7
Expressing emotion	28
Controlling emotions	13
Work habits	7
Total	86

Item writing. Items were prepared based on thorough analysis of the developmental milestones of the children of the age group 0 - 12. Various milestones were identified for different age group 6 -12 and item were prepared accordingly. The draft scale has 86 items on the components of socio--emotional development namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions. The examples for each component is in Table 18.

Table 18

Illustrative Items from Nine Components of Scale on Socio-Emotional Development of Children for Parents

Components	Item No.
Personal Independence	VI.A.3
Academic Independence	VI.B.5
Work habits	IX.9.2
Interpersonal relationship	I.5
Cooperation	II.1
Communication	III.3
Leadership	IV.6
Expressing emotions	VII.1
Controlling emotions	VIII.1

Administration and Scoring. The scale was distributed to the children of the standards I, III and V with appropriate instructions as it was to be filled by the parents and also explained the adequacy of the data. The scale has four options; always, often, rarely and never which were scored as 4, 3, 2 and 1 respectively. There are 43 negative items which were scored in reverse. Copy of the draft of scale on socio-emotional development of the children for parents of Standards I, III and V are provided as Appendices K1.

Item Analysis. Item analysis of the scale was done on a sample of 120 students' parent responses. The data were arranged in the descending order of the total score of each component. Upper 27 percentage (30 numbers) and lower 27 percentage (30 numbers) were selected for analysis. The critical ratio was calculated and the items having t-value >2.58 were selected for the final scale. Four items in Standard I, 2 items in Standard III and 14 items in standard V were removed.

As the same scale was administered in Standards I, III and V, it is essential to produce all the results of item analysis of each standard separately. Results of the component-wise item analysis of the scale on socio-emotional development of the children of Standard I, III & V is given as Appendix K2, K4 and K6.

Reliability and Validity. Reliability of the scales were established using split-half method and Cronbach's Alpha. Split-half reliability was calculated by correlating scores on one half of the test with the scores on the other half of the test. Scale was made two halves by sorting the items on the ten components. Split half

reliability of scale on socio-emotional development of the children of Standards I, III and V are given in Table 19.

Table 19

Split-half Reliability of Scale on Socio-Emotional Development of the Children of Standard I, III and V

Components	Split Half Reliability (N=120)		
	Standard I	Standard III	Standard V
Personal Independence	0.92	0.79	0.79
Academic Independence	0.71	0.79	0.79
Work habits	0.41	0.79	0.79
Interpersonal relationship	0.79	0.79	0.79
Cooperation	0.50	0.79	0.79
Communication	0.54	0.79	0.79
Leadership	0.90	0.79	0.79
Expressing emotions	0.74	0.79	0.79
Controlling emotions	0.86	0.79	0.79

Cronbach's Alpha value was also calculated. Reliability coefficient of the component scales of socio-emotional development for Standard I, III and V students are given in Table 20.

Table 20

Coefficient of Reliability of Component Scales on Socio-Emotional Development of Children (for parents) for Standard I, III and V

Components	Cronbach Alpha(N=120)		
	Standard I	Standard III	Standard V
Personal Independence	0.93	0.96	0.94
Academic Independence	0.84	0.93	0.87
Work habits	0.85	0.90	0.73
Interpersonal relationship	0.88	0.83	0.29
Cooperation	0.65	0.72	0.60
Communication	0.81	0.84	0.60
Leadership	0.92	0.92	0.48
Expressing emotions	0.93	0.94	0.76
Controlling emotions	0.84	0.89	0.61

Copies of the final scale on socio-emotional development of the children for parents of Standards I, III and V are provided as Appendices K3, K5 and K7 respectively.

Sample used for the Study

The second phase of the study was to identify the influence of preschool education on cognitive and socio-emotional variables among Standards I, III and V students in schools affiliated to department of education, Government of Kerala and Montessori schools. The sample was drawn by using stratified random sampling with weightage to locality, type of management and medium of instruction. Though study population is primary standard students in 14 districts in Kerala, as the study includes three achievement tests and a scale, the data collection was limited to Kozhikode district only giving due representation to three educational districts: Kozhikode, Vadakara and Thamarassery. Random sampling technique was employed for selecting schools and classes. But due to the unavailability of sufficient Montessori schools in Kozhikode district, three Montessori schools from Malappuram district were also drawn to sample. Hence the study follows two-phase sampling. Eight government and seven govt-aided schools from Kozhikode district and 3 unaided schools from Malappuram district were randomly selected.

As this phase has two dependent variables: cognitive and socio-emotional, the data were drawn from primary standard students and their parents respectively. For measuring the cognitive outcomes of primary standard students, tests of achievement were conducted in Standard I, III and V selecting randomly from the schools and giving representation to Malayalam and English medium classes. Whenever the balance in the number of students from each medium of instruction could not be met, the other schools in the same educational districts were considered. The achievement tests were conducted among 347, 333 and 473 students in Standard I, III and V respectively. Socio-emotional development of these children was assessed through the scale responses from their parents. But only 271, 265 and 341 parents in Standard I, III and V responded completely. Hence there are two sets of data in this phase; socio-emotional data is the sub-set of achievement data.

The list of schools from where data was collected along with type of management and medium of instruction cognitive outcome and affective outcomes are given separately. Table 21 shows the school-wise size of sample from which data on cognitive outcome were drawn based on their type of management and medium of instruction.

Table 21

School-wise Size of Sample from which Data on Cognitive Outcomes were Drawn based on Type of Management and Medium of Instruction

Sl. No:	Name of Schools	Educational district/ Locality	Type of Management	Medium of Instruction						Total			Grand Total
				Malayalam			English			I	III	V	
				I	III	V	I	III	V				
1	GUPS Ramanattukara	Kozhikode	Government	16	-	-	23	-	-	39	-	-	I (N=173) III (N=146) V(N=208)
2	GUPS Meenchanda	"	"	-	6	14	-	-	13	-	6	27	
3	GUPS Mavoor	"	"	6	-	-	11	8	-	17	8	-	
4	GUPS Arambram	Thamarassery	"	10	8	14	21	21	26	31	29	40	
5	GUPS Thamarassery	"	"	14	15	15	17	17	30	31	32	45	
6	GUPS Parappanpoil	"	"	21	13	17	7	16	27	28	29	44	
7	GUPS Koilandy	Vadakara	"	18	14	17	-	11	15	18	25	32	
8	Himayathul Islam Higher Secondary School	Kozhikode	Aided	20	23	37	-	-	35	20	23	72	I (N=126) III (N=158) V(N=218)
9	AUPS Mayanad	"	"	16	24	9	15	-	24	31	24	33	
10	AUPS Puthur	"	"	3	23	10	7	12	33	20	35	43	
11	AUPS Madavoor	Thamarassery	"	30	32	25	-	20	23	30	52	48	
12	AUPS Modakkallur	"	"	-	-	-	5	-	-	5	-	-	
13	AUPS Poilkav	Vadakara	"	4	15	11	16	9	11	20	24	22	
14	SNBGM UPS Vadakara	"	"	-	2	6	9	15	14	9	17	20	
15	MES Puthanthani	Malappuram	Unaided	-	-	-	30	7	17	30	7	17	I (N=48)
16	MES Tanur	"	"	-	-	-	18	22	-	18	22	-	III (N=30)
17	MES Tirur	"	"	-	-	-	-	-	30	-	-	30	V(N=47)
Total				158	175	175	189	158	298	347	333	473	

Table 22 shows school-wise size of sample from which data on socio-emotional variables were drawn based on type of management and medium of instruction.

Table 22

School-wise Size of Sample from which Data on Socio-Emotional Variables were Drawn Based on Type of Management and Medium of Instruction

Sl. No.	Name of Schools	Type of Management	Medium of Instruction						Total			Grand Total
			Malayalam			English			I	III	V	
			I	III	V	I	III	V				
1	GUPS Ramanattukara	Government	16	-	-	23	-	-	39	-	-	
2	GUPS Meenchanda	„	-	6	14	-	-	13	-	6	27	I
3	GUPS Mavoor	„	6	-	-	11	8	-	17	8	-	(N=139)
4	GUPS Arambram	„	6	5	14	16	14	24	22	19	38	III (N=112)
5	GUPS Thamarassery	„	4	15	10	11	12	11	15	27	29	V
6	GUPS Parappanpoil	„	16	4	7	7	10	19	23	14	26	(N=158)
7	GUPS Koilandy	„	14	10		15	11	11	14	21	26	
8	Himayathul Islam Higher Secondary School	Aided	16	18		20	-	24	16	18	44	
9	AUPS Mayanad	„	4	13	-	4	-	4	8	13	4	I (N=84)
10	AUPS Puthur	„	3	22	6	10	9	18	13	31	24	III (N=124)
11	AUPS Madavoor	„	22	24	19	-	14	23	22	38	42	V
12	AUPS Modakkallur	„	-	-	-	5	-	-	5	-	-	(N=136)
13	AUPS Poilkav	„	4	15	11	16	9	11	20	24	22	
14	SNBGM UPS Vadakara	„	-	2	6	9	15	14	9	17	20	
15	MES Puthanthani	Un-aided	-	-	-	30	7	17	30	7	17	I (N=48)
16	MES Tanur	„	-	-	-	18	22	-	18	22	-	III (N=30)
17	MES Tirur	„	-	-	-	-	-	30	-	-	30	V (N=47)
			111	134	122	160	131	219	271	265	341	

The samples in achievement tests and scale based on medium of instruction is given in Table 23.

Table 23*Medium of Instruction wise Sample Used in the Study*

	Standard I				Standard III				Standard V			
	A T		SE		A T		SE		A T		SE	
Medium of instruction	Mal	Eng	Mal	Eng	Mal	Eng	Mal	Eng	Mal	Eng	Mal	Eng
Government	85	88	62	77	58	88	42	70	83	123	66	92
Aided	73	53	49	35	117	41	92	32	92	126	56	80
Private		48		48		30		30		47		47
Total	158	189	111	160	106	158	134	131	175	296	127	219

Note: AT – Achievement Test, SE – Socio-Emotional Scale

As the study has three independent categorical variables and five moderator variables, the details of the samples based on these variables are given in brief.

Samples Based on Independent Categorical Variables

The details of the samples based on independent categorical variables: preschooling status, preschool duration, and type of preschooling in achievement tests and socio-emotional outcomes are given in Table 24.

Table 24

Subsamples based on Independent Categorical Variables: Preschooling Status, Preschool Duration, and Type of Preschooling in Achievement Tests and Socio-Emotional Outcomes

Standard		Preschooling Status		Preschool Duration		Preschooling Type		
		Yes	No	Up to 2 years	>2 years	Anganwadi	Kindergarten	Montessori
I	AT	311	36	220	91	124	134	53
	SE	236	35	159	77	105	78	53
III	AT	282	51	211	71	128	94	60
	SE	215	50	157	58	104	67	44
V	AT	429	44	302	127	203	178	48
	SE	298	43	201	97	166	84	48

Samples Based on Socio-Economic Status/Moderator Variables.

The details of the samples based on moderator variables namely gender, birth order, medium of instruction, educational qualification of father, educational qualification of mother and cognitive engagement are given in Table 25.

Table 25*Samples Based on Moderator Variables*

Standard	Gender		Birth Order				F.EQ			M.EQ			Cog Eng		MI	
	F	M	SC	FB	LB	BS	S	AS	BS	S	AS	L	H	M	E	
I	162 (46.7)	185 (53.3)	92 (26.5)	72 (20.7)	183 (52.7)	132 (38)	127 (36.6)	88 (25.4)	97 (28)	88 (25.4)	162 (46.7)	160 (46.1)	187 (53.9)	158 (45.5)	189 (54.5)	
III	173 (52)	160 (48)	68 (20.4)	101 (30.3)	164 (49.2)	149 (44.7)	122 (36.6)	62 (18.6)	110 (33)	89 (26.7)	134 (40.2)	176 (52.9)	157 (47.1)	175 (52.5)	158 (47.5)	
V	225 (47.6)	248 (52.4)	73 (15.4)	148 (31.3)	252 (53.3)	217 (45.9)	169 (35.7)	87 (18.4)	144 (30.4)	168 (35.5)	161 (34)	251 (53.1)	222 (46.9)	175 (40.0)	298 (60.0)	

Note: Values in the parentheses are percentage

The Table shows that in Standard I, out of 347, 46.7% Female and 53.3% Male, in Standard III, out of 333, 52% Female and 48% Male and in Standard V, 47.6% Female and 52.4% Male students are there. Based on birth order, In Standard I, 26.5% are single child, 20.7% are first born and 52.7% are later born, in Standard III, 20.4% are single child, 30.3% are first child and 49.2% are later born and in Standard V, 15.4% are single child, 31.3% are first born and 53.3% are later born. Based on father educational qualification, in Standard I, 38% are below secondary, 36.6% are secondary and 25.4% are above secondary whereas in Standard III, 44.7% are below secondary, 36.6% are secondary and 18.6% are above secondary. In Standard V, 45.9% are below secondary, 35.7% are secondary and 18.4% are above secondary. Based on mother educational qualification, in Standard I, 28% are below secondary, 25.4% are secondary 46.7% are above secondary. In Standard III, 33% below secondary, 26.7% are secondary and 40.2% are above secondary. In Standard V, 30.4% are below secondary, 35.5% are secondary and 34% are above secondary.

The samples based on cognitive engagement, In Standard I, 46.1 % having low cognitive engagement, 53.9% having high cognitive engagement. In Standard III, 52.9 % having low cognitive engagement 47.1 % having high cognitive engagement. In Standard V, 53.1 % having low cognitive engagement and 6.9% having high cognitive engagement.

Based on Home Academic environment, in Standard I, 48.4 % has low home academic environment and 51.6% has high home academic environment, in Standard III, L 50.8 % has low home academic environment H 49.2 % has high home academic environment, in Standard V, 52.2 % has low home academic environment and 47.8% has high home academic environment.

Statistical Analysis used for the Study

A sequence of statistical procedures was performed in this phase. Analyses using Statistical Package for Social Science (SPSS) were used to check the influence of preschool education on cognitive and socio-emotional variables. A brief description of the statistical techniques used for the analysis is given.

Basic Descriptive Statistics

Basic descriptive statistics such as mean and standard deviation of dependent variables were calculated.

Test of Significance of Difference between Means

t test is used to compare the mean scores of two groups. Here, the influence of preschooling status and preschool duration on cognitive and socio-emotional outcomes among primary students is assessed using *t* test. Whenever ANOVA has showed a significant difference among three or more groups, it is also used to compare the scores of two groups, from among three or more groups.

Analysis of Variance (ANOVA)

One-way analysis of variance (ANOVA) is used to assess whether there is any statistically significant difference between the means of two or more independent groups (Urdan, 2011). The result of ANOVA only indicates that at least one group is significantly different from others, but it does not give which group is different from one another. Hence *t* test is used to find out the difference in groups. The main assumptions of ANOVA are, independent variable should be continuous variable and dependent variable should be categorical in nature, that is measured in interval or ratio scale; and the distribution of dependent variables should follow approximate normality and homogeneity (Leech, Barret& Morgan, 2011).

ANOVA is used to check the influence of preschooling type on cognitive and socio-emotional variables among primary students. Series of two-way ANOVAs were performed to find out influence of preschooling type on cognitive and socio-emotional variables among primary students based on moderator variables such as gender, birth order, medium of instruction, educational qualification of father, educational qualification of mother and cognitive engagement.

Effect Size (Cohen's *d*)

'Effect size' is a means of quantifying the size of the difference between the two groups (Coe, 2002). Cohen's *d* is the suitable effect size measure if the two groups have similar standard deviations and are of the same size. To find out the extent of influence of preschool education on cognitive and socio-emotional variables among primary standard students, effect size was calculated using Cohen's *d*.

For the independent samples t test, Cohens' *d* is determined by calculating the mean difference between the two groups, then dividing the result by the pooled standard deviation. Cohens' *d* was calculated using an online statistical calculator. Cohen (1965) proposed that value of $d = 0.2$ as 'small' effect size, 0.5 as a 'medium' effect size and 0.8 as 'large' effect size.

Effect Size (Partial eta-squared)

Effect size is a measure of the strength of the relationship between variables (Levine & Hullett, 2002). It is a nonzero value that represents the extent to which a null hypothesis is false (Piastra & Justice, 2010). An effect size measure in the context of survey research explains the degree of variability in a dependent variable that can be accounted for by the independent variable. In case of ANOVA, effect size is the proportion of variance explained by a certain effect versus total variance (Qiaoyan Hu, 2010). There are several ways to measure effect size on the basis of the characteristics of variables. In ANOVA partial eta-squared are used to find out effect size. Partial eta-squared is the ratio of variance due to an effect to the sum of the error variance and effect variance (Fay & Boyd, 2010).

Unlike the value from eta-squared (range 0 to 1), the value of partial eta squared can be greater than one, both of them give the same value for one-way ANOVA, but in case of two-way ANOVA partial eta-squared gives a greater value (Qiaoyan Hu, 2010; Fay & Boyd, 2010; Cohen, 1973). Partial eta-squared can be calculated using the following formula (Levin & Hullet, 2010).

$$\eta^2 = \frac{\text{ss between}}{(\text{ss between} + \text{ss error})}$$

In behavioural science studies with a moderate sample size, partial eta squared effect size values are interpreted as $.09 =$ small, $.14 =$ medium and $.22 =$ large (Richardson, 2011; Fay & Boyd, 2010).

Chapter IV

ANALYSIS

- *Phase I: Current Objectives and Practices of Anganwadis, Kindergarten and Montessori Schools (Objective 1)*
- *Phase II: Influence of Preschool Education on Cognitive and Socio-emotional Variables among Primary School Students in Kozhikode*
 - *Influence of Preschooling Status on Cognitive and Socio-Emotional Outcomes of Primary Standard Students*
 - *Influence of Preschooling Status on Cognitive and Socio-emotional Outcomes of Primary Standard Students by Moderator Variable*
 - *Influence of Preschool Duration on Cognitive and Socio-emotional Outcomes of Primary Standard Students*
 - *Influence of Preschool Duration on Cognitive and Socio-emotional Outcomes of Primary Standard Students by Moderator Variables*
 - *Influence of Type of Preschooling on Cognitive and Socio-emotional Outcomes of Primary Standard Students*
 - *Influence of Type of Preschooling on Cognitive and Socio-emotional Outcomes of Primary Standard Students by Moderator Variables*

The study examined the influence of preschool education on cognitive and socio-emotional variables among primary school students. It has two major phases. The Phase I of the study deals with identifying and comparing the current objectives and practices of Anganwadis, Kindergarten and Montessori. Hence an interview was conducted among preschool teachers and the data was analysed by percentage analysis.

Phase II of the study was intended to examine the influence of preschool education on cognitive and socio-emotional variables among primary school students employing ex-post-facto method. Achievement tests in Malayalam, English and Mathematics for standards I, III and V were employed for assessing the cognitive outcomes and a questionnaire on socio-emotional development of children for parents was used for assessing the socio-emotional outcomes of the children. A sequence of statistical procedures was performed in this phase. Basic descriptive statistics such as mean and standard deviation of dependent variables were calculated. *t* test is used to compare the influence of Preschooling Status and preschool duration on cognitive and socio-emotional outcomes among primary students. To find out the extent of influence of preschool education on cognitive and socio-emotional variables, effect size was calculated using Cohen's *d*.

ANOVA is used to check the influence of preschool type on cognitive and socio-emotional variables among primary students. Series of two-way ANOVAs were performed to find out influence of preschooling type on cognitive and socio-emotional variables among primary students based on moderator variables namely gender, birth order, medium of instruction, father's and mother's educational qualification and cognitive engagement. In ANOVA, partial eta-squared is used to find out the effect size.

Results of analysis are presented under two sections: Phase I- Current objectives and practices of Anganwadis, Kindergarten and Montessori Schools. Phase II - Influence of preschool education on cognitive and socio-emotional variables among primary school students.

Phase I- The Current Objectives and Practices of Anganwadis, Kindergarten and Montessori Schools in Kerala

The current objectives and practices of different types of preschool education in Kerala was collected conducting semi-structured interview for preschool teachers on five major areas of preschool education—aspects of curriculum, teaching- learning

materials, teaching-learning practices, assessment and material and human resources. The data were analyzed for their implicit and explicit meaning as is appropriate to the particular question, responses were categorized and categories of responses were frequency counted which is given in detail. The details of practices of three types of preschools on different aspects of findings are summarized as Appendix L1.

Aspects of Curriculum

The aspects of curriculum include prescribed curriculum & syllabi, curricular objectives, subjects or areas, and timetable.

Curriculum and Syllabi

Anganwadi has a common curriculum and syllabus, thematic calendar (Government of Kerala, 2014-15), prepared by ICDS which has a detailed description of age-specific activities for the development of different aspects of the child. But only a few (13.33%) follow it strictly. Kindergartens follow neither a common curriculum nor a syllabus, except the preschools under the Department of Education that follow “A Common Programme of Activities for all Pre-Primary schools in Kerala” (SCERT, 1991). Some of the Kindergarten (26.66%) has prepared own curriculum and follow it strictly. Though ‘Kerala Preschool Curriculum’ (SCERT, 2014) has been prepared aiming a common structure and coordination among preschools in Kerala, it is not dispatched yet. Hence Kindergartens in Kerala continue without common regulatory framework. Montessori schools have developed own curriculum and syllabus based on the approaches and methods put forward by Madam Maria Montessori and all of them follows it.

Curricular Objectives

Major objectives of the three categories of preschools are the development of physical-motor, social- emotional, language, cognitive and creative-aesthetic aspects of the child. Though thematic calendar specifies them very lucidly, 30% of the Anganwadi teachers did not mention these objectives and emphasized their focus is on health and nutrition of children. While all Montessori schools follow all-round development of the child as their curricular objectives and give equal importance to the development of different aspects to some extent, only some Kindergartens (36.33%) indicated all-round development as their curricular objectives and all others give importance to the cognitive aspects only.

Subjects

Malayalam, Mathematics, Environmental Studies and General Knowledge are common subjects taught in all preschools. Anganwadis teach these subjects through thirty themes such as child and family, my body, rain and seasons, fruits, vegetables, festivals, important days, etc. While English is the major subject in Kindergarten and Montessori, all anganwadis have included English alphabets, words and rhymes by the compulsion of the parents. Some of the Kindergarten included Hindi (13.33%) and Arabic (20%) too. All the Montessori schools teach above mentioned subjects through five major areas such as Practical Life Experience, Sensorial Experience, Language, Mathematics and Cultural experience.

Timetable

Thematic calendar insist to teach two or three themes per month and each activity is specified with an appropriate time. But a meagre number (13.33%) follows it strictly. All kindergarten schools have own rigid timetable and majority follows it strictly. More than half of them teach 3 subjects and some teach 4 subjects daily. Though all Montessori schools have a timetable, nearly half of them follow it flexibly because the activities are based on auto learning. Hence a child can move at his own pace.

Teaching –Learning Materials

The teaching –learning materials such as textbook, activity book, hand book, teaching aids, and technology in three types of preschools are analyzed.

Text Book

Anganwadis do not provide textbooks. All Kindergarten schools have activity based textbooks of different publishing agencies, but only some are doing the activities in the text properly. Half of the Montessori schools are providing textbooks along with the Montessori apparatuses to pacify the anxiety of the parents. Among them only a few has done the textual activities well.

Activity Book/Activity Sheets

Anganwadis provide work book “Anganapoomazha” for children belongs to the age group 3-6 which covers thirty themes through various activities like

colouring, matching, pairing, picture reading, cutting, pasting, collage etc. But nearly half of them consider it as a *colouring book*. Even though some of them (23.33%) do the activities adequately, half of them are not doing most of the activities in the book.

Hand Book

ICDS provides a handbook for teachers with age specific guidelines for each activities in the work book, but it is not available in some anganwadis. Only a few Kindergarten schools having handbook because most of the publishing agencies are not providing handbook with textbook.

Teaching Aids

Charts and pictures are common in three categories of preschools. Teaching aids such objects, models, beads, shapes, puzzles, blocks, letters, sticks, blocks, etc. are also seen in Anganwadis and Kindergarten, though they differ in quantity and usage. It is sufficient and using adequately only in small number of Anganwadis and Kindergarten schools. Montessori schools have didactic apparatuses in lab which fall in to four sets. The first group teaches specific differences in size, colour, weight, etc. The second group consists of geometric insets which the child traces and third category is sand paper letters for tracing and pronouncing the sounds which give the experience through visual, tactile, auditory and motor paths. The fourth category is teaching frames, designed to teach specific manual skills.

Though all Montessori schools have apparatuses, nearly half of the schools have fully equipped Montessori lab in all classes and using daily. Among them some of them (23.52%) do not provide textbooks and depend only on apparatuses for teaching and learning process.

Technology

There is no technological equipment in anganwadis except a computer in a center. More than half of the Kindergarten and most of the Montessori schools have technological devices like television, computer and projector for teaching learning processes. Frequency of usage is more in Montessori schools than Kindergarten.

Teaching-Learning Practices

The teaching learning practices analyzed in terms of curricular and co-curricular activities which is given in detail below.

Curricular Activities

Curricular activities include medium of instruction, practices in text book, notebook, slates, activity books or sheets and cursive writing, the activities for language, physical, social and emotional development and homework. The practices in these dimensions in three types of preschools are briefly as follows.

Medium of Instruction

While all Anganwadis follow Malayalam as their medium of instruction; except the preschool under the Department of Education, all KG and Montessori schools use only English as the medium of instruction and use Malayalam occasionally.

Activities in the Text

Only 40% of the Kindergarten and 23.52% of the Montessori schools have done the activities in the texts adequately based on the content.

Activity Book/Activity Sheet

Half of the Anganwadis are not doing the activities given in the “Anganapoomazha” appropriately. Kindergarten do not provide activity books or sheets. Montessori school have either activity books or activity sheets for each child based on various theme or content and use daily or alternate days. The appropriate remarks were given in each sheets. Some of the schools have separate folder for each child to keep the worksheets and other works of the students. But only 47.5% have done the activities well.

Practices in Note book and Slate

More than half of the Anganwadis (60%) have practices in slates for 4+ years children. Some of them (33.33%) follow notebook practices for 5+ years children on alternate days or weekly by the compulsion of parents. All Kindergarten and majority

Montessori schools (70.58%) keep separate note books for each subject and practice daily.

Cursive Writing

Though there is no cursive writing in Anganwadis, majority of the Kindergarten (83.33%) and Montessori schools (70.58%) provide it alternate days or weekly.

Activities for Language Development

Rhymes, storytelling, conversation, reading and writing are the major activities for the language development of the children in the three categories of preschools. Only a small number of Anganwadis (13.33%) and some Kindergartens (33.33%) conduct role play, group activity, etc. Montessori schools are using apparatuses like sandpaper letters, lines and curves, small movable alphabets, large movable alphabets, pre-writing board, object boxes with name tags, sheets of pictures and cards, word list, booklets, sentence cards, story booklets, etc. in addition to the activities like role play and group activity.

Activities for Physical Development

Only Anganwadis provide nutritious foods every day, but very few of them are providing opportunities for exercises (20%) and games (30%). In Kindergarten too games (43.33%) and exercises (26.66%) are less comparative to the Montessori schools. Some of the Montessori schools (47.5%) have apparatuses which are specially designed for the development of fine and gross motor skills.

Activities for Social and Emotional Developments

Advice and timely intervention are the major method/ technique for social and emotional developments of children in three categories of preschools. Even though there are a lot of activities mentioned in the thematic calendar, only a small number of anganwadi centers is doing these activities. Only some Kindergarten (20%) and Montessori schools (23.52%) have moral studies classes. In addition, 70% Montessori schools have practical life and cultural experiences for socio-emotional development.

Home Works

Though all the preschools give home works, only 36.66% Anganwadis provide in the weekend or rarely for the children belong to the 5+ years. The frequency of homework is more in Kindergartens than others. Most of the Montessori schools (76.47%) give home works only in the weekend.

Co-curricular Activities

Co-curricular activities in the three types of preschools consist of indoor and outdoor play, art and craft, arts and sports festival, celebrations on special days and field trip.

Indoor Play

All Montessori schools and most of the Anganwadis (60%) have indoor plays, but it is comparatively very less in Kindergarten (23.33%). Though frequency of indoor activities is more in Anganwadis, only 30% has adequate materials and 33% has adequate space. Materials (82.35%) and facilities (88.23%) are more in Montessori schools when compared to the other two.

Outdoor Play

All Montessori schools have outdoor play, but only half of the Kindergartens and 21.33% Anganwadis have outdoor play due to the lack of adequate play ground and materials. The frequency of outdoor play is also more in Montessori than other two.

Creativity/ Art and Craft

Though all Montessori schools and most of the Kindergarten (86.66%) and Anganwadi (63.33%) has art works, the frequency of practice is more in Montessori schools than other two categories. Practice of craft is less in all categories of preschools when compared to arts. Only a meagre number of Anganwadis (13.33%) and Kindergarten (26.66%) have craft. 9.99% Anganwadis practice it alternate days and all Kindergarten practice it weekly. Most of the Montessori schools (76.47%) provide scrap book and different materials like paper, clay, clothes, shells, match sticks, beads, wool, etc. for making various creative things and practice it weekly.

Arts and Sports Festivals

While all Kindergarten and Montessori schools conduct arts festivals, some Anganwadis do not conduct it. Though there is no criteria on selection for arts festival in anganwadis, only 50% of the Anganwadis allow to participate in all items and 53.33% conduct it as competition. All other centers distribute prizes to all the participants. Some of them conduct arts day and sports day in collaboration with four or five nearest anganwadis. Some Kindergarten schools (13.33%) have criteria such as ability or talent and age group for the participation in arts festival. Most of the Kindergarten schools (86.66%) conduct it as a competition. Sports is very less in Anganwadis because of the lack of playground. There is no criteria on selection and participation in sports festival in all the categories.

Celebration on Special Days

Yet all category of the schools celebrates special days like children's day, Gandhi Jayanthi, Independence day, Republic day, Onam, Eid, Christmas, etc., Montessori schools have celebrations based on themes like colour day, fruits day, vegetable day, toys day, etc. in order to give sensorial experiences to the child.

Field Trip

While all Montessori schools and majority of Kindergarten (90%) conduct field trips, only some of the Anganwadis (36.66%) conduct it.

Assessment

Assessment include techniques and tools used for assessment and the frequency of assessment related practices in three types of preschools are as follows.

While all the Kindergarten and Montessori schools conduct various assessments, only a couple of Anganwadis is following assessment system. Dictation and terminal examinations are the major assessment techniques in Kindergarten and Montessori schools, some of them use observation schedule too. Oral tests are giving only for the junior students in all categories. Activity sheets or activity books are one of the assessment tools in all Montessori schools.

Though Anganwadis have a progress report "Amma Ariyan" to enter children's developments in different aspects, most of them (93.33%) are not using it.

Some of them did not even get it. While Kindergarten emphasize cognitive aspects of the child in progress report, in Montessori Progress report, there is a provision for marking the development of various aspects of the child.

Material and Human Resources

The details of material and human resources analysed in the three types of preschools include the data regarding building, classrooms, number of students in a class, number of differently abled students, number of teachers, teacher-pupil ratio, qualification of teachers, number of helpers, in-service training, working days and working time.

Building

While majority of the Kindergarten (86.66%) and Montessori schools (94.11%) have own building, 36.66% Anganwadis run in rented building.

Classrooms

Only 46.66% Kindergarten schools and 36.66% Anganwadis have spacious classrooms to do various activities and keep the teaching learning materials properly. All other Anganwadis have single room for learning, playing, sleeping and cooking. 70.55% Montessori schools have spacious classrooms to do the various activities and keep the materials appropriately.

Number of Students in a Class

Recommended number of students in a class varies in each category. In Anganwadi minimum number of students is 10 and maximum is 30. While 20 is the maximum number of students in Kindergarten, it is 10 in Montessori schools. But the data reveals that number of students in a class is more than recommended in Kindergarten (43.33%) and Montessori schools (88.23%).

Number of Differently Abled Children

The number of differently abled children in Anganwadis (6.66%) and Montessori schools (5.88%) is comparatively less than Kindergarten (36.66%). Anganwadis provide neither special facilities nor training for them. Though the number is less, ICDS has started special Anganwadi for differently abled children in each

districts. Except 2 Kindergartens, others do not have special teachers or facilities either. Montessori schools have specially designed apparatuses for these kids and also provide the assistance of special teacher.

Number of Teachers

Anganwadis have a teacher in each center. But in Kindergarten and Montessori the number of teachers is not adequate.

Teacher–Pupil Ratio

The ideal Pupil Teacher Ratio (PTR) for preschool classroom is considered as 10:1 (Partani, 2011). When Anganwadis keep the ideal teacher- pupil ratio, 43.33% Kindergarten and majority Montessori schools (88.23%) do not follow it.

Qualification of Teachers

Secondary School Leaving Certificate is the required qualification for Anganwadis which is cleared by all. Among them 29.41% has HSSC. Majority of the teachers in other categories have basic qualifications (Pre-Degree/HSSC and PPTTC/MMTTC), but most of the Kindergarten (70.14%) and Montessori (83.95%) teachers are trained in private institutions and there are some untrained teachers in Kindergarten (29.85%) and Montessori schools (16.04%).

In-service Training

ICDS project officers conduct sector wise in-service training on each themes. 70% of the Anganwadi teachers have attended monthly training. Majority of the Montessori teachers (88.23%) and half of the Kindergarten teachers have attended training. The frequency of training is less in these preschools than Anganwadis.

Working Days and Working Hours

Anganwadis work with a fixed time (9.30-3.30) from Monday to Saturday. Even though all the Kindergarten and Montessori schools have common working days (Mon-Fri), working hours is different for each category and it is more in Montessori schools.

Summary

The analysis of various aspects of preschool education reveals that the objectives of the three types of pre-schools are the same, i.e., development of

physical, cognitive, social, emotional and creative aspects of the child. But there exist wide disparities in the practices of aspects of curriculum namely teaching- learning materials, teaching-learning practices, assessment, material and human resources and student diversity. Hence the strengths and weaknesses in each category of preschool are pooled from these analyses and given in the findings.

Phase II- Influence of Preschooling Status on Cognitive and Socio-Emotional Outcomes of Primary Standard Students

Preschooling Status of primary standard students has two levels- pre-schooled and non-preschooled. Its effects on cognitive and socio-emotional outcomes among primary standard students were studied using statistical constants and independent samples *t*-test. The results are detailed under specific heads.

Influence of Preschooling Status on Cognitive Outcomes among Primary Standard Students

Vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension, and achievement in Mathematics, of primary standard students of the two groups; pre-schooled and non-preschooled, were compared.

Influence of Preschooling Status on Vocabulary in Malayalam

The comparisons of vocabulary in Malayalam of non-preschooled and preschooled students of Standard I, III and V were done using independent samples *t*-test. The results are given in Table 26.

Table 26

Data and Results of Tests of Significance of Difference between Means of Vocabulary in Malayalam by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	56.28	23.00	36	60.00	20.81	311	-0.93
III	45.69	17.86	51	45.39	19.14	282	0.11
V	43.45	18.93	44	42.23	17.79	429	0.41

Table 26 shows that there is no significant difference in vocabulary in Malayalam of: (i) Standard I students who were preschooled ($M = 60.00$, $SD = 20.81$,

$N = 311$) and those who were non-preschooled ($M = 56.28, SD = 23, N = 36$) [$t = .93, p > .05$]; (ii) Standard III students who were preschooled ($M = 45.39, SD = 19.14, N = 282$) and those who were non-preschooled ($M = 45.69, SD = 17.86, N = 51$) [$t = .11, p > .05$]; and, (iii) Standard V students who were preschooled ($M = 42.23, SD = 17.79, N = 429$) and those who were non-preschooled ($M = 43.45, SD = 18.93, N = 44$) [$t = .41, p > .05$]. Vocabulary in Malayalam of Standard I, III and V students did not differ by their Preschooling Status.

Influence of Preschooling Status on Malayalam Comprehension

The comparisons of Malayalam comprehension of non-preschooled and preschooled students of Standard I, III and V were done using independent samples t-test. The results are given in Table 27.

Table 27

Data and Results of Tests of Significance of Difference between Means of Malayalam Comprehension by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	39.89	27.14	36	43.12	23.46	311	-0.69
III	58.24	26.81	51	54.80	22.86	282	0.86
V	41.41	18.85	44	39.28	21.65	429	0.70

Table 27 shows that there is no significant difference in Malayalam comprehension of: (i) Standard I students who were preschooled ($M = 43.12, SD = 23.46, N = 311$) and those who were non-preschooled ($M = 39.89, SD = 27.14, N = 36$) [$t = 0.69, p > .05$]; (ii) Standard III students who were preschooled ($M = 54.80, SD = 22.86, N = 282$) and those who were non-preschooled ($M = 58.24, SD = 26.81, N = 51$) [$t = .86, p > .05$]; and, (iii) Standard V students who were preschooled ($M = 39.28, SD = 21.65, N = 429$) and those who were non-preschooled ($M = 41.41, SD = 18.85, N = 44$) [$t = .70, p > .05$]. Malayalam comprehension of Standard I, III and V students did not differ by their preschooling status.

Influence of Preschooling Status on Vocabulary in English

The comparisons of vocabulary in English of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-test. The results are given in Table 28.

Table 28

Data and Results of Tests of Significance of Difference between Means of Vocabulary in English by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	54.25	23.00	36	61.01	21.56	311	-1.68
III	41.31	25.76	51	41.19	23.17	282	0.03
V	34.84	19.63	44	44.24	20.89	429	-3.01*

Note. * $p < .05$

Table 28 shows that there is no significant difference in vocabulary in English of: (i) Standard I students who were preschooled ($M = 61.01$, $SD = 21.56$, $N = 311$) and those who were non-preschooled ($M = 54.25$, $SD = 23$, $N = 36$) [$t = 1.68$, $p > .05$]; and, (ii) Standard III students who were preschooled ($M = 41.19$, $SD = 23.17$, $N = 282$) and those who were non-preschooled ($M = 41.31$, $SD = 25.76$, $N = 51$) [$t = .03$, $p > .05$]. But, there is significant difference in vocabulary in English among Standard V students who were preschooled ($M = 44.24$, $SD = 20.89$, $N = 429$) and those who were non-preschooled ($M = 34.84$, $SD = 19.63$, $N = 44$) [$t = 3.01$, $p < .05$] with small effect size (Cohen's $d = 0.46$).

Preschooling did not influence vocabulary in English of Standard I and III students. But vocabulary in English of standard V students who attended preschool is significantly higher with small effect size, when compared to those who did not attend preschool.

Influence of Preschooling Status on English Comprehension

The comparisons of English comprehension of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-test. The results are given in Table 29.

Table 29

Data and Results of Tests of Significance of Difference between Means of English Comprehension by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	35.28	22.52	36	38.49	23.01	311	-0.81
III	39.90	24.83	51	37.70	24.57	282	0.59
V	36.59	20.82	44	51.81	21.69	429	-4.60**

Note. ** $p < .01$

Table 29 shows that there is no significant difference in English comprehension of: (i) Standard I students who were preschooled ($M = 38.49$, $SD = 23.01$, $N = 311$) and those who were non-preschooled ($M = 35.28$, $SD = 22.52$, $N = 36$) [$t = .81$, $p > .05$] and (ii) Standard III students who were preschooled ($M = 37.70$, $SD = 24.57$, $N = 282$) and those who were non-preschooled ($M = 39.90$, $SD = 24.83$, $N = 51$) [$t = .59$, $p > .05$]. But, there is significant difference in English comprehension of Standard V students who were preschooled ($M = 51.81$, $SD = 21.69$, $N = 429$) and those who were non-preschooled ($M = 36.59$, $SD = 20.82$, $N = 44$) [$t = 4.60$, $p < .05$] with medium effect (Cohen's $d = 0.72$).

Preschooling did not influence English comprehension of Standard I and III students. But English comprehension of standard V students who attended preschool is significantly higher with medium effect size, when compared to those who did not attend preschool.

Influence of Preschooling Status on Achievement in Mathematics

The comparisons of achievement in Mathematics of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-test. The results are given in Table 30.

Table 30

Data and Results of Tests of Significance of Difference between Means of Achievement in Mathematics by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	56.75	20.75	36	63.13	18.86	311	-1.76
III	47.75	22.18	51	48.86	22.12	282	-0.33
V	47.45	19.27	44	49.33	18.15	429	-0.62

Table 30 shows that there is no significant difference in Achievement in Mathematics of: (i) Standard I students who were preschooled ($M = 63.13$, $SD = 18.86$, $N = 311$) and those who were non-preschooled ($M = 56.75$, $SD = 20.75$, $N = 36$) [$t = 1.76$,

$p > .05$]; (ii) Standard III students who were preschooled ($M = 48.86$, $SD = 22.12$, $N = 282$) and those who were non-preschooled ($M = 47.75$, $SD = 22.18$, $N = 51$) [$t = .33$, $p > .05$]; and, (iii) Standard V students who were preschooled ($M = 49.33$, $SD = 18.15$, $N = 429$) and those who were non-preschooled ($M = 47.45$, $SD = 19.27$, $N = 44$) [$t = .62$, $p > .05$]. Achievement in Mathematics of Standard I, III and V students did not differ by their preschooling status.

Influence of Preschooling Status on Socio-Emotional Outcomes among Primary Standards Students

Mean and standard deviation of nine socio-emotional outcomes namely personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions of primary standard students who attended preschools and not attended preschools were compared.

Influence of Preschooling Status on Personal Independence

The comparisons of personal independence of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-test. The results are given in Table 31.

Table 31

Data and Results of Tests of Significance of Difference between Means of Personal Independence by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	86.86	19.38	35	90.91	15.21	236	-1.18
III	95.80	11.25	50	92.14	14.31	215	1.96*
V	90.63	21.93	43	94.92	12.15	298	-1.26

Note. * $p < .05$

Table 31 shows that there is no significant difference in personal independence of: (i) Standard I students who were preschooled ($M = 90.91$, $SD = 15.21$, $N = 236$) and those who were non-preschooled ($M = 86.86$, $SD = 19.38$, $N = 35$) [$t = 1.18$, $p > .05$] and; (iii) Standard V students who were preschooled ($M = 94.92$, $SD = 12.15$, $N = 298$) and those who were non-preschooled ($M = 90.63$, $SD = 21.93$, $N = 43$) [$t = 1.26$, $p > .05$]. But, there is significant difference in personal

independence of Standard III students who were preschooled ($M = 92.14$, $SD = 14.31$, $N = 215$) and those who were non-preschooled ($M = 95.80$, $SD = 11.25$, $N = 50$) [$t = 1.96$, $p < .05$] with small effect (Cohen's $d = 0.28$).

Personal independence of Standard I and V students did not differ by their preschool status. But personal independence of standard III students who did not attend preschool is significantly higher with small effect size, when compared to those who attended preschool.

Influence of Preschooling Status on Academic Independence

The comparisons of academic independence of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-test. The results are given in Table 32.

Table 32

Data and Results of Tests of Significance of Difference between Means of Academic Independence by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	79.29	15.62	35	83.77	15.19	236	-1.59
III	88.20	13.36	50	89.93	14.40	215	-0.81
V	81.35	22.43	43	85.97	14.82	298	-1.31

Table 32 shows that there is no significant difference in academic independence of: (i) Standard I students who were preschooled ($M = 83.77$, $SD = 15.19$, $N = 236$) and those who were non-preschooled ($M = 79.29$, $SD = 15.62$, $N = 35$) [$t = 1.59$, $p > .05$]; (ii) Standard III students who were preschooled ($M = 89.93$, $SD = 14.40$, $N = 215$) and those who were non-preschooled ($M = 88.20$, $SD = 13.36$, $N = 50$) [$t = .81$, $p > .05$]; and, (iii) Standard V students who were preschooled ($M = 85.97$, $SD = 14.82$, $N = 298$) and those who were non-preschooled ($M = 81.35$, $SD = 22.43$, $N = 43$) [$t = 1.31$, $p > .05$]. Academic independence of Standard I, III and V students did not differ by their preschool status.

Influence of Preschooling Status on Work Habit

The comparisons of work habit of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-tests. The results are given in Table 33.

Table 33

Data and Results of Tests of Significance of Difference between Means of Work Habit by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	70.14	12.25	35	74.30	15.60	236	-1.80
III	71.06	14.93	50	70.88	14.87	215	0.08
V	72.23	17.28	43	68.96	15.20	298	1.18

Table 33 shows that there is no significant difference in work habit of: (i) Standard I students who were preschooled ($M=74.30$, $SD=15.60$, $N=236$) and those who were non-preschooled ($M=70.14$, $SD=12.25$, $N=35$; [$t=1.80$, $p>.05$]; (ii) Standard III students who were preschooled ($M=70.88$, $SD=14.87$, $N=215$) and those who were non-preschooled ($M=71.06$, $SD=14.93$, $N=50$; [$t=0.08$, $p>.05$]; and, (iii) Standard V students who were preschooled ($M=68.96$, $SD=15.20$, $N=298$) and those who were non-preschooled ($M=72.23$, $SD=17.28$, $N=43$) [$t=1.18$, $p>.05$]. Work habit of Standard I, III and V students did not differ by their preschool status.

Influence of Preschooling Status on Interpersonal Relationship

The comparisons of interpersonal relationship of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-tests. The results are given in Table 34.

Table 34

Data and Results of Tests of Significance of Difference between Means of Interpersonal Relationship by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	81.74	13.99	35	84.76	9.55	236	-1.23
III	84.58	11.18	50	84.64	10.37	215	-0.03
V	69.47	9.64	43	67.30	9.94	298	1.37

Table 34 shows that there is no significant difference in interpersonal relationship of: (i) Standard I students who were preschooled ($M=84.76$, $SD=9.55$, $N=236$) and those were non-preschooled ($M=81.74$, $SD=13.99$, $N=35$) [$t=1.23$,

$p > .05$]; (ii) Standard III students who were preschooled ($M = 84.64$, $SD = 10.37$, $N = 215$) and those who were non-preschooled ($M = 84.58$, $SD = 11.18$, $N = 50$) [$t = 0.03$, $p > .05$]; and, (iii) Standard V students who were preschooled ($M = 67.30$, $SD = 9.94$, $N = 298$) and those who were non-preschooled ($M = 69.47$, $SD = 9.64$, $N = 43$) [$t = 1.37$, $p > .05$]. Interpersonal relationship of Standard I, III and V students did not differ by their preschool status.

Influence of Preschooling Status on Cooperation

The comparisons of cooperation of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-tests. The results are given in Table 35.

Table 35

Data and Results of Tests of Significance of Difference between Means of Cooperation by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	76.00	15.32	35	77.10	14.75	236	-0.40
III	77.24	15.63	50	78.64	15.83	215	-0.57
V	73.05	11.27	43	72.95	13.02	298	0.05

Table 35 shows that there is no significant difference in cooperation of: (i) Standard I students who were preschooled ($M = 77.10$, $SD = 14.75$, $N = 236$) and those who were non-preschooled ($M = 76.00$, $SD = 15.32$, $N = 35$) [$t = 0.40$, $p > .05$]; (ii) Standard III students who were preschooled ($M = 78.64$, $SD = 15.83$, $N = 215$) and those who were non-preschooled ($M = 77.24$, $SD = 15.63$, $N = 50$) [$t = .57$, $p > .05$]; and, (iii) Standard V students who were preschooled ($M = 72.95$, $SD = 13.02$, $N = 298$) and those who were non-preschooled ($M = 73.05$, $SD = 11.27$, $N = 43$) [$t = .05$, $p > .05$]. Cooperation of Standard I, III and V students did not differ by their preschool status.

Influence of Preschooling Status on Communication

The comparisons of communication of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-tests. The results are given in Table 36.

Table 36

Data and Results of Tests of Significance of Difference between Means of Communication by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	79.63	21.92	35	88.16	14.35	236	-2.23*
III	85.68	15.37	50	89.86	12.57	215	-1.79
V	83.30	16.48	43	85.63	14.66	298	-0.88

Note. * $p < .05$

Table 36 shows that there is significant difference in communication of Standard I students who were preschooled ($M = 88.16$, $SD = 14.35$, $N = 236$) and those who were non-preschooled ($M = 79.63$, $SD = 21.92$, $N = 35$) [$t = 2.23$, $p < .05$] with small effect (Cohen's $d = 0.46$). But there is no significant difference in communication of: (i) Standard III students who were preschooled ($M = 89.86$, $SD = 12.57$, $N = 215$) and those who were non-preschooled ($M = 85.68$, $SD = 15.37$, $N = 50$) [$t = 1.79$, $p > .05$]; and, (iii) Standard V students who were preschooled ($M = 85.63$, $SD = 14.66$, $N = 298$) and those who were non-preschooled ($M = 83.30$, $SD = 16.48$, $N = 43$) [$t = .88$, $p > .05$].

Preschooling did not influence communication of Standard III and V students. But communication of standard I students who attended preschool is significantly higher with small effect size, when compared to those who did not attend preschool.

Influence of Preschooling Status on Leadership

The comparisons of leadership of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-tests. The results are given in Table 37.

Table 37

Data and Results of Tests of Significance of Difference between Means of Leadership by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	71.34	15.97	35	77.89	11.00	236	-2.35*
III	77.70	10.38	50	80.12	9.64	215	-1.50
V	68.53	16.25	43	70.80	11.36	298	-0.88

Note. * $p < .05$

Table 37 shows that there is significant difference in leadership of Standard I students who were preschooled ($M = 77.89$, $SD = 11$, $N = 236$) and those who were non-preschooled ($M = 71.34$, $SD = 15.97$, $N = 35$) [$t = 2.35$, $p < .05$] with small effect (Cohen's $d = 0.48$). But there is no significant difference in leadership of: (i) Standard III students who were preschooled ($M = 80.12$, $SD = 9.64$, $N = 215$) and those who were non-preschooled ($M = 77.70$, $SD = 10.38$, $N = 50$) [$t = 1.50$, $p > .05$]; and, (ii) Standard V students who were preschooled ($M = 70.80$, $SD = 11.36$, $N = 298$) and those who were non-preschooled ($M = 68.53$, $SD = 16.25$, $N = 43$) [$t = .88$, $p > .05$].

Preschooling did not influence leadership of Standard III and V students. But leadership of standard I students who attended preschool is significantly higher with small effect size, when compared to those who did not attend preschool.

Influence of Preschooling Status on Expressing Emotions

The comparisons of expressing emotions of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-tests. The results are given in Table 38.

Table 38

Data and Results of Tests of Significance of Difference between Means of Expressing Emotions by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	73.11	8.64	35	73.32	9.84	236	-0.13
III	71.24	8.77	50	70.99	10.96	215	0.17
V	73.09	12.26	43	71.86	12.70	298	0.61

Table 38 shows that there is no significant difference in expressing emotions of: (i) Standard I students who were preschooled ($M = 73.32$, $SD = 9.84$, $N = 236$) and those who were non-preschooled ($M = 73.11$, $SD = 8.64$, $N = 35$) [$t = .13$, $p > .05$]; (ii) Standard III students who were preschooled ($M = 70.99$, $SD = 10.96$, $N = 215$) and those who were non-preschooled ($M = 71.24$, $SD = 8.77$, $N = 50$) [$t = .17$, $p > .05$]; and, (iii) Standard V students who were preschooled ($M = 71.86$, $SD = 12.70$,

$N = 298$) and those who were non-preschooled ($M = 73.09$, $SD = 12.26$, $N = 43$) [$t = .61$, $p > .05$]. Preschooling did not influence expressing emotions of Standard I, III and V students.

Influence of Preschooling Status on Controlling Emotions

The comparisons of controlling emotions of non-preschooled and preschooled students of Standard I, III and V are done using independent samples t-tests. The results are given in Table 39.

Table 39

Data and Results of Tests of Significance of Difference between Means of Controlling Emotions by Preschooling Status among Primary Standard Students

Standard	Non-Preschooled			Preschooled			t
	M	SD	N	M	SD	N	
I	63.91	6.15	35	65.82	7.82	236	-1.65
III	67.70	8.06	50	68.29	8.02	215	-0.47
V	71.93	14.54	43	71.15	10.44	298	0.34

Table 39 shows that there is no significant difference in controlling emotions of: (i) Standard I students who were preschooled ($M = 65.82$, $SD = 7.82$, $N = 236$) and those who were non-preschooled ($M = 63.91$, $SD = 6.15$, $N = 35$) [$t = 1.65$, $p > .05$]; (ii) Standard III students who were preschooled ($M = 68.29$, $SD = 8.02$, $N = 215$) and those who were non-preschooled ($M = 67.70$, $SD = 8.06$, $N = 50$) [$t = .47$, $p > .05$]; and, (iii) Standard V students who were preschooled ($M = 71.15$, $SD = 10.44$, $N = 298$) and those who were non-preschooled ($M = 71.93$, $SD = 14.54$, $N = 43$) [$t = .34$, $p > .05$]. Preschooling did not influence controlling emotions of Standard I, III and V students.

Influence of Preschooling Status on Cognitive and Socio-emotional Outcomes of Primary Standard Students by Gender

Whether influence of Preschooling Status on cognitive and socio-emotional outcomes of primary standard students vary by their gender was studied by using 2×2 ANOVAs. Wherever a significant 2×2 interaction is revealed, further one way Anova of the dependent variable with Preschooling Status were done for gender separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschooling Status on Cognitive Outcomes by Gender

Influence of Preschooling Status on cognitive outcomes of Standard I, III and V students by their gender were studied and the results are given distinctly.

Gender-wise Influence of Preschooling Status on vocabulary in Malayalam. Influence of Preschooling Status on vocabulary in Malayalam of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 40.

Table 40

Results of 2×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	418960.675	1	418960.7	963.51	0.737
	Preschooling Status	431.9	1	431.9	0.99	0.003
	Gender	512.721	1	512.721	1.18	0.003
	Preschooling Status* Gender	238.184	1	238.184	0.55	0.002
	Error	149146.124	343	434.828		
	Total	1386428	347			
III	Intercept	346380.263	1	346380.3	1031.05	0.758
	Preschooling Status	3.405	1	3.405	0.01	0
	Gender	4274.584	1	4274.584	12.72	0.037
	Preschooling Status* Gender	0.037	1	0.037	0.00	0
	Error	110527.061	329	335.949		
	Total	806350	333			
V	Intercept	268418.945	1	268418.9	883.89	0.653
	Preschooling Status	2.57	1	2.57	0.01	0
	Gender	56.09	1	56.09	0.19	0
	Preschooling Status* Gender	2060.097	1	2060.097	6.78**	0.014
	Error	142425.218	469	303.679		
	Total	999140	473			

Note. ** $p < .01$

Table 40 shows that the influence of Preschooling Status on vocabulary in Malayalam does not vary by gender of: (a) Standard I students [$F(1, 343) = 0.55, p > .05$] and (b) Standard III students [$F(1, 329) = 0.00, p > .05$]. But, the influence of Preschooling Status on vocabulary in Malayalam of Standard V students vary significantly by gender [$F(1, 469) = 6.78, p < .05, \eta = 0.014$], though the interaction is small.

Follow up analysis of variance revealed that there is significant difference in vocabulary in Malayalam of Standard V boys with small effect (non-preschooled: $M=45.71$, $SD=19.90$, $N=28$ and preschooled: $M=38.00$, $SD=16.91$, $N=220$) [$F(1, 246) = 5.69$, $p < .05$, $\eta^2 = 0.020$], but not among girls (non-preschooled: $M=39.50$, $SD=16.99$, $N=16$ and preschooled: $M=46.67$, $SD=17.64$, $N=209$) [$F(1, 223) = 0.91$, $p > .05$]. Vocabulary in Malayalam is higher among non-preschooled boys than preschooled boys in Standard V.

Gender-wise Influence of Preschooling Status on Malayalam Comprehension. Influence of Preschooling Status on Malayalam comprehension of Standard I, III and V Students by gender were studied using 2×2 ANOVAs. Results are given in Table 41.

Table 41

Results of 2×2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	211286.785	1	211286.8	370.52	0.519
	Preschooling Status	399.391	1	399.391	0.70	0.002
	Gender	1.794	1	1.794	0.00	0
	Preschooling Status* Gender	252.929	1	252.929	0.44	0.001
	Error	195595.787	343	570.25		
	Total	831995	347			
III	Intercept	529376.152	1	529376.2	1027.05	0.757
	Preschooling Status	214.198	1	214.198	0.42	0.001
	Gender	9635.827	1	9635.827	18.70	0.054
	Preschooling Status* Gender	673.462	1	673.462	1.31	0.004
	Error	169578.481	329	515.436		
	Total	1202620	333			
V	Intercept	241384.016	1	241384	568.28	0.548
	Preschooling Status	105.139	1	105.139	0.25	0.001
	Gender	991.469	1	991.469	2.33	0.005
	Preschooling Status* Gender	1970.725	1	1970.725	4.64*	0.01
	Error	199215.452	469	424.766		
	Total	953203	473			

Note. * $p < .05$

Table 41 shows that the influence of Preschooling Status on Malayalam comprehension does not vary by gender of: (a) Standard I students [$F(1, 343)=0.44, p>.05$] and (b) Standard III students [$F(1, 329)=1.31, p>.05$]. But, the influence of Preschooling Status on Malayalam comprehension of Standard V students vary significantly by gender [$F(1, 469)=4.64, p<.05, \eta^2=.01$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool status on Malayalam comprehension of Standard V boys (non-preschooled: $M=42.17, SD=17.90, N=28$ and preschooled: $M=33.21, SD=18.81, N=220$) [$F(1, 246)=5.69, p<.05, \eta^2=0.004$], but not among girls (non-preschooled: $M=40.06, SD=20.95, N=16$ and preschooled: $M=45.66, SD=22.62, N=209$) [$F(1, 223)=0.91, p>.05$]. Malayalam comprehension is higher among non-preschooled boys than preschooled boys in Standard V.

Gender-wise Influence of Preschooling Status on Vocabulary in English.

Influence of Preschooling Status on vocabulary in English of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 42.

Table 42

Results of 2×2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	408773.509	1	408773.5	867.59	0.717
	Preschooling Status	1526.725	1	1526.725	3.24	0.009
	Gender	27.912	1	27.912	0.06	0
	Preschooling Status*Gender	215.867	1	215.867	0.46	0.001
	Error	161607.925	343	471.16		
	Total	1426306	347			
III	Intercept	280625.123	1	280625.1	536.94	0.62
	Preschooling Status	33.187	1	33.187	0.06	0
	Gender	8024.081	1	8024.081	15.35	0.045
	Preschooling Status*Gender	295.732	1	295.732	0.57	0.002
	Error	171947.012	329	522.635		
	Total	749519	333			
V	Intercept	227731.335	1	227731.3	531.38	0.531
	Preschooling Status	3981.686	1	3981.686	9.29	0.019
	Gender	46.316	1	46.316	0.11	0
	Preschooling Status*Gender	1088.95	1	1088.95	2.54	0.005
	Error	200997.819	469	428.567		
	Total	1096541	473			

Table 42 shows that the influence of Preschooling Status on vocabulary in English does not vary by gender of: (a) Standard I students [$F(1, 343) = 0.46, p > .05$] (b) Standard III students [$F(1, 329) = 0.57, p > .05$] and (c) Standard V students [$F(1, 469) = 2.54, p > .05$]. Among primary standard students, the influence of Preschooling Status on vocabulary in English does not vary significantly by gender.

Gender-wise Influence of Preschooling Status on English Comprehension.

Influence of Preschooling Status on English comprehension of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 43.

Table 43

Results of 2×2 ANOVAs of English Comprehension of Primary Standard Students by Their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	165034.508	1	165034.5	312.83	0.477
	Preschooling Status	478.365	1	478.365	0.91	0.003
	Gender	76.07	1	76.07	0.14	0
	Preschooling Status* Gender	590.522	1	590.522	1.12	0.003
	Error	180951.455	343	527.555		
	Total	687378	347			
III	Intercept	250176.176	1	250176.2	423.54	0.563
	Preschooling Status	96.751	1	96.751	0.16	0
	Gender	4024.591	1	4024.591	6.81	0.02
	Preschooling Status* Gender	120.905	1	120.905	0.21	0.001
	Error	194334.406	329	590.682		
	Total	682425	333			
V	Intercept	288504.591	1	288504.6	620.96	0.57
	Preschooling Status	9112.958	1	9112.958	19.61	0.04
	Gender	23.368	1	23.368	0.05	0
	Preschooling Status* Gender	478.631	1	478.631	1.03	0.002
	Error	217901.973	469	464.61		
	Total	1430349	473			

Table 43 shows that the influence of Preschooling Status on English comprehension does not vary by gender of: (a) Standard I students [$F(1, 343) = 1.12, p > .05$] (b) Standard III students [$F(1, 329) = 0.21, p > .05$] and (c) Standard V students

[$F(1, 469) = 1.03, p > .05$]. Among primary standard students, the influence of Preschooling Status on English comprehension does not vary significantly by gender.

Gender-wise Influence of Preschooling Status on Achievement in Mathematics. Influence of Preschooling Status on achievement in Mathematics of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 44.

Table 44

Results of 2×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	445131.698	1	445131.7	1226.93	0.782
	Preschooling Status	1202.142	1	1202.142	3.31	0.01
	Gender	214.818	1	214.818	0.59	0.002
	Preschooling Status* Gender	15.599	1	15.599	0.04	0
	Error	124440.54	343	362.8		
	Total	1480688	347			
III	Intercept	390837.013	1	390837	815.47	0.713
	Preschooling Status	118.071	1	118.071	0.25	0.001
	Gender	2745.377	1	2745.377	5.73	0.017
	Preschooling Status* Gender	52.031	1	52.031	0.11	0
	Error	157682.632	329	479.279		
	Total	951541	333			
V	Intercept	343932.687	1	343932.7	1029.46	0.687
	Preschooling Status	235.92	1	235.92	0.71	0.002
	Gender	144.696	1	144.696	0.43	0.001
	Preschooling Status* Gender	265.245	1	265.245	0.79	0.002
	Error	156688.195	469	334.09		
	Total	1300037	473			

Table 44 shows that the influence of Preschooling Status on achievement in Mathematics does not vary by gender of: (a) Standard I students [$F(1, 343) = 0.04, p > .05$] (b) Standard III students [$F(1, 329) = 0.11, p > .05$] and (c) Standard V students [$F(1, 469) = 0.79, p > .05$]. Among primary standard students, the influence of Preschooling Status on achievement in Mathematics does not vary significantly by gender.

Influence of Preschooling Status on Socio-Emotional Outcomes by Gender

Influence of Preschooling Status on nine socio-emotional outcomes of Standard I, III and V students by their gender were studied and the results are given distinctly.

Gender-wise Influence of Preschooling Status on Personal Independence.

Influence of Preschooling Status on personal independence of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 45.

Table 45

Results of 2×2 ANOVAs of Personal Independence of Primary Standard Students by Their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	915184.095	1	915184.1	3657.90	0.932
	Preschooling Status	308.571	1	308.571	1.23	0.005
	Gender	307.278	1	307.278	1.23	0.005
	Preschooling Status* Gender	229.799	1	229.799	0.92	0.003
	Error	66801.692	267	250.194		
	Total	2281659	271			
III	Intercept	1375567.16	1	1375567	7224.30	0.965
	Preschooling Status	423.187	1	423.187	2.22	0.008
	Gender	327.897	1	327.897	1.72	0.007
	Preschooling Status* Gender	90.812	1	90.812	0.48	0.002
	Error	49696.589	261	190.408		
	Total	2334381	265			
V	Intercept	1211066.14	1	1211066	6408.32	0.95
	Preschooling Status	835.721	1	835.721	4.42	0.013
	Gender	322.759	1	322.759	1.71	0.005
	Preschooling Status* Gender	86.627	1	86.627	0.46	0.001
	Error	63687.454	337	188.984		
	Total	3102125	341			

Table 45 shows that the influence of Preschooling Status on personal independence does not vary by gender of: (a) Standard I students [$F(1, 267) = 0.92$, $p > .05$] (b) Standard III students [$F(1, 261) = 0.48$, $p > .05$] and (c) Standard V students

[$F(1, 337) = 0.46, p > .05$]. Among primary standard students, the influence of Preschooling Status on personal independence does not vary significantly by gender.

Gender-wise Influence of Preschooling Status on Academic Independence.

Influence of Preschooling Status on academic independence of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 46.

Table 46

Results of 2×2 ANOVAs of Academic Independence of Primary Standard Students by their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	768510.605	1	768510.6	3374.0	0.927
	Preschooling Status	490.961	1	490.961	2.2	0.008
	Gender	559.258	1	559.258	2.5	0.009
	Preschooling Status* Gender	19.782	1	19.782	0.1	0
	Error	60816.108	267	227.776		
	Total	1938715	271			
III	Intercept	1230812.17	1	1230812	6217.2	0.96
	Preschooling Status	174.318	1	174.318	0.9	0.003
	Gender	1067.953	1	1067.953	5.4	0.02
	Preschooling Status* Gender	29.021	1	29.021	0.1	0.001
	Error	51670.228	261	197.97		
	Total	2181068	265			
V	Intercept	990326.105	1	990326.1	3932.7	0.921
	Preschooling Status	819.749	1	819.749	3.3	0.01
	Gender	100.188	1	100.188	0.4	0.001
	Preschooling Status* Gender	264.929	1	264.929	1.1	0.003
	Error	84863.526	337	251.821		
	Total	2573174	341			

Table 46 shows that the influence of Preschooling Status on academic independence does not vary by gender of: (a) Standard I students [$F(1, 267) = 0.1, p > .05$] (b) Standard III students [$F(1, 261) = 0.1, p > .05$] and (c) Standard V students [$F(1, 337) = 1.1, p > .05$]. Among primary standard students, the influence of Preschooling Status on academic independence does not vary significantly by gender.

Gender-wise Influence of Preschooling Status on Work Habit. Influence of Preschooling Status on works habit of Standard I, III and V Students by gender were studied using 2×2 ANOVAs. Results are given in Table 47.

Table 47

Results of 2×2 ANOVAs of Work Habit of Primary Standard Students by Their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	595434.322	1	595434.3	2642.49	0.908
	Preschooling Status	663.891	1	663.891	2.95	0.011
	Gender	19.652	1	19.652	0.09	0
	Preschooling Status* Gender	709.225	1	709.225	3.15	0.012
	Error	60163.234	267	225.33		
	Total	1537201	271			
III	Intercept	780405.335	1	780405.3	3618.96	0.933
	Preschooling Status	0.003	1	0.003	0.00	0
	Gender	1040.041	1	1040.041	4.82	0.018
	Preschooling Status* Gender	8.664	1	8.664	0.04	0
	Error	56283.012	261	215.644		
	Total	1390971	265			
V	Intercept	711445.125	1	711445.1	2984.19	0.899
	Preschooling Status	495.612	1	495.612	2.08	0.006
	Gender	441.609	1	441.609	1.85	0.005
	Preschooling Status* Gender	8.079	1	8.079	0.03	0
	Error	80342.465	337	238.405		
	Total	1722813	341			

Table 47 shows that the influence of Preschooling Status on work habit does not vary by gender of: (a) Standard I students [$F(1, 267) = 3.15, p > .05$] (b) Standard III students [$F(1, 261) = 0.04, p > .05$] and (c) Standard V students [$F(1, 337) = 0.03, p > .05$]. Among primary standard students, the influence of Preschooling Status on work habit does not vary significantly by gender.

Gender-wise Influence of Preschooling Status on Interpersonal Relationship. Influence of Preschooling Status on interpersonal relationship of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 48.

Table 48

Results of 2 × 2 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	790048.983	1	790049	7557.19	0.966
	Preschooling Status	379.609	1	379.609	3.63	0.013
	Gender	134.316	1	134.316	1.29	0.005
	Preschooling Status* Gender	189.222	1	189.222	1.81	0.007
	Error	27912.891	267	104.543		
	Total	1957565	271			
III	Intercept	1122608.44	1	1122608	10089.02	0.975
	Preschooling Status	0.425	1	0.425	0.00	0
	Gender	28.012	1	28.012	0.25	0.001
	Preschooling Status* Gender	12.388	1	12.388	0.11	0
	Error	29041.542	261	111.27		
	Total	1926980	265			
V	Intercept	659408.953	1	659409	6716.83	0.952
	Preschooling Status	119.971	1	119.971	1.22	0.004
	Gender	16.107	1	16.107	0.16	0
	Preschooling Status* Gender	109.48	1	109.48	1.12	0.003
	Error	33084.186	337	98.173		
	Total	1590398	341			

Table 48 shows that the influence of Preschooling Status on interpersonal relationship does not vary by gender of: (a) Standard I students [$F(1, 267) = 1.81, p > .05$] (b) Standard III students [$F(1, 261) = 0.11, p > .05$] and (c) Standard V students [$F(1, 337) = 1.12, p > .05$]. Among primary standard students, the influence of Preschooling Status on interpersonal relationship does not vary significantly by gender.

Gender-wise Influence of Preschooling Status on Cooperation. Influence of Preschooling Status on cooperation of Standard I, III and V students by gender were studied using 2 × 2 ANOVAs. Results are given in Table 49.

Table 49

Results of 2 × 2 ANOVAs of Cooperation of Primary Standard Students by Their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	674339.435	1	674339.4	3133.84	0.921
	Preschooling Status	37.967	1	37.967	0.18	0.001
	Gender	236.825	1	236.825	1.10	0.004
	Preschooling Status* Gender	162.985	1	162.985	0.76	0.003
	Error	57453.028	267	215.18		
	Total		1664184	271		
III	Intercept	945560.876	1	945560.9	3786.46	0.936
	Preschooling Status	106.146	1	106.146	0.43	0.002
	Gender	340.904	1	340.904	1.37	0.005
	Preschooling Status* Gender	19.153	1	19.153	0.08	0
	Error	65177.385	261	249.722		
	Total		1693584	265		
V	Intercept	748017.514	1	748017.5	4552.07	0.931
	Preschooling Status	11.573	1	11.573	0.07	0
	Gender	154.131	1	154.131	0.94	0.003
	Preschooling Status* Gender	332.428	1	332.428	2.02	0.006
	Error	55377.38	337	164.325		
	Total		1870861	341		

Table 49 shows that the influence of Preschooling Status on cooperation does not vary by gender of: (a) Standard I students [$F(1, 267) = 0.76, p > .05$] (b) Standard III students [$F(1, 261) = 0.08, p > .05$] and (c) Standard V students [$F(1, 337) = 2.02, p > .05$]. Among primary standard students, the influence of Preschooling Status on cooperation does not vary significantly by gender.

Gender-wise Influence of Preschooling Status on Communication.

Influence of Preschooling Status on communication of Standard I, III and V students by gender were studied using 2 × 2 ANOVAs. Results are given in Table 50.

Table 50

Results of 2 × 2 ANOVAs of Communication of Primary Standard Students by Their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	802448.726	1	802448.7	3349.29	0.926
	Preschooling Status	2451.261	1	2451.261	10.23	0.037
	Gender	27.576	1	27.576	0.12	0
	Preschooling Status* Gender	472.736	1	472.736	1.97	0.007
	Error	63969.914	267	239.588		
	Total	2120762	271			
III	Intercept	1189200.15	1	1189200	7150.02	0.965
	Preschooling Status	1178.961	1	1178.961	7.09	0.026
	Gender	1518.192	1	1518.192	9.13	0.034
	Preschooling Status* Gender	1735.056	1	1735.056	10.43**	0.038
	Error	43409.828	261	166.321		
	Total	2148389	265			
V	Intercept	1023795.28	1	1023795	4686.20	0.933
	Preschooling Status	61.712	1	61.712	0.28	0.001
	Gender	1229.237	1	1229.237	5.63	0.016
	Preschooling Status* Gender	201.526	1	201.526	0.92	0.003
	Error	73624.503	337	218.47		
	Total	2558917	341			

Note. ** $p < .01$

Table 50 shows that the influence of Preschooling Status on communication does not vary by gender of: (a) Standard I students [$F(1, 267) = 1.97, p > .05$] and (c) Standard V students [$F(1, 337) = 0.92, p > .05$]. But, the influence of Preschooling Status on communication of Standard III students vary significantly by gender [$F(1, 261) = 10.43, p < .05, \eta^2 = 0.014$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool status on communication of Standard III boys (non-preschooled: $M = 77.95, SD = 16.33, N = 20$ and preschooled: $M = 90.09, SD = 13.07, N = 96$) [$F(1, 246) = 13.05, p < .05, \eta^2 = .103$], but not among girls (non-preschooled: $M = 90.83, SD = 12.47, N = 30$ and preschooled: $M = 89.66, SD = 12.20, N = 119$) [$F(1, 223) = 0.22, p > .05$]. Communication is higher among preschooled boys than non-preschooled boys in Standard III. Communication is significant with small effect among preschooled boys than non-preschooled boys in Standard III.

Gender-wise Influence of Preschooling Status on Leadership. Influence of Preschooling Status on leadership of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 51.

Table 51

Results of 2×2 ANOVAs of Leadership of Primary Standard Students by their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	639019.277	1	639019.3	4648.38	0.946
	Preschooling Status	1286.143	1	1286.143	9.36	0.034
	Gender	29.119	1	29.119	0.21	0.001
	Preschooling Status* Gender	80.536	1	80.536	0.59	0.002
	Error	36704.872	267	137.471		
	Total	1647202	271			
III	Intercept	967605.199	1	967605.2	10507.17	0.976
	Preschooling Status	434.404	1	434.404	4.72	0.018
	Gender	235.345	1	235.345	2.56	0.01
	Preschooling Status* Gender	1064.948	1	1064.948	11.56**	0.042
	Error	24035.478	261	92.09		
	Total	1707014	265			
V	Intercept	687863.78	1	687863.8	4690.47	0.933
	Preschooling Status	174.984	1	174.984	1.19	0.004
	Gender	2.912	1	2.912	0.02	0
	Preschooling Status* Gender	0.11	1	0.11	0.00	0
	Error	49421.467	337	146.651		
	Total	1745109	341			

Note. ** $p < .01$

Table 51 shows that the influence of Preschooling Status on leadership does not vary by gender of: (a) Standard I students [$F(1, 267) = 0.59, p > .05$] and (b) Standard V students [$F(1, 337) = 0.00, p > .05$]. But, the influence of Preschooling Status on leadership of Standard III students vary significantly by gender [$F(1, 261) = 11.56, p < .05, \eta^2 = 0.042$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool status on leadership of Standard III boys (non-preschooled: $M = 73.10, SD = 12.90, N = 20$ and preschooled: $M = 81.64, SD = 10.05, N = 96$) [$F(1,$

246) = 10.79, $p < .05$, $\eta^2 = .087$], but not among girls (non-preschooled: $M = 80.76$, $SD = 6.96$, $N = 30$ and preschooled: $M = 78.88$, $SD = 9.14$, $N = 119$) [$F(1, 223) = 1.11$, $p > .05$]. Leadership is higher among preschooled boys than non-preschooled boys in Standard III. Leadership is significant with small effect among preschooled boys than non-preschooled boys in Standard III.

Gender-wise Influence of Preschooling Status on Expressing Emotions.

Influence of Preschooling Status on expressing emotions of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 52.

Table 52

Results of 2×2 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	611225.944	1	611225.9	6593.24	0.961
	Preschooling Status	19.071	1	19.071	0.21	0.001
	Gender	23.983	1	23.983	0.26	0.001
	Preschooling Status* Gender	337.41	1	337.41	3.64	0.013
	Error	24752.236	267	92.705		
	Total	1480996	271			
III	Intercept	786171.223	1	786171.2	7049.98	0.964
	Preschooling Status	0.825	1	0.825	0.01	0
	Gender	348.828	1	348.828	3.13	0.012
	Preschooling Status* Gender	108.59	1	108.59	0.97	0.004
	Error	29105.131	261	111.514		
	Total	1366745	265			
V	Intercept	742892.651	1	742892.7	4642.05	0.932
	Preschooling Status	40.582	1	40.582	0.25	0.001
	Gender	7.655	1	7.655	0.05	0
	Preschooling Status* Gender	80.62	1	80.62	0.50	0.001
	Error	53931.973	337	160.036		
	Total	1822898	341			

Table 52 shows that the influence of Preschooling Status on expressing emotions does not vary by gender of: (a) Standard I students [$F(1, 267) = 3.64$, $p > .05$] (b) Standard III students [$F(1, 261) = 0.97$, $p > .05$] and (c) Standard V students [$F(1, 337) = 0.50$, $p > .05$]. Among primary standard students, the influence of Preschooling Status on expressing emotions does not vary significantly by gender.

Gender-wise Influence of Preschooling Status on Controlling Emotions.

Influence of Preschooling Status on controlling emotions of Standard I, III and V Students by gender were studied using 2×2 ANOVAs. Results are given in Table 53.

Table 53

Results of 2×2 ANOVAs of Controlling Emotions of Primary Standard Students by Their Preschooling Status and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	479825.07	1	479825.1	8240.04	0.969
	Preschooling Status	161.74	1	161.74	2.78	0.01
	Gender	64.141	1	64.141	1.10	0.004
	Preschooling Status* Gender	119.462	1	119.462	2.05	0.008
	Error	15547.651	267	58.231		
	Total	1181123	271			
III	Intercept	719285.504	1	719285.5	11251.91	0.977
	Preschooling Status	32.922	1	32.922	0.52	0.002
	Gender	254.255	1	254.255	3.98	0.015
	Preschooling Status* Gender	73.33	1	73.33	1.15	0.004
	Error	16684.589	261	63.926		
	Total	1248717	265			
V	Intercept	733147.246	1	733147.2	6073.78	0.947
	Preschooling Status	84.731	1	84.731	0.70	0.002
	Gender	518.757	1	518.757	4.30	0.013
	Preschooling Status* Gender	196.409	1	196.409	1.63	0.005
	Error	40678.228	337	120.707		
	Total	1772461	341			

Table 53 shows that the influence of Preschooling Status on controlling emotions does not vary by gender of: (a) Standard I students [$F(1, 267) = 2.05, p > .05$] (b) Standard III students [$F(1, 261) = 1.15, p > .05$] and (c) Standard V students [$F(1, 337) = 1.63, p > .05$]. Among primary standard students, the influence of Preschooling Status on controlling emotions does not vary significantly by gender.

Influence of Preschooling Status on Cognitive and Socio-emotional Outcomes of Primary Standard Students by Birth Order

The influence of Preschooling Status on cognitive and socio-emotional outcomes of primary standard students by their BO was studied using 2×3 ANOVAs.

Wherever a significant 2×3 interaction is revealed, further one-way Anova of the dependent variable with Preschooling Status was done for BO separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschooling Status on Cognitive Outcomes of Primary Standard Students by BO

Influence of Preschooling Status on cognitive outcomes of Standard I, III and V students by their BO were studied and the results are given distinctly.

Influence of Preschooling Status on Vocabulary in Malayalam by BO.

Influence of Preschooling Status on vocabulary in Malayalam of Standard I, III and V Students by BO were studied using 2×3 ANOVAs. Results are given in Table 54.

Table 54

Results of 2×3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	406395.544	1	406395.5	916.65	0.729
	Preschooling Status	546.155	1	546.155	1.23	0.004
	BO	133.749	2	66.874	0.15	0.001
	Preschooling Status* BO	699.926	2	349.963	0.79	0.005
	Error	151182.64	341	443.351		
	Total	1386428	347			
III	Intercept	274245.637	1	274245.6	767.16	0.701
	Preschooling Status	102.712	1	102.712	0.29	0.001
	BO	28.144	2	14.072	0.04	0
	Preschooling Status* BO	671.414	2	335.707	0.94	0.006
	Error	116897.327	327	357.484		
	Total	806350	333			
V	Intercept	100801.527	1	100801.5	316.02	0.404
	Preschooling Status	0.011	1	0.011	0.00	0
	BO	1254.884	2	627.442	1.97	0.008
	Preschooling Status* BO	243.525	2	121.763	0.38	0.002
	Error	148961.326	467	318.975		
	Total	999140	473			

Table 54 shows that the influence of Preschooling Status on vocabulary in Malayalam does not vary by BO of: (a) Standard I students [$F(2,341) = 0.79, p > .05$] (b) Standard III students [$F(2,327) = 0.94, p > .05$] and (c) Standard V students [$F(2,467) = 0.38, p > .05$]. Among primary standard students, the influence of Preschooling Status on vocabulary in Malayalam does not vary significantly by BO.

Influence of Preschooling Status on Malayalam Comprehension by BO.

Influence of Preschooling Status on Malayalam comprehension of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 55.

Table 55

Results of 2×3 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	208076.493	1	208076.5	362.85	0.516
	Preschooling Status	290.231	1	290.231	0.51	0.001
	BO	229.338	2	114.669	0.20	0.001
	Preschooling Status* BO	712.8	2	356.4	0.62	0.004
	Error	195547.338	341	573.453		
	Total	831995	347			
III	Intercept	423587.863	1	423587.9	763.21	0.7
	Preschooling Status	460.827	1	460.827	0.83	0.003
	BO	687.104	2	343.552	0.62	0.004
	Preschooling Status* BO	9.771	2	4.886	0.01	0
	Error	181488.145	327	555.01		
	Total	1202620	333			
V	Intercept	100581.992	1	100582	218.81	0.319
	Preschooling Status	661.884	1	661.884	1.44	0.003
	BO	270.776	2	135.388	0.30	0.001
	Preschooling Status* BO	551.611	2	275.806	0.60	0.003
	Error	214672.177	467	459.683		
	Total	953203	473			

Table 55 shows that the influence of Preschooling Status on Malayalam comprehension does not vary by BO of: (a) Standard I students [$F(2,341) = 0.62, p > .05$] (b) Standard III students [$F(2,327) = 0.01, p > .05$] and (c) Standard V students [$F(2,467) = 0.60, p > .05$]. Among primary standard students, the influence of Preschooling Status on Malayalam comprehension does not vary significantly by BO.

Influence of Preschooling Status on Vocabulary in English by BO.

Influence of Preschooling Status on vocabulary in English of Standard I, III and V Students by BO were studied using 2×3 ANOVAs. Results are given in Table 56.

Table 56

Results of 2×3 ANOVAs of Vocabulary in English of Primary Standard Students by Their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	403117.047	1	403117	857.39	0.715
	Preschooling Status	1307.158	1	1307.158	2.78	0.008
	BO	430.151	2	215.076	0.46	0.003
	Preschooling Status* BO	272.768	2	136.384	0.29	0.002
	Error	160326.502	341	470.166		
	Total	1426306	347			
III	Intercept	227251.073	1	227251.1	409.53	0.556
	Preschooling Status	126.795	1	126.795	0.23	0.001
	BO	37.318	2	18.659	0.03	0
	Preschooling Status* BO	1570.438	2	785.219	1.42	0.009
	Error	181454.781	327	554.908		
	Total	749519	333			
V	Intercept	95410.853	1	95410.85	219.41	0.32
	Preschooling Status	525.16	1	525.16	1.21	0.003
	BO	206.117	2	103.059	0.24	0.001
	Preschooling Status* BO	246.555	2	123.278	0.28	0.001
	Error	203078.086	467	434.857		
	Total	1096541	473			

Table 56 shows that the influence of Preschooling Status on vocabulary in English does not vary by BO of: (a) Standard I students [$F(2,341) = 0.29, p > .05$] (b) Standard III students [$F(2,327) = 1.42, p > .05$] and (c) Standard V students [$F(2,467) = 0.28, p > .05$]. Among primary standard students, the influence of Preschooling Status on vocabulary in English does not vary significantly by BO.

Influence of Preschooling Status on English Comprehension by BO.

Influence of Preschooling Status on English comprehension of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 57.

Table 57

Results of 2×3 ANOVAs of English Comprehension of Primary Standard Students by Their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	164554.95	1	164555	312.31	0.478
	Preschooling Status	158.327	1	158.327	0.30	0.001
	BO	362.735	2	181.368	0.34	0.002
	Preschooling Status* BO	575.756	2	287.878	0.55	0.003
	Error	179670.675	341	526.893		
	Total	687378	347			
III	Intercept	212751.906	1	212751.9	353.77	0.52
	Preschooling Status	1309.477	1	1309.477	2.18	0.007
	BO	1591.625	2	795.813	1.32	0.008
	Preschooling Status* BO	2502.167	2	1251.083	2.08	0.013
	Error	196655.729	327	601.394		
	Total	682425	333			
V	Intercept	131534.555	1	131534.6	282.29	0.377
	Preschooling Status	652.516	1	652.516	1.40	0.003
	BO	2274.632	2	1137.316	2.44	0.01
	Preschooling Status* BO	1982.392	2	991.196	2.13	0.009
	Error	217601.216	467	465.955		
	Total	1430349	473			

Table 57 shows that the influence of Preschooling Status on English comprehension does not vary by BO of: (a) Standard I students [$F(2,341) = 0.55, p > .05$] (b) Standard III students [$F(2,327) = 2.08, p > .05$] and (c) Standard V students [$F(2,467) = 2.13, p > .05$]. Among primary standard students, the influence of Preschooling Status on English comprehension does not vary significantly by BO.

Influence of Preschooling Status on Achievement in Mathematics by BO.

Influence of Preschooling Status on achievement in Mathematics of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 58.

Table 58

Results of 2×3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	430763.5	1	430763.5	1195.02	0.778
	Preschooling Status	1241.974	1	1241.974	3.45	0.01
	BO	314.791	2	157.396	0.44	0.003
	Preschooling Status* BO	238.132	2	119.066	0.33	0.002
	Error	122918.833	341	360.466		
	Total	1480688	347			
III	Intercept	315257.851	1	315257.9	645.65	0.664
	Preschooling Status	60.574	1	60.574	0.12	0
	BO	208.194	2	104.097	0.21	0.001
	Preschooling Status* BO	1113.605	2	556.802	1.14	0.007
	Error	159666.87	327	488.278		
	Total	951541	333			
V	Intercept	143061.929	1	143061.9	427.02	0.478
	Preschooling Status	25.296	1	25.296	0.08	0
	BO	389.085	2	194.542	0.58	0.002
	Preschooling Status* BO	207.226	2	103.613	0.31	0.001
	Error	156456.745	467	335.025		
	Total	1300037	473			

Table 58 shows that the influence of Preschooling Status on achievement in Mathematics does not vary by BO of: (a) Standard I students [$F(2,341) = 0.33, p > .05$] (b) Standard III students [$F(2,327) = 1.14, p > .05$] and (c) Standard V students [$F(2,467) = 0.31, p > .05$]. Among primary standard students, the influence of Preschooling Status on achievement in Mathematics does not vary significantly by BO.

Influence of Preschooling Status on Socio-Emotional Outcomes of Primary Standard Students by BO

Influence of Preschooling Status on select socio-emotional outcomes of Standard I, III and V students by their BO were studied and the results are given distinctly.

Influence of Preschooling Status on Personal Independence by BO.

Influence of Preschooling Status on personal independence of Standard I, III and V students by their BO were studied using 2×3 ANOVAs. Results are given in Table 59.

Table 59

Results of 2×3 ANOVAs of Personal Independence of Primary Standard Students by Their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	882432.978	1	882433	3526.94	0.93
	Preschooling Status	304.751	1	304.751	1.22	0.005
	BO	787.454	2	393.727	1.57	0.012
	Preschooling Status* BO	304.208	2	152.104	0.61	0.005
	Error	66302.471	265	250.198		
	Total		2281659	271		
III	Intercept	1116110.2	1	1116110	5806.16	0.957
	Preschooling Status	571.993	1	571.993	2.98	0.011
	BO	92.041	2	46.021	0.24	0.002
	Preschooling Status* BO	145.277	2	72.639	0.38	0.003
	Error	49787.233	259	192.229		
	Total		2334381	265		
V	Intercept	474902.046	1	474902	2500.78	0.882
	Preschooling Status	3.542	1	3.542	0.02	0
	BO	95.445	2	47.722	0.25	0.001
	Preschooling Status* BO	319.758	2	159.879	0.84	0.005
	Error	63617.148	335	189.902		
	Total		3102125	341		

Table 59 shows that the influence of Preschooling Status on personal independence does not vary by BO of: (a) Standard I students [$F(2,265) = 0.61, p > .05$] (b) Standard III students [$F(2,259) = 0.38, p > .05$] and (c) Standard V students [$F(2,335) = 0.84, p > .05$]. Among primary standard students, the influence of Preschooling Status on personal independence does not vary significantly by BO.

Influence of Preschooling Status on Academic Independence by BO.

Influence of Preschooling Status on academic independence of Standard I, III and V Students by BO were studied using 2×3 ANOVAs. Results are given in Table 60.

Table 60

Results of 2×3 ANOVAs of Academic Independence of Primary Standard Students by their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	730883.61	1	730883.6	3098.64	0.921
	Preschooling Status	488.484	1	488.484	2.07	0.008
	BO	24.246	2	12.123	0.05	0
	Preschooling Status* BO	27.874	2	13.937	0.06	0
	Error	62506.113	265	235.872		
	Total	1938715	271			
III	Intercept	1018874.36	1	1018874	5013.21	0.951
	Preschooling Status	42.979	1	42.979	0.21	0.001
	BO	349.34	2	174.67	0.86	0.007
	Preschooling Status* BO	43.328	2	21.664	0.11	0.001
	Error	52638.645	259	203.238		
	Total	2181068	265			
V	Intercept	398333.403	1	398333.4	1561.64	0.823
	Preschooling Status	18.43	1	18.43	0.07	0
	BO	425.274	2	212.637	0.83	0.005
	Preschooling Status* BO	760.304	2	380.152	1.49	0.009
	Error	85449.483	335	255.073		
	Total	2573174	341			

Table 60 shows that the influence of Preschooling Status on academic independence does not vary by BO of: (a) Standard I students [$F(2,265) = 0.06, p > .05$] (b) Standard III students [$F(2,259) = 0.11, p > .05$] and (c) Standard V

students [$F(2,335) = 1.49, p > .05$]. Among primary standard students, the influence of Preschooling Status on academic independence does not vary significantly by BO.

Influence of Preschooling Status on Work Habit by BO. Influence of Preschooling Status on work habit of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 61.

Table 61

Results of 2×3 ANOVAs of Work Habit of Primary Standard Students by their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	575523.963	1	575524	2519.61	0.905
	Preschooling Status	75.626	1	75.626	0.33	0.001
	BO	346.435	2	173.218	0.76	0.006
	Preschooling Status* BO	1524.508	2	762.254	3.34*	0.025
	Error	60530.69	265	228.418		
	Total	1537201	271			
III	Intercept	624601.825	1	624601.8	2822.53	0.916
	Preschooling Status	7.889	1	7.889	0.04	0
	BO	373.65	2	186.825	0.84	0.006
	Preschooling Status* BO	16.374	2	8.187	0.04	0
	Error	57314.484	259	221.291		
	Total	1390971	265			
V	Intercept	280117.564	1	280117.6	1174.36	0.778
	Preschooling Status	610.776	1	610.776	2.56	0.008
	BO	1036.495	2	518.248	2.17	0.013
	Preschooling Status* BO	1256.164	2	628.082	2.63	0.015
	Error	79906.645	335	238.527		
	Total	1722813	341			

Note. * $p < .05$

Table 61 shows that the influence of Preschooling Status on work habit does not vary by BO of: (a) Standard III students [$F(2,259) = 0.04, p > .05$] and (b) Standard V students [$F(2,335) = 2.63, p > .05$]. But, the influence of Preschooling Status on work habit of Standard I students vary significantly by BO [$F(2,265) = 3.34, p < .05, \eta^2 = 0.025$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool status on work habit of Standard I later born children (non-preschooled:

$M=64.75$, $SD=8.93$, $N=16$ and preschooled: $M=75.75$, $SD=16.54$, $N=142$) [$F(1, 156) = 6.82$, $p < .05$, $\eta^2 = 0.042$], but not among single child (non-preschooled: $M = 77.37$, $SD = 12.16$, $N = 8$ and preschooled: $M = 71.39$, $SD = 12.21$, $N = 43$) [$F(1, 49) = 1.41$, $p > .05$] and first child (non-preschooled: $M=72.73$, $SD = 13.84$, $N=11$ and preschooled: $M = 72.69$, $SD = 14.47$, $N = 51$) [$F(1, 60) = 0.00$, $p > .05$]. Work habit is higher among preschooled later born child than non-preschooled later born in Standard I.

Influence of Preschooling Status on Interpersonal Relationship by BO.

Influence of Preschooling Status on interpersonal relationship of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 62.

Table 62

Results of 2×3 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	753881.314	1	753881.3	7356.77	0.965
	Preschooling Status	205.246	1	205.246	2.00	0.008
	BO	491.544	2	245.772	2.40	0.018
	Preschooling Status* BO	807.02	2	403.51	3.94*	0.029
	Error	27155.742	265	102.474		
	Total	1957565	271			
III	Intercept	919705.155	1	919705.2	8301.31	0.97
	Preschooling Status	34.244	1	34.244	0.31	0.001
	BO	278.199	2	139.099	1.26	0.01
	Preschooling Status* BO	361.05	2	180.525	1.63	0.012
	Error	28694.7	259	110.79		
	Total	1926980	265			
V	Intercept	263270.787	1	263270.8	2685.12	0.889
	Preschooling Status	269.872	1	269.872	2.75	0.008
	BO	354.878	2	177.439	1.81	0.011
	Preschooling Status* BO	138.64	2	69.32	0.71	0.004
	Error	32846.077	335	98.048		
	Total	1590398	341			

Note. * $p < .05$

Table 62 shows that the influence of Preschooling Status on interpersonal relationship does not vary by BO of: (a) Standard III students [$F(2,259) = 1.63$, $p > .05$] and (b) Standard V students [$F(2,335) = 0.71$, $p > .05$]. But, the influence of Preschooling

Status on interpersonal relationship of Standard I students vary significantly by BO [$F(2,265) = 3.94, p < .05, \eta^2 = 0.029$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool status on interpersonal relationship of Standard I later born child (non-preschooled: $M = 79.88, SD = 16.37, N = 16$ and preschooled: $M = 85.50, SD = 9.36, N = 142$) [$F(1, 156) = 4.33, p < .05, \eta^2 = 0.027$], but not among single child (non-preschooled: $M = 76.50, SD = 13.71, N = 8$ and preschooled: $M = 84.02, SD = 9.65, N = 43$) [$F(1, 49) = 3.58, p > .05$] and first child (non-preschooled: $M = 78.27, SD = 7.60, N = 11$ and preschooled: $M = 83.33, SD = 9.98, N = 51$) [$F(1, 60) = 2.39, p > .05$]. Interpersonal relationship is higher among preschooled later born children than non-preschooled later born in Standard I.

Influence of Preschooling Status on Cooperation by BO. Influence of Preschooling Status on cooperation of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 63.

Table 63

Results of 2×3 ANOVAs of Cooperation of Primary Standard Students by their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	637151.062	1	637151.1	2891.19	0.916
	Preschooling Status	23.313	1	23.313	0.11	0
	BO	141.345	2	70.673	0.32	0.002
	Preschooling Status* BO	556.753	2	278.376	1.26	0.009
	Error	58399.875	265	220.377		
	Total	1664184	271			
III	Intercept	767422.645	1	767422.6	3041.28	0.922
	Preschooling Status	20.58	1	20.58	0.08	0
	BO	86.579	2	43.29	0.17	0.001
	Preschooling Status* BO	44.471	2	22.236	0.09	0.001
	Error	65354.987	259	252.336		
	Total	1693584	265			
V	Intercept	304331.511	1	304331.5	1848.64	0.847
	Preschooling Status	195.586	1	195.586	1.19	0.004
	BO	493.263	2	246.632	1.50	0.009
	Preschooling Status* BO	410.986	2	205.493	1.25	0.007
	Error	55149.242	335	164.625		
	Total	1870861	341			

Table 63 shows that the influence of Preschooling Status on cooperation does not vary by BO of: (a) Standard I students [$F(2,265) = 1.26, p > .05$] (b) Standard III students [$F(2,259) = 0.09, p > .05$] and (c) Standard V students [$F(2,335) = 1.25, p > .05$]. Among primary standard students, the influence of Preschooling Status on cooperation does not vary significantly by BO.

Influence of Preschooling Status on Communication by BO. Influence of Preschooling Status on communication of Standard I, III and V Students by BO were studied using 2×3 ANOVAs. Results are given in Table 64.

Table 64

Results of 2×3 ANOVAs of Communication of Primary Standard Students by Their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	778278.755	1	778278.8	3299.18	0.926
	Preschooling Status	1761.33	1	1761.33	7.47	0.027
	BO	1506.131	2	753.066	3.19	0.024
	Preschooling Status* BO	2051.551	2	1025.776	4.35*	0.032
	Error	62513.658	265	235.901		
	Total		2120762	271		
III	Intercept	992944.198	1	992944.2	5722.83	0.957
	Preschooling Status	234.724	1	234.724	1.35	0.005
	BO	463.824	2	231.912	1.34	0.01
	Preschooling Status* BO	278.551	2	139.275	0.80	0.006
	Error	44937.98	259	173.506		
	Total		2148389	265		
V	Intercept	401240.922	1	401240.9	1796.65	0.843
	Preschooling Status	20.463	1	20.463	0.09	0
	BO	326.571	2	163.285	0.73	0.004
	Preschooling Status* BO	340.095	2	170.048	0.76	0.005
	Error	74814.817	335	223.328		
	Total		2558917	341		

Note. * $p < .05$

Table 64 shows that the influence of Preschooling Status on communication does not vary by BO of: (a) Standard III students [$F(2,259) = 0.80, p > .05$] and (b) Standard V students [$F(2,335) = 0.76, p > .05$]. But, the influence of Preschooling Status on communication of Standard I students vary significantly by BO [$F(2,265) = 4.35, p < .05, \eta^2 = 0.032$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool status on communication of Standard I later born child (non-preschooled: $M = 73.56$, $SD = 22.88$, $N = 16$ and preschooled: $M = 88.11$, $SD = 15.18$, $N = 142$) [$F(1, 156) = 11.77$, $p < .05$, $\eta^2 = 0.070$], and among single child (non-preschooled: $M = 76.25$, $SD = 27.67$, $N = 8$ and preschooled: $M = 89.56$, $SD = 13.09$, $N = 43$) [$F(1, 49) = 4.66$, $p < .05$, $\eta^2 = .087$] but not among first child (non-preschooled: $M = 90.90$, $SD = 10.23$, $N = 11$ and preschooled: $M = 87.09$, $SD = 13.08$, $N = 51$) [$F(1, 60) = .822$, $p > .05$]. In Standard I, communication ability is higher among preschooled later born and single children than non-preschooled later born and single children, but not among first and later born children.

Influence of Preschooling Status on Leadership by BO. Influence of Preschooling Status on leadership of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 65.

Table 65

Results of 2×3 ANOVAs of Leadership of Primary Standard Students by Their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	606887.691	1	606887.7	4423.03	0.943
	Preschooling Status	1216.916	1	1216.916	8.87	0.032
	BO	252.856	2	126.428	0.92	0.007
	Preschooling Status* BO	750.83	2	375.415	2.74	0.02
	Error	36360.915	265	137.211		
	Total	1647202	271			
III	Intercept	810394.978	1	810395	8691.57	0.971
	Preschooling Status	45.812	1	45.812	0.49	0.002
	BO	802.146	2	401.073	4.30	0.032
	Preschooling Status*BO	242.706	2	121.353	1.30	0.01
	Error	24148.944	259	93.239		
	Total	1707014	265			
V	Intercept	271257.698	1	271257.7	1870.07	0.848
	Preschooling Status	6.134	1	6.134	0.04	0
	BO	342.063	2	171.031	1.18	0.007
	Preschooling Status* BO	219.381	2	109.69	0.76	0.004
	Error	48592.363	335	145.052		
	Total	1745109	341			

Table 65 shows that the influence of Preschooling Status on leadership does not vary by BO of: (a) Standard I students [$F(2,265) = 2.74, p > .05$] (b) Standard III students [$F(2,259) = 1.30, p > .05$] and (c) Standard V students [$F(2,335) = 0.76, p > .05$]. Among primary standard students, the influence of Preschooling Status on leadership does not vary significantly by BO.

Influence of Preschooling Status on Expressing Emotions by BO.

Influence of Preschooling Status on expressing emotions of Standard I, III and V Students by BO were studied using 2×3 ANOVAs. Results are given in Table 66.

Table 66

Results of 2×3 ANOVAs of Expressing Emotions of Primary Standard Students by Their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	596308.387	1	596308.4	6334.55	0.96
	Preschooling Status	0.156	1	0.156	0.00	0
	BO	310.333	2	155.166	1.65	0.012
	Preschooling Status* BO	96.47	2	48.235	0.51	0.004
	Error	24945.994	265	94.136		
	Total	1480996	271			
III	Intercept	637569.068	1	637569.1	5967.46	0.958
	Preschooling Status	101.273	1	101.273	0.95	0.004
	BO	278.338	2	139.169	1.30	0.01
	Preschooling Status* BO	592.043	2	296.021	2.77	0.021
	Error	27671.802	259	106.841		
	Total	1366745	265			
V	Intercept	302407.191	1	302407.2	1915.84	0.851
	Preschooling Status	933.904	1	933.904	5.92	0.017
	BO	506.275	2	253.138	1.60	0.009
	Preschooling Status* BO	1130.233	2	565.116	3.58*	0.021
	Error	52878.208	335	157.845		
	Total	1822898	341			

Note. * $p < .05$

Table 66 shows that the influence of Preschooling Status on expressing emotions does not vary by BO of: (a) Standard I students [$F(2,265) = 0.51, p > .05$] and (b) Standard III students [$F(2,259) = 2.77, p > .05$]. But, the influence of Preschooling Status on expressing emotions of Standard V students vary significantly by their BO [$F(2,335) = 3.58, p < .05, \eta^2 = 0.021$].

Follow up analysis of variance revealed that there is significant, but small effect of preschool status on expressing emotions of Standard V single child (non-preschooled: $M = 91.00$, $SD = 0.00$, $N = 2$ & preschooled: $M = 67.86$, $SD = 14.45$, $N = 28$) [$F(1, 28) = 4.97$, $p < .05$, $\eta^2 = 0.15$], but not among first child (non-preschooled: $M = 75.00$, $SD = 8.01$, $N = 12$ and preschooled: $M = 72.14$, $SD = 13.22$, $N = 111$) [$F(1, 121) = 0.39$, $p > .05$] and later born (non-preschooled: $M = 70.86$, $SD = 13.02$, $N = 29$ and preschooled: $M = 72.37$, $SD = 11.95$, $N = 159$) [$F(1, 186) = 0.38$, $p > .05$]. Expressing emotions is higher among non-preschooled single child than preschooled single child in Standard V.

Influence of Preschooling Status on Controlling Emotions by BO.

Influence of Preschooling Status on controlling emotions of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 67.

Table 67

Results of 2×3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Preschooling Status and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	465601.249	1	465601.2	7984.29	0.968
	Preschooling Status	103.943	1	103.943	1.78	0.007
	BO	139.394	2	69.697	1.20	0.009
	Preschooling Status* BO	6.897	2	3.449	0.06	0
	Error	15453.393	265	58.315		
	Total		1181123	271		
III	Intercept	581702.978	1	581703	9075.50	0.972
	Preschooling Status	0.531	1	0.531	0.01	0
	BO	10.67	2	5.335	0.08	0.001
	Preschooling Status*BO	153.246	2	76.623	1.20	0.009
	Error	16600.858	259	64.096		
	Total		1248717	265		
V	Intercept	298240.621	1	298240.6	2509.56	0.882
	Preschooling Status	771.935	1	771.935	6.50	0.019
	BO	1048.82	2	524.41	4.41	0.026
	Preschooling Status*BO	1381.859	2	690.93	5.81**	0.034
	Error	39812.052	335	118.842		
	Total		1772461	341		

Note. ** $p < .01$

Table 67 shows that the influence of Preschooling Status on controlling emotions does not vary by BO of: (a) Standard I students [$F(2,265) = 0.06, p > .05$] and (b) Standard III students [$F(2,259) = 1.20, p > .05$]. But, the influence of Preschooling Status on controlling emotions of Standard V students vary significantly by BO [$F(2,335) = 5.81, p < .05, \eta^2 = 0.034$].

Follow up analysis of variance revealed that there is significant, but small effect of preschool status on controlling emotions of Standard V single child (non-preschooled: $M = 95.00, SD = 1.41, N = 2$ and preschooled: $M = 69.29, SD = 12.58, N = 28$) [$F(1, 28) = 8.08, p < .05, \eta^2 = 0.22$]. But not among later born child (non-preschooled: $M = 72.17, SD = 13.48, N = 29$ and preschooled: $M = 71.42, SD = 10.28, N = 159$) [$F(1, 186) = 0.12, p > .05$], and first child (non-preschooled: $M = 67.50, SD = 15.04, N = 12$ and preschooled: $M = 71.24, SD = 10.12, N = 111$) [$F(1, 121) = 1.34, p > .05$]. Controlling emotions is higher among non-preschooled single child than preschooled single child in Standard V.

Influence of Preschooling Status on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Medium of Instruction

Whether influence of Preschooling Status on cognitive and socio-emotional outcomes of primary standard students vary by their Medium of Instruction (MoI) was studied using 2×2 ANOVAs. Wherever a significant 2×2 interaction is revealed, further one way Anova of the dependent variable with Preschooling Status were done for MoI separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschooling Status on Cognitive Outcomes by MoI

Influence of Preschooling Status on cognitive outcomes of Standard I, III and V students by their MoI were studied and the results are given distinctly.

Influence of Preschooling Status on Vocabulary in Malayalam by MoI.

Influence of Preschooling Status on vocabulary in Malayalam of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 68.

Table 68

Results of 2×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Preschooling Status and MoI

Standard	Source	Sum of Squares	Df	Mean Square	F	Partial Eta Squared
I	Intercept	417471	1	417471	991.10	0.743
	Preschool Status	492.419	1	492.419	1.17	0.003
	Mol	2472.05	1	2472.05	5.87	0.017
	Preschool Status * Mol	44.609	1	44.609	0.11	0
	Error	144478	343	421.219		
	Total	1386428	347			
III	Intercept	359384	1	359384	1011.41	0.755
	Preschool Status	1.532	1	1.532	0.00	0
	Mol	844.974	1	844.974	2.38	0.007
	Preschool Status * Mol	19.438	1	19.438	0.06	0
	Error	116903	329	355.33		
	Total	806350	333			
V	Intercept	277359	1	277359	866.10	0.649
	Preschool Status	9.906	1	9.906	0.03	0
	Mol	632.821	1	632.821	1.98	0.004
	Preschool Status * Mol	600.051	1	600.051	1.87	0.004
	Error	150192	469	320.239		
	Total	999140	473			

Table 68 shows that the influence of Preschooling Status on vocabulary in Malayalam does not vary by MoI of: (a) Standard I students [$F(1, 343) = 0.11, p > .05$] (b) Standard III students [$F(1, 329) = 0.06, p > .05$] and (c) Standard V students [$F(1, 469) = 1.87, p > .05$]. Among primary standard students, the influence of Preschooling Status on vocabulary in Malayalam does not vary significantly by of MoI.

Influence of Preschooling Status on Malayalam comprehension by MoI.

Influence of Preschooling Status on Malayalam comprehension of Standard I, III

and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 69.

Table 69

Results of 2×2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschooling Status and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	206181	1	206181	382.58	0.527
	Preschool Status	616.99	1	616.99	1.15	0.003
	Mol	6933.85	1	6933.85	12.87	0.036
	Preschool Status * Mol	637.047	1	637.047	1.18	0.003
	Error	184852	343	538.926		
	Total	831995	347			
III	Intercept	552554	1	552554	998.86	0.752
	Preschool Status	497.297	1	497.297	0.90	0.003
	Mol	511.289	1	511.289	0.92	0.003
	Preschool Status * Mol	18.072	1	18.072	0.03	0
	Error	181998	329	553.185		
	Total	1202620	333			
V	Intercept	247882	1	247882	539.19	0.535
	Preschool Status	107.155	1	107.155	0.23	0
	Mol	182.582	1	182.582	0.40	0.001
	Preschool Status * Mol	232.911	1	232.911	0.51	0.001
	Error	215616	469	459.736		
	Total	953203	473			

Table 69 shows that the influence of Preschooling Status on Malayalam comprehension does not vary by MoI of: (a) Standard I students [$F(1, 343) = 1.18, p > .05$] (b) Standard III students [$F(1, 329) = 0.03, p > .05$] and (c) Standard V students [$F(1, 469) = 0.51, p > .05$]. Among primary standard students, the influence of Preschooling Status on Malayalam comprehension does not vary significantly by of MoI.

Influence of Preschooling Status on Vocabulary in English by MoI.

Influence of Preschooling Status on vocabulary in English of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 70.

Table 70

Results of 2×2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Preschooling Status and MoI

Standard	Source	Sum of Squares	Df	Mean Square	F	Partial Eta Squared
I	Intercept	409644.8	1	409644.8	1009.80	0.746
	Preschool Status	1320.893	1	1320.893	3.26	0.009
	MoI	3928.804	1	3928.804	9.69	0.027
	Preschool Status * MoI	1200.275	1	1200.275	2.96	0.009
	Error	139144.1	343	405.668		
	Total	1426306	347			
III	Intercept	296132.9	1	296132.9	552.19	0.627
	Preschool Status	0.641	1	0.641	0.00	0
	MoI	2345.648	1	2345.648	4.37	0.013
	Preschool Status * MoI	340.636	1	340.636	0.64	0.002
	Error	176439.6	329	536.291		
	Total	749519	333			
V	Intercept	228474.3	1	228474.3	540.61	0.535
	Preschool Status	3725.396	1	3725.396	8.82	0.018
	MoI	3513.068	1	3513.068	8.31	0.017
	Preschool Status * MoI	555.975	1	555.975	1.32	0.003
	Error	198210.2	469	422.623		
	Total	1096541	473			

Table 70 shows that the influence of Preschooling Status on vocabulary in English does not vary by MoI of: (a) Standard I students [$F(1, 343) = 2.96, p > .05$] (b) Standard III students [$F(1, 329) = 0.64, p > .05$] and (c) Standard V students [$F(1, 469) = 1.32, p > .05$]. Among primary standard students, the influence of Preschooling Status on vocabulary in English does not vary significantly by MoI.

Influence of Preschooling Status on English Comprehension by MoI.

Influence of Preschooling Status on English comprehension of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 71.

Table 71

Results of 2×2 ANOVAs of English Comprehension of Primary Standard Students by Their Preschooling Status and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	160437	1	160437	362.08	0.514
	Preschool Status	514.626	1	514.626	1.16	0.003
	MoI	11106.8	1	11106.8	25.07	0.068
	Preschool Status * MoI	1.192	1	1.192	0.00	0
	Error	151982	343	443.095		
	Total	687378	347			
III	Intercept	263289	1	263289	471.67	0.589
	Preschool Status	150.404	1	150.404	0.27	0.001
	MoI	6140.91	1	6140.91	11.00	0.032
	Preschool Status * MoI	416.314	1	416.314	0.75	0.002
	Error	183649	329	558.203		
	Total	682425	333			
V	Intercept	294633	1	294633	631.69	0.574
	Preschool Status	8860.89	1	8860.89	19.00	0.039
	MoI	578.646	1	578.646	1.24	0.003
	Preschool Status * MoI	13.778	1	13.778	0.03	0
	Error	218752	469	466.423		
	Total	1430349	473			

Table 71 shows that the influence of Preschooling Status on English comprehension does not vary by MoI of: (a) Standard I students [$F(1, 343) = 0.00, p > .05$] (b) Standard III students [$F(1, 329) = 0.75, p > .05$] and (c) Standard V students [$F(1, 469) = 0.03, p > .05$]. Among primary standard students, the influence of Preschooling Status on English comprehension does not vary significantly by MoI.

Influence of Preschooling Status on Achievement in Mathematics by MoI.

Influence of Preschooling Status on achievement in Mathematics of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 72.

Table 72

Results of 2×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and MoI

Standard	Source	Sum of Squares	Df	Mean Square	F	Partial Eta Squared
I	Intercept	447404	1	447404	1293.66	0.79
	Preschool Status	1215.245	1	1215.245	3.51	0.01
	MoI	1099.917	1	1099.917	3.18	0.009
	Preschool Status * MoI	357.479	1	357.479	1.03	0.003
	Error	118624.7	343	345.844		
	Total	1480688	347			
III	Intercept	406817.2	1	406817.2	914.81	0.735
	Preschool Status	91.17	1	91.17	0.21	0.001
	MoI	5355.832	1	5355.832	12.04	0.035
	Preschool Status * MoI	528.78	1	528.78	1.19	0.004
	Error	146306.5	329	444.701		
	Total	951541	333			
V	Intercept	363195.6	1	363195.6	1102.25	0.702
	Preschool Status	292.917	1	292.917	0.89	0.002
	MoI	51.144	1	51.144	0.16	0
	Preschool Status * MoI	528.797	1	528.797	1.61	0.003
	Error	154536.8	469	329.503		
	Total	1300037	473			

Table 72 shows that the influence of Preschooling Status on achievement in Mathematics does not vary by MoI of: (a) Standard I students [$F(1, 343) = 1.03, p > .05$] (b) Standard III students [$F(1, 329) = 1.19, p > .05$] and (c) Standard V students [$F(1, 469) = 1.61, p > .05$]. Among primary standard students, the influence of Preschooling Status on achievement in Mathematics does not vary significantly by MoI.

Influence of Preschooling Status on Socio-Emotional Outcomes by MoI

Influence of Preschooling Status on select socio-emotional outcomes of Standard I, III and V students by their MoI were studied and the results are given distinctly.

Influence of Preschooling Status on Personal Independence by MoI.

Influence of Preschooling Status on personal independence of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 73.

Table 73

Results of 2×2 ANOVAs of Personal Independence of Primary Standard Students by Their Preschooling Status and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	946418	1	946418	3801.60	0.934
	Preschool Status	336.28	1	336.28	1.35	0.005
	MoI	323.532	1	323.532	1.30	0.005
	Preschool Status * MoI	645.763	1	645.763	2.59	0.01
	Error	66470.3	267	248.953		
	Total	2281659	271			
III	Intercept	1432862	1	1432862	7490.50	0.966
	Preschool Status	542.155	1	542.155	2.83	0.011
	MoI	84.423	1	84.423	0.44	0.002
	Preschool Status * MoI	83.807	1	83.807	0.44	0.002
	Error	49926.8	261	191.291		
	Total	2334381	265			
V	Intercept	1250291	1	1250291	6607.27	0.951
	Preschool Status	513.989	1	513.989	2.72	0.008
	MoI	78.369	1	78.369	0.41	0.001
	Preschool Status * MoI	265.356	1	265.356	1.40	0.004
	Error	63770.4	337	189.23		
	Total	3102125	341			

Table 73 shows that the influence of Preschooling Status on personal independence does not vary by MoI of: (a) Standard I students [$F(1, 267) = 2.59, p > .05$] (b) Standard III students [$F(1, 261) = 0.44, p > .05$] and (c) Standard V students [$F(1, 337) = 1.40, p > .05$]. Among primary standard students, the influence of Preschooling Status on personal independence does not vary significantly by MoI.

Influence of Preschooling Status on Academic Independence by MoI.

Influence of Preschooling Status on academic independence of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 74.

Table 74

Results of 2×2 ANOVAs of Academic Independence of Primary Standard Students by their Preschooling Status and MoI

Standard	Source	Sum of Squares	Df	Mean Square	F	Partial Eta Squared
I	Intercept	794167	1	794167	3447.63	0.928
	Preschool Status	403.583	1	403.583	1.75	0.007
	Mol	100.065	1	100.065	0.43	0.002
	Preschool Status * Mol	785.548	1	785.548	3.41	0.013
	Error	61503.9	267	230.352		
	Total	1938715	271			
III	Intercept	1286963	1	1286963	6361.30	0.961
	Preschool Status	119.835	1	119.835	0.59	0.002
	Mol	4.015	1	4.015	0.02	0
	Preschool Status * Mol	161.387	1	161.387	0.80	0.003
	Error	52803.2	261	202.311		
	Total	2181068	265			
V	Intercept	1012071	1	1012071	3955.33	0.921
	Preschool Status	736.441	1	736.441	2.88	0.008
	Mol	34.491	1	34.491	0.14	0
	Preschool Status * Mol	1.231	1	1.231	0.01	0
	Error	86229.8	337	255.875		
	Total	2573174	341			

Table 74 shows that the influence of Preschooling Status on academic independence does not vary by MoI of: (a) Standard I students [$F(1, 267) = 3.41$, $p > .05$] (b) Standard III students [$F(1, 261) = 0.80$, $p > .05$] and (c) Standard V students [$F(1, 337) = 0.01$, $p > .05$]. Among primary standard students, the influence of Preschooling Status on academic independence does not vary significantly by MoI.

Influence of Preschooling Status on Work Habit by MoI. Influence of Preschooling Status on work habit of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 75.

Table 75

Results of 2×2 ANOVAs of Work Habit of Primary Standard Students by Their Preschooling Status and MoI

Standard	Source	Sum of Squares	Df	Mean Square	F	Partial Eta Squared
I	Intercept	622611.1	1	622611.1	2670.28	0.909
	Preschool Status	519.774	1	519.774	2.23	0.008
	MoI	11.514	1	11.514	0.05	0
	Preschool Status * MoI	0.09	1	0.09	0.00	0
	Error	62254.71	267	233.164		
	Total	1537201	271			
III	Intercept	817502.1	1	817502.1	3698.50	0.934
	Preschool Status	1.017	1	1.017	0.01	0
	MoI	412.013	1	412.013	1.86	0.007
	Preschool Status * MoI	15.243	1	15.243	0.07	0
	Error	57690.36	261	221.036		
	Total	1390971	265			
V	Intercept	717812.2	1	717812.2	2997.49	0.899
	Preschool Status	254.895	1	254.895	1.06	0.003
	MoI	368.517	1	368.517	1.54	0.005
	Preschool Status * MoI	473.566	1	473.566	1.98	0.006
	Error	80701.76	337	239.471		
	Total	1722813	341			

Table 75 shows that the influence of Preschooling Status on work habit does not vary by MoI of: (a) Standard I students [$F(1, 267) = 0.00, p > .05$] (b) Standard III students [$F(1, 261) = 0.07, p > .05$] and (c) Standard V students [$F(1, 337) = 1.98, p > .05$]. Among primary standard students, the influence of Preschooling Status on work habit does not vary significantly by MoI.

Influence of Preschooling Status on Interpersonal Relationship by MoI.

Influence of Preschooling Status on interpersonal relationship of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 76.

Table 76

Results of 2×2 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschooling Status and MoI

Standard	Source	Sum of Squares	Df	Mean Square	F	Partial Eta Squared
I	Intercept	823992.5	1	823992.5	7887.54	0.967
	Preschool Status	247.852	1	247.852	2.37	0.009
	MoI	47.231	1	47.231	0.45	0.002
	Preschool Status * MoI	12.939	1	12.939	0.12	0
	Error	27892.84	267	104.468		
	Total	1957565	271			
III	Intercept	1161335	1	1161335	10511.97	0.976
	Preschool Status	0.071	1	0.071	0.00	0
	MoI	0.046	1	0.046	0.00	0
	Preschool Status * MoI	188.146	1	188.146	1.70	0.006
	Error	28834.6	261	110.477		
	Total	1926980	265			
V	Intercept	674211.5	1	674211.5	6926.39	0.954
	Preschool Status	231.579	1	231.579	2.38	0.007
	MoI	67.973	1	67.973	0.70	0.002
	Preschool Status * MoI	47.331	1	47.331	0.49	0.001
	Error	32803.42	337	97.34		
	Total	1590398	341			

Table 76 shows that the influence of Preschooling Status on interpersonal relationship does not vary by MoI of: (a) Standard I students [$F(1, 267) = 0.12, p > .05$] (b) Standard III students [$F(1, 261) = 1.70, p > .05$] and (c) Standard V students [$F(1, 337) = 0.49, p > .05$]. Among primary standard students, the influence of Preschooling Status on interpersonal relationship does not vary significantly by MoI.

Influence of Preschooling Status on Cooperation by MoI. Influence of Preschooling Status on cooperation of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 77.

Table 77

Results of 2×2 ANOVAs of Cooperation of Primary Standard Students by Their Preschooling Status and MoI

Standard	Source	Sum of Squares	Df	Mean Square	F	Partial Eta Squared
I	Intercept	698389	1	698389	3156.54	0.922
	Preschool Status	40.79	1	40.79	0.18	0.001
	Mol	0.663	1	0.663	0.00	0
	Preschool Status * Mol	5.619	1	5.619	0.03	0
	Error	59074	267	221.251		
	Total	1664184	271			
III	Intercept	985773	1	985773	3970.50	0.938
	Preschool Status	80.517	1	80.517	0.32	0.001
	Mol	778.945	1	778.945	3.14	0.012
	Preschool Status * Mol	462.856	1	462.856	1.86	0.007
	Error	64799.6	261	248.274		
	Total	1693584	265			
V	Intercept	768306	1	768306	4666.19	0.933
	Preschool Status	1.007	1	1.007	0.01	0
	Mol	130.768	1	130.768	0.79	0.002
	Preschool Status * Mol	2.905	1	2.905	0.02	0
	Error	55488.4	337	164.654		
	Total	1870861	341			

Table 77 shows that the influence of Preschooling Status on cooperation does not vary by MoI of: (a) Standard I students [$F(1, 267) = 0.03, p > .05$] (b) Standard III students [$F(1, 261) = 1.86, p > .05$] and (c) Standard V students [$F(1, 337) = 0.02, p > .05$]. Among primary standard students, the influence of Preschooling Status on cooperation does not vary significantly by MoI.

Influence of Preschooling Status on Communication by MoI. Influence of Preschooling Status on communication of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 78.

Table 78

Results of 2×2 ANOVAs of Communication of Primary Standard Students by Their Preschooling Status and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	834562.2	1	834562.2	3474.25	0.929
	Preschool Status	2092.897	1	2092.897	8.71	0.032
	Mol	199.702	1	199.702	0.83	0.003
	Preschool Status * Mol	9.191	1	9.191	0.04	0
	Error	64136.99	267	240.213		
	Total	2120762	271			
III	Intercept	1249772	1	1249772	7256.55	0.965
	Preschool Status	704.103	1	704.103	4.09	0.015
	Mol	161.308	1	161.308	0.94	0.004
	Preschool Status * Mol	459.558	1	459.558	2.67	0.01
	Error	44951.17	261	172.227		
	Total	2148389	265			
V	Intercept	1041459	1	1041459	4697.83	0.933
	Preschool Status	109.182	1	109.182	0.49	0.001
	Mol	427.425	1	427.425	1.93	0.006
	Preschool Status * Mol	468.677	1	468.677	2.11	0.006
	Error	74709.4	337	221.69		
	Total	2558917	341			

Table 78 shows that the influence of Preschooling Status on communication does not vary by MoI of: (a) Standard I students [$F(1, 267) = 0.04, p > .05$] (b) Standard III students [$F(1, 261) = 2.67, p > .05$] and (c) Standard V students [$F(1, 337) = 2.11, p > .05$]. Among primary standard students, the influence of Preschooling Status on communication does not vary significantly by MoI.

Influence of Preschooling Status on Leadership by MoI. Influence of Preschooling Status on leadership of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 79.

Table 79

Results of 2×2 ANOVAs of Leadership of Primary Standard Students by Their Preschooling Status and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	659198	1	659198	4858.54	0.948
	Preschool Status	1193.81	1	1193.81	8.80	0.032
	Mol	260.465	1	260.465	1.92	0.007
	Preschool Status * Mol	27.258	1	27.258	0.20	0.001
	Error	36226.1	267	135.678		
	Total	1647202	271			
III	Intercept	1010206	1	1010206	10595.91	0.976
	Preschool Status	235.401	1	235.401	2.47	0.009
	Mol	90.777	1	90.777	0.95	0.004
	Preschool Status * Mol	262.544	1	262.544	2.75	0.01
	Error	24883.5	261	95.339		
	Total	1707014	265			
V	Intercept	702105	1	702105	4829.16	0.935
	Preschool Status	107.885	1	107.885	0.74	0.002
	Mol	0.155	1	0.155	0.00	0
	Preschool Status * Mol	191.582	1	191.582	1.32	0.004
	Error	48996	337	145.389		
	Total	1745109	341			

Table 79 shows that the influence of Preschooling Status on leadership does not vary by MoI of: (a) Standard I students [$F(1, 267) = 0.20, p > .05$] (b) Standard III students [$F(1, 261) = 2.75, p > .05$] and (c) Standard V students [$F(1, 337) = 1.32, p > .05$]. Among primary standard students, the influence of Preschooling Status on leadership does not vary significantly by MoI.

Influence of Preschooling Status on Expressing Emotions by MoI. Influence of Preschooling Status on expressing emotions of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 80.

Table 80

Results of 2 × 2 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschooling Status and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	638826	1	638826	6797.94	0.962
	Preschool Status	0.225	1	0.225	0.00	0
	Mol	0.431	1	0.431	0.01	0
	Preschool Status * Mol	94.394	1	94.394	1.00	0.004
	Error	25090.9	267	93.974		
	Total	1480996	271			
III	Intercept	820843	1	820843	7404.25	0.966
	Preschool Status	2.119	1	2.119	0.02	0
	Mol	243.197	1	243.197	2.19	0.008
	Preschool Status * Mol	11.332	1	11.332	0.10	0
	Error	28934.7	261	110.861		
	Total	1366745	265			
V	Intercept	755605	1	755605	4734.62	0.934
	Preschool Status	21.523	1	21.523	0.14	0
	Mol	432.193	1	432.193	2.71	0.008
	Preschool Status * Mol	329.373	1	329.373	2.06	0.006
	Error	53782.3	337	159.592		
	Total	1822898	341			

Table 80 shows that the influence of Preschooling Status on expressing emotions does not vary by MoI of: (a) Standard I students [$F(1, 267) = 1.00, p > .05$] (b) Standard III students [$F(1, 261) = 0.10, p > .05$] and (c) Standard V students [$F(1, 337) = 2.06, p > .05$]. Among primary standard students, the influence of Preschooling Status on expressing emotions does not vary significantly by MoI.

Influence of Preschooling Status on Controlling Emotions by MoI.

Influence of Preschooling Status on controlling emotions of Standard I, III and V students by MoI were studied using 2 × 2 ANOVAs. Results are given in Table 81.

Table 81

Results of 2 × 2 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschooling Status and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	498209	1	498209	8670.90	0.97
	Preschool Status	117.083	1	117.083	2.04	0.008
	Mol	227.91	1	227.91	3.97	0.015
	Preschool Status * Mol	19.933	1	19.933	0.35	0.001
	Error	15341.2	267	57.458		
	Total	1181123	271			
III	Intercept	750176	1	750176	11673.58	0.978
	Preschool Status	14.139	1	14.139	0.22	0.001
	Mol	156.404	1	156.404	2.43	0.009
	Preschool Status * Mol	114.001	1	114.001	1.77	0.007
	Error	16772.6	261	64.263		
	Total	1248717	265			
V	Intercept	739904	1	739904	6056.88	0.947
	Preschool Status	16.134	1	16.134	0.13	0
	Mol	55.629	1	55.629	0.46	0.001
	Preschool Status * Mol	25.527	1	25.527	0.21	0.001
	Error	41167.7	337	122.159		
	Total	1772461	341			

Table 81 shows that the influence of Preschooling Status on controlling emotions does not vary by MoI of: (a) Standard I students [$F(1, 267) = 0.35, p > .05$] (b) Standard III students [$F(1, 261) = 1.77, p > .05$] and (c) Standard V students [$F(1, 337) = 0.21, p > .05$]. Among primary standard students, the influence of Preschooling Status on controlling emotions does not vary significantly by MoI.

Influence of Preschooling Status on Cognitive and Socio-emotional Outcomes of Primary Standard Students by Father's Educational Qualification

Whether influence of Preschooling Status on cognitive and socio-emotional outcomes of primary standard students vary by their Father's Educational

Qualification (FEQ) was studied by using 2×3 ANOVAs. Wherever a significant 2×3 interaction is revealed, further one way Anova of the dependent variable with Preschooling Status were done for FEQ separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschooling Status on Cognitive Outcomes by FEQ

Influence of Preschooling Status on cognitive outcomes of Standard I, III and V students by their FEQ were studied and the results are presented sequentially.

Influence of Preschooling Status on Vocabulary in Malayalam by FEQ.

Influence of Preschooling Status on vocabulary in Malayalam of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 82.

Table 82

Results of 2×3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	422475.968	1	422476	982.06	0.742
	Preschooling Status	609.353	1	609.353	1.42	0.004
	FEQ	4323.518	2	2161.759	5.03	0.029
	Preschooling Status * FEQ	2111.137	2	1055.568	2.45	0.014
	Error	146696.269	341	430.194		
	Total		1386428	347		
III	Intercept	316464.763	1	316464.8	931.90	0.74
	Preschooling Status	238.873	1	238.873	0.70	0.002
	FEQ	2958.082	2	1479.041	4.36	0.026
	Preschooling Status *FEQ	720.076	2	360.038	1.06	0.006
	Error	111045.738	327	339.589		
	Total		806350	333		
V	Intercept	256548.685	1	256548.7	811.57	0.635
	Preschooling Status	15.779	1	15.779	0.05	0
	FEQ	386.215	2	193.107	0.61	0.003
	Preschooling Status * FEQ	221.039	2	110.52	0.35	0.001
	Error	147624.547	467	316.113		
	Total		999140	473		

Table 82 shows that the influence of Preschooling Status on vocabulary in Malayalam does not vary by FEQ of: (a) Standard I students [$F(2,341) = 2.45, p > .05$] (b) Standard III students [$F(2,327) = 1.06, p > .05$] and (c) Standard V students [$F(2,467) = 0.35, p > .05$]. There is no significant influence of Preschooling Status on vocabulary in Malayalam by the FEQ of primary standard students.

Influence of Preschooling Status on Malayalam Comprehension by FEQ. Influence of Preschooling Status on Malayalam comprehension of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 83.

Table 83

Results of 2×3 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	212548.197	1	212548.2	397.43	0.538
	Preschooling Status	674.744	1	674.744	1.26	0.004
	FEQ	11159.815	2	5579.908	10.43	0.058
	Preschooling Status * FEQ	5534.238	2	2767.119	5.17**	0.029
	Error	182371.105	341	534.813		
	Total	831995	347			
III	Intercept	481382.063	1	481382.1	883.94	0.73
	Preschooling Status	174.364	1	174.364	0.32	0.001
	FEQ	3841.766	2	1920.883	3.53	0.021
	Preschooling Status * FEQ	2877.083	2	1438.542	2.64	0.016
	Error	178079.844	327	544.587		
	Total	1202620	333			
V	Intercept	234606.29	1	234606.3	522.44	0.528
	Preschooling Status	107.27	1	107.27	0.24	0.001
	FEQ	423.695	2	211.847	0.47	0.002
	Preschooling Status * FEQ	2024.796	2	1012.398	2.25	0.01
	Error	209710.223	467	449.058		
	Total	953203	473			

Note. ** $p < .01$

Table 83 shows that the influence of Preschooling Status on Malayalam comprehension does not vary by FEQ of: (a) Standard III students [$F(2,327) = 2.64, p > .05$] (b) Standard V students [$F(2,467) = 2.25, p > .05$]. But, the influence of Preschooling Status on Malayalam comprehension of Standard I students vary significantly by FEQ [$F(2,341) = 5.17, p < .05, \eta^2 = 0.029$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of Preschooling Status on Malayalam comprehension of Standard I students having below secondary FEQ (non-preschooled: $M = 22.77, SD = 20.07, N = 13$ and preschooled: $M = 37.99, SD = 21.13, N = 119$) [$F(1, 130) = 6.136, p < .05, \eta^2 = .045$], but not among the students having father's with secondary education (non-preschooled: $M = 58.36, SD = 25.35, N = 14$ and preschooled: $M = 45.39, SD = 23.03, N = 113$) [$F(1, 125) = 3.865, p > .05$] and the students having FEQ above secondary level (non-preschooled: $M = 35.89, SD = 21.97, N = 9$ and preschooled: $M = 47.61, SD = 26.12, N = 79$) [$F(1, 86) = 1.676, p > .05$]. Among Standard I students having fathers with educational qualification below secondary level, those who preschooled have higher Malayalam comprehension than who did not preschool.

Influence of Preschooling Status on Vocabulary in English by FEQ.

Influence of Preschooling Status on vocabulary in English of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 84.

Table 84

Results of 2 × 3 ANOVAs of Vocabulary In English of Primary Standard Students by their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	420338.348	1	420338.3	961.76	0.738
	Preschooling Status	1895.878	1	1895.878	4.34	0.013
	FEQ	5732.937	2	2866.468	6.56	0.037
	Preschooling Status * FEQ	2258.774	2	1129.387	2.58	0.015
	Error	149033.823	341	437.049		
	Total	1426306	347			
III	Intercept	274676.64	1	274676.6	548.31	0.626
	Preschooling Status	263.662	1	263.662	0.53	0.002
	FEQ	11745.222	2	5872.611	11.72	0.067
	Preschooling Status * FEQ	1939.577	2	969.789	1.94	0.012
	Error	163811.608	327	500.953		
	Total	749519	333			
V	Intercept	232685.139	1	232685.1	582.88	0.555
	Preschooling Status	4168.377	1	4168.377	10.44	0.022
	FEQ	2770.056	2	1385.028	3.47	0.015
	Preschooling Status * FEQ	555.135	2	277.567	0.70	0.003
	Error	186425.216	467	399.197		
	Total	1096541	473			

Table 84 shows that the influence of Preschooling Status on vocabulary in English does not vary by FEQ of: (a) Standard I students [$F(2,341) = 2.58, p > .05$] (b) Standard III students [$F(2,327) = 1.94, p > .05$] and (c) Standard V students [$F(2,467) = 0.70, p > .05$]. Among primary standard students, the influence of Preschooling Status on vocabulary in English does not vary significantly by FEQ.

Influence of Preschooling Status on English Comprehension by FEQ.

Influence of Preschooling Status on English comprehension of Standard I, III and V students by FEQ were studied using 2 × 3 ANOVAs. Results are given in Table 85.

Table 85

Results of 2×3 ANOVAs of English Comprehension of Primary Standard Students by their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	173781.085	1	173781.1	364.96	0.517
	Preschooling Status	637.305	1	637.305	1.34	0.004
	FEQ	7967.884	2	3983.942	8.37	0.047
	Preschooling Status * FEQ	2138.609	2	1069.305	2.25	0.013
	Error	162373.563	341	476.169		
	Total	687378	347			
III	Intercept	233903.29	1	233903.3	412.88	0.558
	Preschooling Status	148.487	1	148.487	0.26	0.001
	FEQ	4225.595	2	2112.798	3.73	0.022
	Preschooling Status * FEQ	3012.898	2	1506.449	2.66	0.016
	Error	185249.408	327	566.512		
	Total	682425	333			
V	Intercept	293253.998	1	293254	671.37	0.59
	Preschooling Status	8909.164	1	8909.164	20.40	0.042
	FEQ	3544.797	2	1772.399	4.06	0.017
	Preschooling Status * FEQ	298.217	2	149.109	0.34	0.001
	Error	203986.838	467	436.803		
	Total	1430349	473			

Table 85 shows that the influence of Preschooling Status on English comprehension does not vary by FEQ of: (a) Standard I students [$F(2,341) = 2.25$, $p > .05$] (b) Standard III students [$F(2,327) = 2.66$, $p > .05$] and (c) Standard V students [$F(2,467) = 0.34$, $p > .05$]. Among primary standard students, the influence of Preschooling Status on English comprehension does not vary significantly by FEQ.

Influence of Preschooling Status on Achievement in Mathematics by FEQ. Influence of Preschooling Status on achievement in Mathematics of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 86.

Table 86

Results of 2 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	447089.661	1	447089.7	1252.00	0.786
	Preschooling Status	1530.576	1	1530.576	4.29	0.012
	FEQ	2546.48	2	1273.24	3.57	0.02
	Preschooling Status * FEQ	1042.07	2	521.035	1.46	0.008
	Error	121770.818	341	357.099		
	Total	1480688	347			
III	Intercept	368837.702	1	368837.7	792.96	0.708
	Preschooling Status	299.916	1	299.916	0.65	0.002
	FEQ	5417.784	2	2708.892	5.82	0.034
	Preschooling Status * FEQ	364.084	2	182.042	0.39	0.002
	Error	152101.414	327	465.142		
	Total	951541	333			
V	Intercept	335155.266	1	335155.3	1029.89	0.688
	Preschooling Status	226.709	1	226.709	0.70	0.001
	FEQ	1954.53	2	977.265	3.00	0.013
	Preschooling Status * FEQ	334.391	2	167.195	0.51	0.002
	Error	151974.959	467	325.428		
	Total	1300037	473			

Table 86 shows that the influence of Preschooling Status on achievement in Mathematics does not vary by FEQ of: (a) Standard I students [$F(2,341) = 1.46, p > .05$] (b) Standard III students [$F(2,327) = 0.39, p > .05$] and (c) Standard V students [$F(2,467) = 0.51, p > .05$]. Among primary standard students, the influence of Preschooling Status on achievement in Mathematics does not vary significantly by FEQ.

Influence of Preschooling Status on Socio-Emotional Outcomes of Primary Standard Students by FEQ.

Influence of Preschooling Status on socio-emotional outcomes of Standard I, III and V students by their FEQ were studied and the results are presented sequentially.

Influence of Preschooling Status on Personal Independence by FEQ.

Influence of Preschooling Status on personal independence of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 87.

Table 87

Results of 2×3 ANOVAs of Personal Independence of Primary Standard Students by their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	924983.979	1	924984	3674.47	0.933
	Preschooling Status	359.036	1	359.036	1.43	0.005
	FEQ	173.551	2	86.775	0.35	0.003
	Preschooling Status * FEQ	204.99	2	102.495	0.41	0.003
	Error	66709.114	265	251.733		
	Total	2281659	271			
III	Intercept	1280546.94	1	1280547	6856.39	0.964
	Preschooling Status	597.052	1	597.052	3.20	0.012
	FEQ	313.387	2	156.694	0.84	0.006
	Preschooling Status * FEQ	577.251	2	288.625	1.55	0.012
	Error	48372.636	259	186.767		
	Total	2334381	265			
V	Intercept	1165282.9	1	1165283	6356.17	0.95
	Preschooling Status	176.886	1	176.886	0.97	0.003
	FEQ	2287.637	2	1143.819	6.24	0.036
	Preschooling Status * FEQ	2093.666	2	1046.833	5.71**	0.033
	Error	61415.879	335	183.331		
	Total	3102125	341			

Note. ** $p < .01$

Table 87 shows that the influence of Preschooling Status on personal independence does not vary by FEQ of: (a) Standard I students [$F(2,265) = 0.41, p > .05$] (b) Standard III students [$F(2,259) = 1.55, p > .05$]. But, the influence of Preschooling Status on personal independence of Standard V students vary significantly by FEQ [$F(2,335) = 5.71, p < .05, \eta^2 = 0.033$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of Preschooling Status on personal independence of Standard V students having FEQ at secondary level (non-preschooled: $M = 82.26$, $SD = 30.72$, $N = 19$ and preschooled: $M = 94.77$, $SD = 11.76$, $N = 133$) [$F(1, 150) = 11.075$, $p < .05$, $\eta^2 = .069$] but not among the students having FEQ below secondary level (non-preschooled: $M = 95.88$, $SD = 6.97$, $N = 16$ and preschooled: $M = 94.15$, $SD = 14.33$, $N = 92$) [$F(1, 106) = .221$, $p > .05$], and the students having FEQ above secondary level (non-preschooled: $M = 100.00$, $SD = .00$, $N = 8$ and preschooled: $M = 96.15$, $SD = 9.68$, $N = 73$) [$F(1, 79) = 1.250$, $p > .05$]. Among V Standard students with FEQ at secondary level, those who have preschooled have high personal independence than those who did not preschooled.

Influence of Preschooling Status on Academic Independence by FEQ.

Influence of Preschooling Status on academic independence of Standard I, III and V Students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 88.

Table 88

Results of 2×3 ANOVAs of Academic Independence of Primary Standard Students by their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	772790.853	1	772790.9	3302.36	0.926
	Preschooling Status	510.79	1	510.79	2.18	0.008
	FEQ	215.223	2	107.612	0.46	0.003
	Preschooling Status * FEQ	25.759	2	12.879	0.06	0
	Error	62013.138	265	234.012		
	Total	1938715	271			
III	Intercept	1122064.23	1	1122064	5538.21	0.955
	Preschooling Status	301.882	1	301.882	1.49	0.006
	FEQ	441.151	2	220.575	1.09	0.008
	Preschooling Status * FEQ	570.059	2	285.029	1.41	0.011
	Error	52474.48	259	202.604		
	Total	2181068	265			
V	Intercept	955328.722	1	955328.7	3872.06	0.92
	Preschooling Status	129.298	1	129.298	0.52	0.002
	FEQ	3250.328	2	1625.164	6.59	0.038
	Preschooling Status * FEQ	3211.108	2	1605.554	6.51**	0.037
	Error	82652.528	335	246.724		
	Total	2573174	341			

Note. ** $p < .01$

Table 88 shows that the influence of Preschooling Status on academic independence does not vary by FEQ of: (a) Standard I students [$F(2,265) = 0.06, p > .05$] (b) Standard III students [$F(2,259) = 1.41, p > .05$]. But, the influence of Preschooling Status on academic independence of Standard V students vary significantly by FEQ [$F(2,335) = 6.51, p < .05, \eta^2 = 0.037$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of Preschooling Status on academic independence of Standard V students having FEQ at secondary level (non-preschooled: $M = 71.26, SD = 27.97, N = 19$ and preschooled: $M = 85.95, SD = 14.27, N = 133$) [$F(1, 150) = 13.132, p < .05, \eta^2 = .081$], but not among the students having FEQ below secondary level (non-preschooled: $M = 87.25, SD = 14.53, N = 16$ and preschooled: $M = 85.85, SD = 16.00, N = 92$) [$F(1, 106) = .107, p > .05$], or above secondary level (non-preschooled: $M = 93.50, SD = 5.61, N = 8$ and preschooled: $M = 86.15, SD = 14.44, N = 73$) [$F(1, 79) = 2.019, p > .05$]. Among Standard V students with FEQ at secondary level, those who preschooled have higher academic independence than those who did not preschooled.

Influence of Preschooling Status on Work Habit by FEQ. Influence of Preschooling Status on work habit of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 89.

Table 89

Results of 2 × 3 ANOVAs of Work Habit of Primary Standard Students by their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	610037.762	1	610037.8	2609.65	0.908
	Preschooling Status	369.929	1	369.929	1.58	0.006
	FEQ	90.882	2	45.441	0.19	0.001
	Preschooling Status * FEQ	155.74	2	77.87	0.33	0.003
	Error	61947.076	265	233.763		
	Total	1537201	271			
III	Intercept	708467.225	1	708467.2	3208.52	0.925
	Preschooling Status	40.779	1	40.779	0.19	0.001
	FEQ	1003.622	2	501.811	2.27	0.017
	Preschooling Status * FEQ	435.351	2	217.675	0.99	0.008
	Error	57189.293	259	220.808		
	Total	1390971	265			
V	Intercept	670546.826	1	670546.8	2845.39	0.895
	Preschooling Status	698.713	1	698.713	2.97	0.009
	FEQ	1806.605	2	903.302	3.83	0.022
	Preschooling Status * FEQ	400.323	2	200.162	0.85	0.005
	Error	78946.423	335	235.661		
	Total	1722813	341			

Table 89 shows that the influence of Preschooling Status on work habit does not vary by FEQ of: (a) Standard I students [$F(2,265) = 0.33, p > .05$] (b) Standard III students [$F(2,259) = 0.99, p > .05$] and (c) Standard V students [$F(2,335) = 0.85, p > .05$]. Among primary Standard students, the influence of Preschooling Status on works habit does not vary significantly by FEQ.

Influence of Preschooling Status on Interpersonal Relationship by FEQ. Influence of Preschooling Status on interpersonal relationship of Standard I, III and V students by FEQ were studied using 2 × 3 ANOVAs. Results are given in Table 90.

Table 90

Results of 2×3 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	808142.154	1	808142.2	7779.44	0.967
	Preschooling Status	266.189	1	266.189	2.56	0.01
	FEQ	546.8	2	273.4	2.63	0.019
	Preschooling Status *FEQ	296.028	2	148.014	1.43	0.011
	Error	27528.682	265	103.882		
	Total	1957565	271			
III	Intercept	1024840.28	1	1024840	9297.91	0.973
	Preschooling Status	12.871	1	12.871	0.12	0
	FEQ	47.96	2	23.98	0.22	0.002
	Preschooling Status *FEQ	267.419	2	133.71	1.21	0.009
	Error	28547.682	259	110.223		
	Total	1926980	265			
V	Intercept	621018.723	1	621018.7	6392.28	0.95
	Preschooling Status	316.837	1	316.837	3.26	0.01
	FEQ	19.351	2	9.675	0.10	0.001
	Preschooling Status *FEQ	384.91	2	192.455	1.98	0.012
	Error	32545.691	335	97.151		
	Total	1590398	341			

Table 90 shows that the influence of Preschooling Status on interpersonal relationship does not vary by FEQ of: (a) Standard I students [$F(2,265) = 1.43, p > .05$] (b) Standard III students [$F(2,259) = 1.21, p > .05$] and (c) Standard V students [$F(2,335) = 1.98, p > .05$]. Among primary Standard students, the influence of Preschooling Status on interpersonal relationship does not vary significantly by FEQ.

Influence of Preschooling Status on Cooperation by FEQ. Influence of Preschooling Status on cooperation of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 91.

Table 91

Results of 2 × 3 ANOVAs of Cooperation of Primary Standard Students by their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	681228.387	1	681228.4	3076.90	0.921
	Preschooling Status	30.482	1	30.482	0.14	0.001
	FEQ	42.685	2	21.343	0.10	0.001
	Preschooling Status * FEQ	149.613	2	74.807	0.34	0.003
	Error	58671.215	265	221.401		
	Total	1664184	271			
III	Intercept	851691.71	1	851691.7	3439.17	0.93
	Preschooling Status	159.398	1	159.398	0.64	0.002
	FEQ	1116.353	2	558.177	2.25	0.017
	Preschooling Status * FEQ	91.855	2	45.928	0.19	0.001
	Error	64139.86	259	247.644		
	Total	1693584	265			
V	Intercept	706739.236	1	706739.2	4354.18	0.929
	Preschooling Status	0.037	1	0.037	0.00	0
	FEQ	537.879	2	268.94	1.66	0.01
	Preschooling Status * FEQ	74.11	2	37.055	0.23	0.001
	Error	54374.784	335	162.313		
	Total	1870861	341			

Table 91 shows that the influence of Preschooling Status on cooperation does not vary by FEQ of: (a) Standard I students [$F(2,265) = 0.34, p > .05$] (b) Standard III students [$F(2,259) = 0.19, p > .05$] and (c) Standard V students [$F(2,335) = 0.23, p > .05$]. Among primary Standard students, the influence of Preschooling Status on cooperation does not vary significantly by FEQ.

Influence of Preschooling Status on Communication by FEQ. Influence of Preschooling Status on communication of Standard I, III and V students by FEQ were studied using 2 × 3 ANOVAs. Results are given in Table 92.

Table 92

Results of 2×3 ANOVAs of Communication of Primary Standard Students by Their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	822021.862	1	822021.9	3449.52	0.929
	Preschooling Status	1670.367	1	1670.367	7.01	0.026
	FEQ	1212.864	2	606.432	2.55	0.019
	Preschooling Status * FEQ	153.084	2	76.542	0.32	0.002
	Error	63149.606	265	238.3		
	Total	2120762	271			
III	Intercept	1097445.14	1	1097445	6375.16	0.961
	Preschooling Status	610.783	1	610.783	3.55	0.014
	FEQ	524.977	2	262.488	1.53	0.012
	Preschooling Status * FEQ	109.831	2	54.915	0.32	0.002
	Error	44585.256	259	172.144		
	Total	2148389	265			
V	Intercept	958934.901	1	958934.9	4363.09	0.929
	Preschooling Status	6.292	1	6.292	0.03	0
	FEQ	582.731	2	291.365	1.33	0.008
	Preschooling Status * FEQ	1141.746	2	570.873	2.60	0.015
	Error	73627.524	335	219.784		
	Total	2558917	341			

Table 92 shows that the influence of Preschooling Status on communication does not vary by FEQ of: (a) Standard I students [$F(2,265) = 0.32, p > .05$] (b) Standard III students [$F(2,259) = 0.32, p > .05$] and (c) Standard V students [$F(2,335) = 2.60, p > .05$]. Among primary Standard students, the influence of Preschooling Status on communication does not vary significantly by FEQ.

Influence of Preschooling Status on Leadership by FEQ. Influence of Preschooling Status on leadership of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 93.

Table 93

Results of 2 × 3 ANOVAs of Leadership of Primary Standard Students by Their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	651018.693	1	651018.7	4726.71	0.947
	Preschooling Status	1059.616	1	1059.616	7.69	0.028
	FEQ	261.208	2	130.604	0.95	0.007
	Preschooling Status * FEQ	32.212	2	16.106	0.12	0.001
	Error	36498.981	265	137.732		
	Total	1647202	271			
III	Intercept	884346.499	1	884346.5	9279.97	0.973
	Preschooling Status	344.1	1	344.1	3.61	0.014
	FEQ	107.321	2	53.66	0.56	0.004
	Preschooling Status * FEQ	346.101	2	173.051	1.82	0.014
	Error	24681.736	259	95.296		
	Total	1707014	265			
V	Intercept	648242.517	1	648242.5	4451.32	0.93
	Preschooling Status	75.813	1	75.813	0.52	0.002
	FEQ	365.118	2	182.559	1.25	0.007
	Preschooling Status * FEQ	593.463	2	296.731	2.04	0.012
	Error	48785.858	335	145.629		
	Total	1745109	341			

Table 93 shows that the influence of Preschooling Status on leadership does not vary by FEQ of: (a) Standard I students [$F(2,265) = 0.12, p > .05$] (b) Standard III students [$F(2,259) = 1.82, p > .05$] and (c) Standard V students [$F(2,335) = 2.04, p > .05$]. Among primary Standard students, the influence of Preschooling Status on leadership does not vary significantly by FEQ.

Influence of Preschooling Status on Expressing Emotions by FEQ.

Influence of Preschooling Status on expressing emotions of Standard I, III and V students by FEQ were studied using 2 × 3 ANOVAs. Results are given in Table 94.

Table 94

Results of 2 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	621663.048	1	621663	6695.84	0.962
	Preschooling Status	2.663	1	2.663	0.03	0
	FEQ	180.18	2	90.09	0.97	0.007
	Preschooling Status * FEQ	257.834	2	128.917	1.39	0.01
	Error	24603.439	265	92.843		
	Total	1480996	271			
III	Intercept	716567.65	1	716567.7	6674.35	0.963
	Preschooling Status	25.111	1	25.111	0.23	0.001
	FEQ	1136.114	2	568.057	5.29	0.039
	Preschooling Status * FEQ	224.135	2	112.068	1.04	0.008
	Error	27806.622	259	107.361		
	Total	1366745	265			
V	Intercept	705026.385	1	705026.4	4464.64	0.93
	Preschooling Status	178.178	1	178.178	1.13	0.003
	FEQ	805.22	2	402.61	2.55	0.015
	Preschooling Status * FEQ	181.455	2	90.727	0.58	0.003
	Error	52900.974	335	157.913		
	Total	1822898	341			

Table 94 shows that the influence of Preschooling Status on expressing emotions does not vary by FEQ of: (a) Standard I students [$F(2,265) = 1.39$, $p > .05$] (b) Standard III students [$F(2,259) = 1.04$, $p > .05$] and (c) Standard V students [$F(2,335) = 0.58$, $p > .05$]. Among primary Standard students, the influence of Preschooling Status on expressing emotions does not vary significantly by FEQ.

Influence of Preschooling Status on Controlling Emotions by FEQ.

Influence of Preschooling Status on controlling emotions of Standard I, III and V students by FEQ were studied using 2 × 3 ANOVAs. Results are given in Table 95.

Table 95

Results of 2 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschooling Status and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	490519.58	1	490519.6	8435.73	0.97
	Preschooling Status	102.099	1	102.099	1.76	0.007
	FEQ	62.356	2	31.178	0.54	0.004
	Preschooling Status * FEQ	44.559	2	22.279	0.38	0.003
	Error	15409.188	265	58.148		
	Total	1181123	271			
III	Intercept	652516.107	1	652516.1	10386.51	0.976
	Preschooling Status	47.186	1	47.186	0.75	0.003
	FEQ	496.986	2	248.493	3.96	0.03
	Preschooling Status * FEQ	38.648	2	19.324	0.31	0.002
	Error	16271.269	259	62.823		
	Total	1248717	265			
V	Intercept	693830.519	1	693830.5	5856.07	0.946
	Preschooling Status	199.602	1	199.602	1.69	0.005
	FEQ	1074.701	2	537.351	4.54	0.026
	Preschooling Status * FEQ	687.308	2	343.654	2.90	0.017
	Error	39691.015	335	118.481		
	Total	1772461	341			

Table 95 shows that the influence of Preschooling Status on controlling emotions does not vary by FEQ of: (a) Standard I students [$F(2,265) = 0.38, p > .05$] (b) Standard III students [$F(2,259) = 0.31, p > .05$] and (c) Standard V students [$F(2,335) = 2.90, p > .05$]. Among primary Standard students, the influence of Preschooling Status on controlling emotions does not vary significantly by FEQ.

Influence of Preschooling Status on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Mother's Educational Qualification

Whether influence of Preschooling Status on cognitive and socio-emotional outcomes of primary standard students vary by their Mother's Educational Qualification (MEQ) was studied by using 2 × 3 ANOVAs. Wherever a significant 2 × 3 interaction is revealed, further one way Anova of the dependent variable with

Preschooling Status were done for MEQ separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschooling Status on Cognitive Outcomes of Primary Standard Students by MEQ

Influence of Preschooling Status on cognitive outcomes of Standard I, III and V students by their MEQ were studied and the results are given distinctly.

Influence of Preschooling Status on Vocabulary in Malayalam by MEQ.

Influence of Preschooling Status on vocabulary in Malayalam of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 96.

Table 96

Results of 2×3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	409450.785	1	409450.8	921.52	0.73
	Preschooling Status	314.811	1	314.811	0.71	0.002
	MEQ	437.077	2	218.538	0.49	0.003
	Preschooling Status* MEQ	87.765	2	43.883	0.10	0.001
	Error	151513.076	341	444.32		
	Total	1386428	347			
III	Intercept	282716.753	1	282716.8	804.13	0.711
	Preschooling Status	31.896	1	31.896	0.09	0
	MEQ	602.362	2	301.181	0.86	0.005
	Preschooling Status* MEQ	1393.134	2	696.567	1.98	0.012
	Error	114966.378	327	351.579		
	Total	806350	333			
V	Intercept	198696.713	1	198696.7	629.60	0.574
	Preschooling Status	20.419	1	20.419	0.07	0
	MEQ	1850.059	2	925.03	2.93	0.012
	Preschooling Status* MEQ	450.139	2	225.069	0.71	0.003
	Error	147382.42	467	315.594		
	Total	999140	473			

Table 96 shows that the influence of Preschooling Status on vocabulary in Malayalam does not vary by MEQ of: (a) Standard I students [$F(2,341) = 0.10, p > .05$]

(b) Standard III students [$F(2,327) = 1.98, p > .05$] and (c) Standard V Students [$F(2,467) = 0.71, p > .05$]. Among primary standard students, the influence of Preschooling Status on vocabulary in Malayalam does not vary significantly by MEQ.

Influence of Preschooling Status on Malayalam Comprehension by MEQ.

Influence of Preschooling Status on Malayalam comprehension of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 97.

Table 97

Results of 2×3 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	204899.118	1	204899.1	362.08	0.515
	Preschooling Status	217.38	1	217.38	0.38	0.001
	MEQ	697.279	2	348.639	0.62	0.004
	Preschooling Status* MEQ	131.913	2	65.956	0.12	0.001
	Error	192970.457	341	565.896		
	Total	831995	347			
III	Intercept	430449.209	1	430449.2	783.55	0.706
	Preschooling Status	698.476	1	698.476	1.27	0.004
	MEQ	985.462	2	492.731	0.90	0.005
	Preschooling Status* MEQ	563.692	2	281.846	0.51	0.003
	Error	179641.013	327	549.361		
	Total	1202620	333			
V	Intercept	178925.917	1	178925.9	397.37	0.46
	Preschooling Status	16.184	1	16.184	0.04	0
	MEQ	2143.864	2	1071.932	2.38	0.01
	Preschooling Status* MEQ	920.926	2	460.463	1.02	0.004
	Error	210278.468	467	450.275		
	Total	953203	473			

Table 97 shows that the influence of Preschooling Status on Malayalam comprehension does not vary by MEQ of: (a) Standard I students [$F(2,341) = 0.12, p > .05$] (b) Standard III students [$F(2,327) = 0.51, p > .05$] and (c) Standard V students [$F(2,467) = 1.02, p > .05$]. Among primary standard students, the influence

of Preschooling Status on Malayalam comprehension does not vary significantly by MEQ.

Influence of Preschooling Status on Vocabulary in English by MEQ.

Influence of Preschooling Status on vocabulary in English of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 98.

Table 98

Results of 2×3 ANOVAs of Vocabulary in English of Primary Standard Students by Their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	396709.401	1	396709.4	855.57	0.715
	Preschooling Status	1127.378	1	1127.378	2.43	0.007
	MEQ	1747.774	2	873.887	1.89	0.011
	Preschooling Status* MEQ	263.411	2	131.705	0.28	0.002
	Error	158114.694	341	463.679		
	Total	1426306	347			
III	Intercept	217090.585	1	217090.6	407.56	0.555
	Preschooling Status	48.341	1	48.341	0.09	0
	MEQ	4318.493	2	2159.246	4.05	0.024
	Preschooling Status* MEQ	267.164	2	133.582	0.25	0.002
	Error	174180.18	327	532.661		
	Total	749519	333			
V	Intercept	166540.92	1	166540.9	399.06	0.461
	Preschooling Status	3947.473	1	3947.473	9.46	0.02
	MEQ	1593.792	2	796.896	1.91	0.008
	Preschooling Status* MEQ	571.634	2	285.817	0.69	0.003
	Error	194896.148	467	417.337		
	Total	1096541	473			

Table 98 shows that the influence of Preschooling Status on vocabulary in English does not vary by MEQ of: (a) Standard I students [$F(2,341) = 0.28$, $p > .05$] (b) Standard III students [$F(2,327) = 0.25$, $p > .05$] and (c) Standard V students [$F(2,467) = 0.69$, $p > .05$]. Among primary standard students, the influence of Preschooling Status on vocabulary in English does not vary significantly by MEQ.

Influence of Preschooling Status on English Comprehension by MEQ.

Influence of Preschooling Status on English comprehension of Standard I, III and V Students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 99.

Table 99

Results of 2×3 ANOVAs of English Comprehension of Primary Standard Students by their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	154170.14	1	154170.1	303.83	0.471
	Preschooling Status	326.227	1	326.227	0.64	0.002
	MEQ	3837.348	2	1918.674	3.78	0.022
	Preschooling Status* MEQ	74.336	2	37.168	0.07	0
	Error	173033.056	341	507.428		
	Total	687378	347			
III	Intercept	211321.435	1	211321.4	355.62	0.521
	Preschooling Status	661.706	1	661.706	1.11	0.003
	MEQ	1094.679	2	547.34	0.92	0.006
	Preschooling Status* MEQ	2228.856	2	1114.428	1.88	0.011
	Error	194313.997	327	594.232		
	Total	682425	333			
V	Intercept	210708.031	1	210708	467.08	0.5
	Preschooling Status	8575.117	1	8575.117	19.01	0.039
	MEQ	2341.456	2	1170.728	2.60	0.011
	Preschooling Status* MEQ	376.825	2	188.412	0.42	0.002
	Error	210673.794	467	451.122		
	Total	1430349	473			

Table 99 shows that the influence of Preschooling Status on English comprehension does not vary by MEQ of: (a) Standard I students [$F(2,341) = 0.07, p > .05$] (b) Standard III students [$F(2,327) = 1.88, p > .05$] and (c) Standard V students [$F(2,467) = 0.42, p > .05$]. Among primary standard students, the influence of Preschooling Status on English comprehension does not vary significantly by MEQ.

Influence of Preschooling Status on Achievement in Mathematics by

MEQ. Influence of Preschooling Status on achievement in Mathematics of Standard

I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 100.

Table 100

Results of 2×3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	431631.238	1	431631.2	1184.39	0.776
	Preschooling Status	1235.371	1	1235.371	3.39	0.01
	MEQ	294.163	2	147.081	0.40	0.002
	Preschooling Status* MEQ	95.711	2	47.855	0.13	0.001
	Error	124272.208	341	364.435		
	Total	1480688	347			
III	Intercept	303611.907	1	303611.9	639.53	0.662
	Preschooling Status	99.276	1	99.276	0.21	0.001
	MEQ	3623.934	2	1811.967	3.82	0.023
	Preschooling Status* MEQ	433.138	2	216.569	0.46	0.003
	Error	155240.481	327	474.742		
	Total	951541	333			
V	Intercept	255142.279	1	255142.3	778.32	0.625
	Preschooling Status	442.22	1	442.22	1.35	0.003
	MEQ	2959.43	2	1479.715	4.51	0.019
	Preschooling Status* MEQ	1264.345	2	632.173	1.93	0.008
	Error	153087.33	467	327.81		
	Total	1300037	473			

Table 100 shows that the influence of Preschooling Status on achievement in Mathematics does not vary by MEQ of: (a) Standard I students [$F(2,341) = 0.13, p > .05$] (b) Standard III students [$F(2,327) = 0.46, p > .05$] and (c) Standard V students [$F(2,467) = 1.93, p > .05$]. Among primary standard students, the influence of Preschooling Status on achievement in Mathematics does not vary significantly by MEQ.

Influence of Preschooling Status on Socio-Emotional Outcomes by MEQ

Influence of Preschooling Status on socio-emotional outcomes of Standard I, III and V students by their MEQ were studied and the results are given distinctly.

Influence of Preschooling Status on Personal Independence by MEQ.

Influence of Preschooling Status on personal independence of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 101.

Table 101

Results of 2×3 ANOVAs of Personal Independence of Primary Standard Students by their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	807231.359	1	807231.4	3218.38	0.924
	Preschooling Status	253.782	1	253.782	1.01	0.004
	MEQ	316.775	2	158.388	0.63	0.005
	Preschooling Status* MEQ	80.325	2	40.163	0.16	0.001
	Error	66467.092	265	250.819		
	Total	2281659	271			
III	Intercept	1089102.81	1	1089103	5806.92	0.957
	Preschooling Status	193.302	1	193.302	1.03	0.004
	MEQ	359.501	2	179.751	0.96	0.007
	Preschooling Status* MEQ	813.541	2	406.77	2.17	0.016
	Error	48576.098	259	187.553		
	Total	2334381	265			
V	Intercept	910737.923	1	910737.9	4859.43	0.936
	Preschooling Status	362.135	1	362.135	1.93	0.006
	MEQ	472.362	2	236.181	1.26	0.007
	Preschooling Status* MEQ	1176.284	2	588.142	3.14*	0.018
	Error	62784.633	335	187.417		
	Total	3102125	341			

Note. * $p < .05$

Table 101 shows that the influence of Preschooling Status on personal independence does not vary by MEQ of: (a) Standard I students [$F(2,265) = 0.16, p > .05$] and (b) Standard III students [$F(2,259) = 2.17, p > .05$]. But, the influence of Preschooling Status on personal independence of Standard V students vary significantly by MEQ [$F(2,335) = 3.14, p < .05, \eta^2 = 0.018$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of Preschooling Status on personal independence of Standard V students having above secondary MEQ (non-preschooled: $M = 83.36, SD = 29.42, N = 11$ and

preschooled: $M = 96.13$, $SD = 10.87$, $N = 139$) [$F(1, 148) = 9.855$, $p < .05$, $\eta^2 = .062$], but not among the students having below secondary MEQ (non-preschooled: $M = 96.67$, $SD = 5.32$, $N = 6$ and preschooled: $M = 93.25$, $SD = 14.85$, $N = 36$) [$F(1, 40) = .306$, $p > .05$], and secondary MEQ (non-preschooled: $M = 92.31$, $SD = 20.51$, $N = 26$ and preschooled: $M = 94.04$, $SD = 12.63$, $N = 123$) [$F(1, 147) = .316$, $p > .05$]. Personal independence is higher among preschooled students in Standard V having above secondary MEQ than non-preschooled students having above secondary MEQ.

Influence of Preschooling Status on Academic Independence by MEQ.

Influence of Preschooling Status on academic independence of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 102.

Table 102

Results of 2×3 ANOVAs of Academic Independence of Primary Standard Students by their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	678028.483	1	678028.5	2934.90	0.917
	Preschooling Status	100.315	1	100.315	0.43	0.002
	MEQ	295.093	2	147.547	0.64	0.005
	Preschooling Status* MEQ	638.526	2	319.263	1.38	0.01
	Error	61221.116	265	231.023		
	Total	1938715	271			
III	Intercept	1023415.58	1	1023416	5153.39	0.952
	Preschooling Status	1.945	1	1.945	0.01	0
	MEQ	1328.369	2	664.184	3.34	0.025
	Preschooling Status* MEQ	165.01	2	82.505	0.42	0.003
	Error	51435.039	259	198.591		
	Total	2181068	265			
V	Intercept	743203.541	1	743203.5	2918.76	0.897
	Preschooling Status	826.756	1	826.756	3.25	0.01
	MEQ	544.374	2	272.187	1.07	0.006
	Preschooling Status* MEQ	742.302	2	371.151	1.46	0.009
	Error	85301.047	335	254.63		
	Total	2573174	341			

Table 102 shows that the influence of Preschooling Status on academic independence does not vary by MEQ of: (a) Standard I students [$F(2,265) = 1.38$,

$p > .05$] (b) Standard III students [$F(2,259) = 0.42, p > .05$] and (c) Standard V students [$F(2,335) = 1.46, p > .05$]. Among primary standard students, the influence of Preschooling Status on academic independence does not vary significantly by MEQ.

Influence of Preschooling Status on Work Habit by MEQ. Influence of Preschooling Status on work habit of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 103.

Table 103

Results of 2×3 ANOVAs of Work Habit of Primary Standard Students by their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	540794.213	1	540794.2	2317.38	0.897
	Preschooling Status	367.381	1	367.381	1.57	0.006
	MEQ	204.072	2	102.036	0.44	0.003
	Preschooling Status* MEQ	0.252	2	0.126	0.00	0
	Error	61841.681	265	233.365		
	Total	1537201	271			
III	Intercept	632841.555	1	632841.6	2853.22	0.917
	Preschooling Status	47.719	1	47.719	0.22	0.001
	MEQ	211.491	2	105.745	0.48	0.004
	Preschooling Status* MEQ	192.575	2	96.287	0.43	0.003
	Error	57446.001	259	221.799		
	Total	1390971	265			
V	Intercept	508961.881	1	508961.9	2125.78	0.864
	Preschooling Status	28.112	1	28.112	0.12	0
	MEQ	977.209	2	488.604	2.04	0.012
	Preschooling Status* MEQ	424.15	2	212.075	0.89	0.005
	Error	80206.835	335	239.423		
	Total	1722813	341			

Table 103 shows that the influence of Preschooling Status on work habit does not vary by MEQ of: (a) Standard I students [$F(2,65) = 0.00, p > .05$] (b) Standard III students [$F(2,259) = 0.43, p > .05$] and (c) Standard V students [$F(2,335) = 0.89, p > .05$]. Among primary standard students, the influence of Preschooling Status on work habit does not vary significantly by MEQ.

Influence of Preschooling Status on Interpersonal Relationship by MEQ.

Influence of Preschooling Status on interpersonal relationship of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 104.

Table 104

Results of 2×3 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	707243.571	1	707243.6	6930.69	0.963
	Preschooling Status	367.321	1	367.321	3.60	0.013
	MEQ	944.686	2	472.343	4.63	0.034
	Preschooling Status* MEQ	612.802	2	306.401	3.00	0.022
	Error	27041.993	265	102.045		
	Total	1957565	271			
III	Intercept	911010.756	1	911010.8	8149.82	0.969
	Preschooling Status	27.946	1	27.946	0.25	0.001
	MEQ	169.286	2	84.643	0.76	0.006
	Preschooling Status* MEQ	132.564	2	66.282	0.59	0.005
	Error	28951.789	259	111.783		
	Total	1926980	265			
V	Intercept	493464.312	1	493464.3	5006.06	0.937
	Preschooling Status	91.299	1	91.299	0.93	0.003
	MEQ	66.133	2	33.066	0.34	0.002
	Preschooling Status* MEQ	37.644	2	18.822	0.19	0.001
	Error	33022.096	335	98.573		
	Total	1590398	341			

Table 104 shows that the influence of Preschooling Status on interpersonal relationship does not vary by MEQ of: (a) Standard I students [$F(2,265) = 3.00$, $p > .05$], (b) Standard III students [$F(2,259) = 0.59$, $p > .05$] and (c) Standard V students [$F(2,335) = 0.19$, $p > .05$]. Among primary standard students, the influence of Preschooling Status on interpersonal relationship does not vary significantly by MEQ.

Influence of Preschooling Status on Cooperation by MEQ. Influence of Preschooling Status on cooperation of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 105.

Table 105

Results of 2 × 3 ANOVAs of Cooperation of Primary Standard Students by their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	609895.42	1	609895.4	2755.22	0.912
	Preschooling Status	0.068	1	0.068	0.00	0
	MEQ	246.061	2	123.03	0.56	0.004
	Preschooling Status* MEQ	183.908	2	91.954	0.42	0.003
	Error	58660.376	265	221.36		
	Total	1664184	271			
III	Intercept	778323.936	1	778323.9	3145.30	0.924
	Preschooling Status	24.759	1	24.759	0.10	0
	MEQ	379.251	2	189.626	0.77	0.006
	Preschooling Status* MEQ	1388.72	2	694.36	2.81	0.021
	Error	64091.23	259	247.456		
	Total	1693584	265			
V	Intercept	554078.784	1	554078.8	3350.83	0.909
	Preschooling Status	7.137	1	7.137	0.04	0
	MEQ	284.808	2	142.404	0.86	0.005
	Preschooling Status* MEQ	66.46	2	33.23	0.20	0.001
	Error	55394.126	335	165.356		
	Total	1870861	341			

Table 105 shows that the influence of Preschooling Status on cooperation does not vary by MEQ of: (a) Standard I students [$F(2,265) = 0.42, p > .05$] (b) Standard III students [$F(2,259) = 2.81, p > .05$] and (c) Standard V students [$F(2,335) = 0.20, p > .05$]. Among primary standard students, the influence of Preschooling Status on cooperation does not vary significantly by MEQ.

Influence of Preschooling Status on Communication by MEQ. Influence of Preschooling Status on communication of Standard I, III and V students by MEQ were studied using 2 × 3 ANOVAs. Results are given in Table 106.

Table 106

Results of 2×3 ANOVAs of Communication of Primary Standard Students by Their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	712839.246	1	712839.2	2973.01	0.918
	Preschooling Status	2065.199	1	2065.199	8.61	0.031
	MEQ	1151.611	2	575.806	2.40	0.018
	Preschooling Status* MEQ	406.862	2	203.431	0.85	0.006
	Error	63539.148	265	239.77		
	Total		2120762	271		
III	Intercept	981799.071	1	981799.1	5637.79	0.956
	Preschooling Status	248.321	1	248.321	1.43	0.005
	MEQ	230.07	2	115.035	0.66	0.005
	Preschooling Status* MEQ	288.221	2	144.11	0.83	0.006
	Error	45103.829	259	174.146		
	Total		2148389	265		
V	Intercept	775228.503	1	775228.5	3509.20	0.913
	Preschooling Status	25.15	1	25.15	0.11	0
	MEQ	1206.9	2	603.45	2.73	0.016
	Preschooling Status* MEQ	805.094	2	402.547	1.82	0.011
	Error	74005.896	335	220.913		
	Total		2558917	341		

Table 106 shows that the influence of Preschooling Status on communication does not vary by MEQ of: (a) Standard I students [$F(2,265) = 0.85, p > .05$] (b) Standard III students [$F(2,259) = 0.83, p > .05$] and (c) Standard V students [$F(2,335) = 1.82, p > .05$]. Among primary standard students, the influence of Preschooling Status on communication does not vary significantly by MEQ.

Influence of Preschooling Status on Leadership by MEQ. Influence of Preschooling Status on leadership of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 107.

Table 107

Results of 2 × 3 ANOVAs of Leadership of Primary Standard Students by Their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	561605.165	1	561605.2	4129.03	0.94
	Preschooling Status	945.193	1	945.193	6.95	0.026
	MEQ	733.082	2	366.541	2.70	0.02
	Preschooling Status* MEQ	482.218	2	241.109	1.77	0.013
	Error	36043.672	265	136.014		
	Total	1647202	271			
III	Intercept	794319.494	1	794319.5	8339.24	0.97
	Preschooling Status	113.305	1	113.305	1.19	0.005
	MEQ	269.6	2	134.8	1.42	0.011
	Preschooling Status* MEQ	64.084	2	32.042	0.34	0.003
	Error	24669.971	259	95.251		
	Total	1707014	265			
V	Intercept	508535.103	1	508535.1	3476.65	0.912
	Preschooling Status	467.648	1	467.648	3.20	0.009
	MEQ	153.222	2	76.611	0.52	0.003
	Preschooling Status* MEQ	312.237	2	156.118	1.07	0.006
	Error	49000.922	335	146.271		
	Total	1745109	341			

Table 107 shows that the influence of Preschooling Status on leadership does not vary by MEQ of: (a) Standard I students [$F(2,265) = 1.77, p > .05$] (b) Standard III students [$F(2,259) = 0.34, p > .05$] and (c) Standard V students [$F(2,335) = 1.07, p > .05$]. Among primary standard students, the influence of Preschooling Status on leadership does not vary significantly by MEQ.

Influence of Preschooling Status on Expressing Emotions by MEQ.

Influence of Preschooling Status on expressing emotions of Standard I, III and V students by MEQ were studied using 2 × 3 ANOVAs. Results are given in Table 108.

Table 108

Results of 2 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	556960.849	1	556960.8	5865.75	0.957
	Preschooling Status	1.448	1	1.448	0.02	0
	MEQ	5.932	2	2.966	0.03	0
	Preschooling Status* MEQ	70.637	2	35.319	0.37	0.003
	Error	25162.116	265	94.951		
	Total	1480996	271			
III	Intercept	619633.153	1	619633.2	5911.88	0.958
	Preschooling Status	5.099	1	5.099	0.05	0
	MEQ	1188.068	2	594.034	5.67	0.042
	Preschooling Status* MEQ	111.83	2	55.915	0.53	0.004
	Error	27146.198	259	104.812		
	Total	1366745	265			
V	Intercept	554683.37	1	554683.4	3464.54	0.912
	Preschooling Status	83.079	1	83.079	0.52	0.002
	MEQ	445.655	2	222.828	1.39	0.008
	Preschooling Status* MEQ	91.964	2	45.982	0.29	0.002
	Error	53634.539	335	160.103		
	Total	1822898	341			

Table 108 shows that the influence of Preschooling Status on expressing emotions does not vary by MEQ of: (a) Standard I students [$F(2,265) = 0.37, p > .05$] (b) Standard III students [$F(2,259) = 0.53, p > .05$] and (c) Standard V students [$F(2,335) = 0.29, p > .05$]. Among primary standard students, the influence of Preschooling Status on expressing emotions does not vary significantly by MEQ.

Influence of Preschooling Status on Controlling Emotions by MEQ.

Influence of Preschooling Status on controlling emotions of Standard I, III and V students by MEQ were studied using 2 × 3 ANOVAs. Results are given in Table 109.

Table 109

Results of 2 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschooling Status and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	438483.816	1	438483.8	7459.04	0.966
	Preschooling Status	93.881	1	93.881	1.60	0.006
	MEQ	21.611	2	10.805	0.18	0.001
	Preschooling Status* MEQ	16.417	2	8.209	0.14	0.001
	Error	15578.165	265	58.786		
	Total	1181123	271			
III	Intercept	574855.77	1	574855.8	8989.03	0.972
	Preschooling Status	10.813	1	10.813	0.17	0.001
	MEQ	217.936	2	108.968	1.70	0.013
	Preschooling Status* MEQ	1.384	2	0.692	0.01	0
	Error	16563.268	259	63.951		
	Total	1248717	265			
V	Intercept	539840.565	1	539840.6	4402.17	0.929
	Preschooling Status	0.455	1	0.455	0.00	0
	MEQ	44.645	2	22.323	0.18	0.001
	Preschooling Status* MEQ	127.085	2	63.543	0.52	0.003
	Error	41081.274	335	122.631		
	Total	1772461	341			

Table 109 shows that the influence of Preschooling Status on controlling emotions does not vary by MEQ of: (a) Standard I students [$F(2,265) = 0.14, p > .05$] (b) Standard III students [$F(2,259) = 0.01, p > .05$] and (c) Standard V students [$F(2,335) = 0.52, p > .05$]. Among primary standard students, the influence of Preschooling Status on controlling emotions does not vary significantly by MEQ.

Influence of Preschooling Status on Cognitive and Socio-Emotional Outcomes by the Level of Cognitive Engagement Outside the School

Whether influence of Preschooling Status on cognitive and socio-emotional outcomes of primary standard students vary by the levels of their Cognitive Engagement (CE) outside the School was studied using 2 × 2 ANOVAs. Wherever a significant 2 × 2 interaction is revealed, further one way Anova of the dependent variable with the Preschooling Status were done for the two levels of CE separately,

as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschooling Status on Cognitive Outcomes by the Level of CE

Influence of Preschooling Status on cognitive outcomes of Standard I, III and V students by their CE were studied and the results are given distinctly.

Influence of Preschooling Status on Vocabulary in Malayalam by the Level of CE. Influence of Preschooling Status on vocabulary in Malayalam of Standard I, III and V students by their level of CE were studied using 2×2 ANOVAs. Results are given in Table 110.

Table 110

Results of 2×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	418901.190	1	418901.190	945.91	.734
	Preschool Status	649.155	1	649.155	1.46	.004
	CE	886.435	1	886.435	2.00	.006
	Preschool Status * CE	714.493	1	714.493	1.61	.005
	Error	151898.046	343	442.851		
	Total	1386428.000	347			
III	Intercept	346525.290	1	346525.290	977.82	.748
	Preschool Status	.338	1	.338	.00	.000
	CE	240.838	1	240.838	.68	.002
	Preschool Status *CE	461.676	1	461.676	1.30	.004
	Error	116592.356	329	354.384		
	Total	806350.000	333			
V	Intercept	293262.185	1	293262.185	918.86	.662
	Preschool Status	54.284	1	54.284	.17	.000
	CE	1144.938	1	1144.938	3.58	.008
	Preschool Status * CE	556.011	1	556.011	1.74	.004
	Error	149684.936	469	319.158		
	Total	999140.000	473			

Table 110 shows that the influence of Preschooling Status on vocabulary in Malayalam does not vary by the level of CE of: (a) Standard I students [$F(1, 343) = 1.61, p > .05$] (b) Standard III students [$F(1, 329) = 1.30, p > .05$] and (c) Standard V

students [$F(1, 469) = 1.74, p > .05$]. Among primary standard students, the influence of Preschooling Status on vocabulary in Malayalam does not vary significantly by their level of CE.

Influence of Preschooling Status on Malayalam Comprehension by the Level of CE. Influence of Preschooling Status on Malayalam comprehension of Standard I, III and V students by their level of CE were studied using 2×2 ANOVAs. Results are given in Table 111.

Table 111

Results of 2×2 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	214409.416	1	214409.416	376.83	.52
	Preschool Status	366.218	1	366.218	0.64	.00
	CE	442.569	1	442.569	0.78	.00
	Preschool Status * CE	.100	1	.100	0.00	.00
	Error	195161.170	343	568.983		
	Total	831995.000	347			
III	Intercept	532953.159	1	532953.159	965.33	.75
	Preschool Status	487.534	1	487.534	0.88	.00
	CE	42.037	1	42.037	0.08	.00
	Preschool Status * CE	353.943	1	353.943	0.64	.00
	Error	181638.156	329	552.092		
	Total	1202620.000	333			
V	Intercept	260428.814	1	260428.814	569.04	.55
	Preschool Status	162.431	1	162.431	0.35	.00
	CE	14.522	1	14.522	0.03	.00
	Preschool Status * CE	289.566	1	289.566	0.63	.00
	Error	214644.025	469	457.663		
	Total	953203.000	473			

Table 111 shows that the influence of Preschooling Status on Malayalam comprehension does not vary by the level of CE of: (a) Standard I students [$F(1, 343) = 0.00, p > .05$] (b) Standard III students [$F(1, 329) = 0.64, p > .05$] and (c) Standard V students [$F(1, 469) = 0.63, p > .05$]. Among primary standard students,

the influence of Preschooling Status on Malayalam comprehension does not vary significantly by their level of CE.

Influence of Preschooling Status on Vocabulary in English by the Level of CE. Influence of Preschooling Status on vocabulary in English of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 112.

Table 112

Results of 2×2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	412685.295	1	412685.295	880.98	.720
	Preschool Status	1612.154	1	1612.154	3.44	.010
	CE	972.161	1	972.161	2.08	.006
	Preschool Status * CE	33.995	1	33.995	0.07	.000
	Error	160673.990	343	468.437		
	Total	1426306.000	347			
III	Intercept	285509.158	1	285509.158	527.589	.616
	Preschool Status	4.433	1	4.433	.00	.000
	CE	810.527	1	810.527	1.49	.005
	Preschool Status * CE	959.203	1	959.203	1.77	.005
	Error	178041.042	329	541.158		
	Total	749519.000	333			
V	Intercept	250901.881	1	250901.881	593.86	.559
	Preschool Status	3696.793	1	3696.793	8.75	.018
	CE	1825.104	1	1825.104	4.32	.009
	Preschool Status * CE	.395	1	.395	.00	.000
	Error	198148.485	469	422.491		
	Total	1096541.000	473			

Table 112 shows that the influence of Preschooling Status on vocabulary in English does not vary by the level of CE of: (a) Standard I students [$F(1, 343) = 0.07, p > .05$] (b) Standard III students [$F(1, 329) = 1.77, p > .05$] and (c) Standard V students [$F(1, 469) = 0.00, p > .05$]. Among primary standard students, the influence of Preschooling Status on vocabulary in English does not vary significantly by their level of CE.

Influence of Preschooling Status on English Comprehension by the Level of CE. Influence of Preschooling Status on English comprehension of Standard I, III and V Students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 113.

Table 113

Results of 2×2 ANOVAs of English Comprehension of Primary Standard Students by Their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	166138.230	1	166138.230	319.08	0.48
	Preschool Status	484.555	1	484.555	0.93	0.00
	CE	2053.191	1	2053.191	3.94	0.01
	Preschool Status * CE	226.084	1	226.084	0.43	0.00
	Error	178595.397	343	520.686		
	Total	687378.000	347			
III	Intercept	251584.024	1	251584.024	435.22	0.57
	Preschool Status	66.644	1	66.644	0.12	0.00
	CE	2281.763	1	2281.763	3.95	0.01
	Preschool Status * CE	916.870	1	916.870	1.59	0.00
	Error	190182.222	329	578.061		
	Total	682425.000	333			
V	Intercept	312896.998	1	312896.998	675.66	0.59
	Preschool Status	9441.366	1	9441.366	20.39	0.04
	CE	807.595	1	807.595	1.74	0.00
	Preschool Status * CE	9.953	1	9.953	0.02	0.00
	Error	217193.629	469	463.099		
	Total	1430349.000	473			

Table 113 shows that the influence of Preschooling Status on English comprehension does not vary by the level of CE of: (a) Standard I students [$F(1, 343) = 0.43, p > .05$] (b) Standard III students [$F(1, 329) = 1.59, p > .05$] and (c) Standard V students [$F(1, 469) = 0.02, p > .05$]. Among primary standard students, the influence of Preschooling Status on English comprehension does not vary significantly by their level of CE.

Influence of Preschooling Status on Achievement in Mathematics by the Level of CE. Influence of Preschooling Status on achievement in Mathematics of

Standard I, III and V Students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 114.

Table 114

Results of 2×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	449543.264	1	449543.264	1235.22	.783
	Preschooling Status	1340.260	1	1340.260	3.68	.011
	CE	210.134	1	210.134	0.58	.002
	Preschooling Status * CE	1.092	1	1.092	0.00	.000
	Error	124831.078	343	363.939		
	Total	1480688.000	347			
III	Intercept	387237.622	1	387237.622	812.40	.712
	Preschooling Status	153.403	1	153.403	0.32	.001
	CE	1463.033	1	1463.033	3.07	.009
	Preschooling Status * CE	293.408	1	293.408	0.62	.002
	Error	156820.406	329	476.658		
	Total	951541.000	333			
V	Intercept	373925.414	1	373925.414	1120.15	.705
	Preschooling Status	145.515	1	145.515	0.44	.001
	CE	379.989	1	379.989	1.14	.002
	Preschooling Status * CE	175.146	1	175.146	0.52	.001
	Error	156559.695	469	333.816		
	Total	1300037.000	473			

Table 114 shows that the influence of Preschooling Status on achievement in Mathematics does not vary by the level of CE of: (a) Standard I students [$F(1, 343) = 0.00, p > .05$] (b) Standard III students [$F(1, 329) = 0.62, p > .05$] and (c) Standard V students [$F(1, 469) = 0.52, p > .05$]. Among primary standard students, the influence of Preschooling Status on achievement in Mathematics does not vary significantly by their level of CE.

Influence of Preschooling Status on Socio-Emotional Outcomes by the Level of CE

Influence of Preschooling Status on socio-emotional outcomes of Standard I, III and V students by their CE were studied and the results of each category are given separately.

Influence of Preschooling Status on Personal Independence by the Level of CE. Influence of Preschooling Status on personal independence of Standard I, III and V Students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 115.

Table 115

Results of 2×2 ANOVAs of Personal Independence of Primary Standard Students by their Preschooling Status and CE

Standard	Source	Type III Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	914298.718	1	914298.718	3641.89	.932
	Preschool Status	397.837	1	397.837	1.58	.006
	CE	1.256	1	1.256	0.01	.000
	Preschool Status * CE	51.917	1	51.917	0.21	.001
	Error	67030.504	267	251.051		
	Total	2281659.000	271			
III	Intercept	1370802.112	1	1370802.112	7420.46	.966
	Preschool Status	713.518	1	713.518	3.86	.015
	CE	10.488	1	10.488	0.06	.000
	Preschool Status * CE	934.624	1	934.624	5.06*	.019
	Error	48215.279	261	184.733		
	Total	2334381.000	265			
V	Intercept	1284605.884	1	1284605.884	6817.39	.953
	Preschool Status	678.069	1	678.069	3.60	.011
	CE	269.940	1	269.940	1.43	.004
	Preschool Status * CE	552.865	1	552.865	2.93	.009
	Error	63501.181	337	188.431		
	Total	3102125.000	341			

Note. * $p < .05$

Table 115 shows that the influence of Preschooling Status on personal independence does not vary by the level of CE of: (a) Standard I students [$F(1,267) = 0.21, p > .05$] and (b) Standard V students [$F(1, 337) = 2.93, p > .05$]. But, the influence of Preschooling Status on personal independence of Standard III students vary significantly by CE [$F(1,261) = 5.06, p < .05, \eta^2 = 0.019$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool status on personal independence of Standard III students with low CE (non-preschooled: $M = 98.53$, $SD = 2.74$, $N = 19$ and preschooled: $M = 89.31$, $SD = 17.62$, $N = 103$) [$F(1, 120) = 5.14$, $p < .05$, $\eta^2 = 0.04$], but not among students with high CE (non-preschooled: $M = 94.13$, $SD = 13.95$, $N = 31$ and preschooled: $M = 94.75$, $SD = 9.76$, $N = 112$) [$F(1, 141) = 0.08$, $p > .05$]. In Standard III, personal independence is higher among non-preschooled students with low CE than the preschooled students with low CE.

Influence of Preschooling Status on Academic Independence by the Level of CE. Influence of Preschooling Status on academic independence of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 116.

Table 116

Results of 2×2 ANOVAs of Academic Independence of Primary Standard Students by Their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	769263.330	1	769263.330	3284.84	.925
	Preschooling Status	550.080	1	550.080	2.35	.009
	CE	.001	1	.001	0.00	.000
	Preschooling Status * CE	6.376	1	6.376	0.03	.000
	Error	62527.711	267	234.186		
	Total	1938715.000	271			
III	Intercept	1226465.948	1	1226465.948	6027.66	.958
	Preschooling Status	109.087	1	109.087	0.54	.002
	CE	.418	1	.418	0.00	.000
	Preschooling Status * CE	8.196	1	8.196	0.04	.000
	Error	53106.488	261	203.473		
	Total	2181068.000	265			
V	Intercept	1045972.454	1	1045972.454	4110.78	.924
	Preschooling Status	837.821	1	837.821	3.29	.010
	CE	543.407	1	543.407	2.14	.006
	Preschooling Status * CE	452.161	1	452.161	1.78	.005
	Error	85748.380	337	254.446		
	Total	2573174.000	341			

Table 116 shows that the influence of Preschooling Status on academic independence does not vary by the level of CE of: (a) Standard I students [$F(1, 267)$

= 0.03, $p > .05$] (b) Standard III students [$F(1, 261) = 0.04, p > .05$] and (c) Standard V students [$F(1, 337) = 1.78, p > .05$]. Among primary standard students, the influence of Preschooling Status on academic independence does not vary significantly by their level of CE.

Influence of Preschooling Status on Work Habit by the Level of CE.

Influence of Preschooling Status on work habit of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 117.

Table 117

Results of 2×2 ANOVAs of Work Habit of Primary Standard Students by their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	598525.156	1	598525.156	2586.67	.906
	Preschooling Status	407.689	1	407.689	1.76	.007
	CE	131.133	1	131.133	0.57	.002
	Preschooling Status * CE	25.468	1	25.468	0.11	.000
	Error	61780.557	267	231.388		
	Total	1537201.000	271			
III	Intercept	770748.581	1	770748.581	3503.57	.931
	Preschooling Status	6.334	1	6.334	0.03	.000
	CE	669.236	1	669.236	3.04	.012
	Preschooling Status * CE	55.460	1	55.460	0.25	.001
	Error	57417.179	261	219.989		
	Total	1390971.000	265			
V	Intercept	747864.040	1	747864.040	3150.62	.903
	Preschooling Status	399.022	1	399.022	1.68	.005
	CE	722.192	1	722.192	3.04	.009
	Preschooling Status * CE	1201.001	1	1201.001	5.06*	.015
	Error	79993.912	337	237.371		
	Total	1722813.000	341			

Note. * $p < .05$

Table 117 shows that the influence of Preschooling Status on work habit does not vary by CE of: (a) Standard I students [$F(1,267) = 0.11, p > .05$] and (b) Standard III students [$F(1,261) = 0.25, p > .05$], But, the influence of Preschooling Status on work habit of Standard V students vary significantly by CE [$F(1, 337) = 5.06, p < .05, \eta^2 = 0.015$] though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool status on work habit of Standard V students with high CE (non-preschooled: $M = 77.38$, $SD = 16.30$, $N = 21$ and preschooled: $M = 68.45$, $SD = 15.84$, $N = 117$) [$F(1, 196) = 5.939$, $p < .05$, $\eta^2 = .029$], but not among low CE (non-preschooled: $M = 67.32$, $SD = 17.09$, $N = 22$ and preschooled: $M = 69.72$, $SD = 14.26$, $N = 121$) [$F(1, 141) = .495$, $p > .05$]. In Standard V, work habit is higher among non-preschooled students with high CE than preschooled students with high CE.

Influence of Preschooling Status on Interpersonal Relationship by the Level of CE. Influence of Preschooling Status on interpersonal relationship of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 118.

Table 118

Results of 2×2 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	799221.247	1	799221.247	7611.81	.966
	Preschooling Status	304.154	1	304.154	2.90	.011
	CE	70.469	1	70.469	0.67	.003
	Preschooling Status * CE	43.461	1	43.461	0.41	.002
	Error	28034.353	267	104.998		
	Total	1957565.000	271			
III	Intercept	1113230.752	1	1113230.752	10090.95	.975
	Preschooling Status	6.044	1	6.044	0.05	.000
	CE	324.322	1	324.322	2.94	.011
	Preschooling Status * CE	53.413	1	53.413	0.48	.002
	Error	28793.451	261	110.320		
	Total	1926980.000	265			
V	Intercept	699662.052	1	699662.052	7097.24	.955
	Preschooling Status	171.021	1	171.021	1.73	.005
	CE	.009	1	.009	0.00	.000
	Preschooling Status * CE	3.744	1	3.744	0.04	.000
	Error	33222.222	337	98.582		
	Total	1590398.000	341			

Table 118 shows that the influence of Preschooling Status on interpersonal relationship does not vary by the level of CE of: (a) Standard I students [$F(1, 267)$

=0.41, $p > .05$] (b) Standard III students [$F(1, 261) = 0.48, p > .05$] and (c) Standard V students [$F(1, 337) = 0.04, p > .05$]. Among primary standard students, the influence of Preschooling Status on interpersonal relationship does not vary significantly by their level of CE.

Influence of Preschooling Status on Cooperation by the Level of CE.

Influence of Preschooling Status on cooperation of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 119.

Table 119

Results of 2×2 ANOVAs of Cooperation of Primary Standard Students by their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	675457.020	1	675457.020	3062.64	.920
	Preschooling Status	80.519	1	80.519	0.37	.001
	CE	107.383	1	107.383	0.49	.002
	Preschooling Status * CE	195.312	1	195.312	0.89	.003
	Error	58886.105	267	220.547		
	Total	1664184.000	271			
III	Intercept	941727.557	1	941727.557	3752.59	.935
	Preschooling Status	48.639	1	48.639	0.19	.001
	CE	13.217	1	13.217	0.05	.000
	Preschooling Status * CE	95.811	1	95.811	0.38	.001
	Error	65499.030	261	250.954		
	Total	1693584.000	265			
V	Intercept	795919.950	1	795919.950	4819.15	.935
	Preschooling Status	1.029	1	1.029	0.01	.000
	CE	.123	1	.123	0.00	.000
	Preschooling Status * CE	28.383	1	28.383	0.17	.001
	Error	55658.161	337	165.158		
	Total	1870861.000	341			

Table 119 shows that the influence of Preschooling Status on cooperation does not vary by the level of CE of: (a) Standard I students [$F(1, 267) = 0.89, p > .05$] (b) Standard III students [$F(1, 261) = 0.38, p > .05$] and (c) Standard V students [$F(1, 337) = 0.17, p > .05$]. Among primary standard students, the influence of Preschooling Status on cooperation does not vary significantly by their level of CE.

Influence of Preschooling Status on Communication by the Level of CE.

Influence of Preschooling Status on communication of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 120.

Table 120

Results of 2×2 ANOVAs of Communication of Primary Standard Students by their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	3326.892b	3	1108.964	4.65	.050
	Preschooling Status	801575.621	1	801575.621	3363.77	.926
	CE	2475.533	1	2475.533	10.39	.037
	Preschooling Status * CE	1107.544	1	1107.544	4.65*	.017
	Error	526.875	1	526.875	2.21	.008
	Total	63625.278	267	238.297		
III	Intercept	2120762.000	271			
	Preschooling Status	1183807.345	1	1183807.345	6874.54	.963
	CE	874.743	1	874.743	5.08	.019
	Preschooling Status * CE	56.868	1	56.868	0.33	.001
	Error	415.463	1	415.463	2.41	.009
	Total	44944.660	261	172.202		
V	Intercept	2148389.000	265			
	Preschooling Status	1067168.483	1	1067168.483	4790.94	.934
	CE	190.211	1	190.211	0.85	.003
	Preschooling Status * CE	159.259	1	159.259	0.71	.002
	Error	110.561	1	110.561	0.50	.001
	Total	75065.877	337	222.747		

Note. * $p < .05$

Table 120 shows that the influence of Preschooling Status on communication does not vary by CE of: (a) Standard III students [$F(1,261) = 0.33, p > .05$] and (b) Standard V students [$F(1, 337) = 0.71, p > .05$] But, the influence of Preschooling Status on communication of Standard I students vary significantly by CE students [$F(1,267) = 4.65, p < .05, \eta^2 = 0.017$] though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool status on communication of Standard I students with low CE (non-

preschooled: $M = 73.35$, $SD = 29.64$, $N = 14$ and preschooled: $M = 86.87$, $SD = 16.43$, $N = 78$) [$F(1, 90) = 6.057$, $p < .05$, $\eta^2 = .063$], but not among the students with high CE (non-preschooled: $M = 83.81$, $SD = 14.14$, $N = 21$ and preschooled: $M = 88.79$, $SD = 13.21$, $N = 158$) [$F(1, 177) = 2.592$, $p > .05$]. Communication is higher among Standard I preschooled students with low CE than non-preschooled students with high CE.

Influence of Preschooling Status on Leadership by the Level of CE.

Influence of Preschooling Status on leadership of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 121.

Table 121

Results of 2×2 ANOVAs of Leadership of Primary Standard Students by Their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	635634.8	1	635634.8	4649.656	0.946
	Preschooling Status	1361.402	1	1361.402	9.959	0.036
	CE	578.321	1	578.321	4.23	0.016
	Preschooling Status * CE	152.043	1	152.043	1.112	0.004
	Error	36500.44	267	136.706		
	Total	1647202	271			
III	Intercept	959067.6	1	959067.6	9987.497	0.975
	Preschooling Status	283.182	1	283.182	2.949	0.011
	CE	27.982	1	27.982	0.291	0.001
	Preschooling Status * CE	83.091	1	83.091	0.865	0.003
	Error	25063	261	96.027		
	Total	1707014	265			
V	Intercept	724198.1	1	724198.1	5066.371	0.938
	Preschooling Status	137.044	1	137.044	0.959	0.003
	CE	1121.984	1	1121.984	7.849	0.023
	Preschooling Status * CE	289.735	1	289.735	2.027	0.006
	Error	48171.51	337	142.942		
	Total	1745109	341			

Table 121 shows that the influence of Preschooling Status on leadership does not vary by the level of CE of: (a) Standard I students [$F(1, 267) = 1.112$, $p > .05$] (b) Standard III students [$F(1, 261) = 0.865$, $p > .05$] and (c) Standard V students [$F(1, 337) = 2.027$, $p > .05$]. Among primary standard students, the influence of

Preschooling Status on leadership does not vary significantly by their level of CE.

Influence of Preschooling Status on Expressing Emotions by the Level of CE. Influence of Preschooling Status on expressing emotions of Standard I, III and V Students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 122.

Table 122

Results of 2×2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	622899.393	1	622899.393	6652.16	.961
	Preschooling Status	6.977	1	6.977	0.07	.000
	CE	91.177	1	91.177	0.97	.004
	Preschooling Status * CE	266.553	1	266.553	2.85	.011
	Error	25001.522	267	93.639		
	Total	1480996.000	271			
III	Intercept	774553.479	1	774553.479	7105.93	.965
	Preschooling Status	2.200	1	2.200	0.02	.000
	CE	688.836	1	688.836	6.32	.024
	Preschooling Status * CE	9.433	1	9.433	0.09	.000
	Error	28449.250	261	109.001		
	Total	1366745.000	265			
V	Intercept	785030.498	1	785030.498	4883.06	.935
	Preschooling Status	56.782	1	56.782	0.35	.001
	CE	32.100	1	32.100	0.20	.001
	Preschooling Status * CE	54.719	1	54.719	0.34	.001
	Error	54178.186	337	160.766		
	Total	1822898.000	341			

Table 122 shows that the influence of Preschooling Status on expressing emotions does not vary by the level of CE of: (a) Standard I students [$F(1, 267) = 2.85, p > .05$] (b) Standard III students [$F(1, 261) = 0.09, p > .05$] and (c) Standard V students [$F(1, 337) = 0.34, p > .05$]. Among primary standard students, the influence of Preschooling Status on expressing emotions does not vary significantly by their level of CE.

Influence of Preschooling Status on Controlling Emotions by the Level of CE. Influence of Preschooling Status on controlling emotions of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 123.

Table 123

Results of 2×2 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschooling Status and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	483635.553	1	483635.553	8317.98	.969
	Preschooling Status	107.929	1	107.929	1.86	.007
	CE	104.477	1	104.477	1.80	.007
	Preschooling Status * CE	9.613	1	9.613	0.17	.001
	Error	15524.278	267	58.143		
	Total	1181123.000	271			
III	Intercept	712629.311	1	712629.311	11060.98	.977
	Preschooling Status	26.144	1	26.144	0.41	.002
	CE	1.648	1	1.648	0.03	.000
	Preschooling Status * CE	88.882	1	88.882	1.38	.005
	Error	16815.538	261	64.427		
	Total	1248717.000	265			
V	Intercept	766634.910	1	766634.910	6293.38	.949
	Preschooling Status	20.773	1	20.773	0.17	.001
	CE	69.721	1	69.721	0.57	.002
	Preschooling Status * CE	168.261	1	168.261	1.38	.004
	Error	41051.989	337	121.816		
	Total	1772461.000	341			

Table 123 shows that the influence of Preschooling Status on controlling emotions does not vary by the level of CE of: (a) Standard I students [$F(1, 267) = 0.17, p > .05$] (b) Standard III students [$F(1, 261) = 1.38, p > .05$] and (c) Standard V students [$F(1, 337) = 1.38, p > .05$]. Among primary standard students, the influence of Preschooling Status on controlling emotions does not vary significantly by their level of CE.

Summary of Influence of Preschooling Status on Cognitive and Socio-Emotional Outcomes

The influence of Preschooling Status on cognitive and socio-emotional outcomes among primary standard students vary by their grade level and socio-demographic factors. There is significant influence of Preschooling Status on communication and leadership among Standard I students, personal independence of Standard III students and vocabulary in English and English comprehension in Standard V students. There is no significant influence of Preschooling Status of students of any primary grade in general on their achievement in Mathematics, Malayalam vocabulary and comprehension, cooperation, academic independence, workhabit, interpersonal relationship, expressing and controlling emotions. But, in Standard I, Malayalam comprehension of students having fathers with education below secondary level, work habit and interpersonal relation of later born children are favourably influenced by their Preschooling Status. Also, in Standard III, Communication and leadership of boy students, but not of girls, are favourably influenced by their Preschooling Status. Likewise, in Standard V, personal independence of students having fathers with secondary education level or those with mothers having above secondary level of education are favourably influenced by their Preschooling Status. Academic independence also of students in Standard V, having fathers with secondary education level is favourably influenced by Preschooling Status.

The influence of Preschooling Status is not always favourable. In Standard I, Communication of students who have low cognitive engagement outside the school; In Standard III personal independence of students having low cognitive engagement outside the school; in Standard V Malayalam vocabulary and comprehension of boys, work habits of students having high cognitive engagement beyond school, and expressing as well as controlling emotions among single children are found unfavorably influenced by their Preschooling Status.

Results suggest that the influence of Preschooling Status on cognitive outcomes become more prominent as children move up in school, whereas that on socio-emotional outcomes is observed more in earlier grades.

Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes among Primary Standard Students

Influence of preschool duration on cognitive and socio-emotional outcomes among standard I, III and V students who attended preschools was assessed using statistical constants and independent samples *t*-test. The duration of preschool is categorized as two, i.e., up to 2 years (1 or 2 years) and >2 years (3 or 4 years) which is given in detail with separate heads.

Influence of Preschool Duration on Cognitive Outcomes among Primary Standard Students

Mean and standard deviation scores of cognitive variables, i.e., vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, comprehension and achievement in Mathematics, of primary standard students who attended preschools up to 2 year and >2 year were found. For comparing the preschool duration of the two groups independent samples *t*-test was employed.

Influence of Preschool Duration on Vocabulary in Malayalam. Indices of vocabulary in Malayalam among standard I, III and V students by their preschool duration are given in Table 124.

Table 124

Data and Results of Tests of Significance of Difference in Means of Vocabulary in Malayalam by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t
	up to 2 years			> 2 years			
	M	S.D	N	M	S.D	N	
I	59.34	21.29	220	61.59	19.64	91	-.89
III	44.15	18.62	211	49.08	20.29	71	-1.81
V	41.23	17.31	302	44.61	18.74	127	-1.74

Table 124 shows that there is no significant difference in vocabulary in Malayalam of: (i) Standard I students with up to 2 year preschooling ($M = 59.34$, $SD = 21.29$, $N = 220$) and those with >2 year preschooling ($M = 61.59$, $SD = 19.64$, $N = 91$) [$t = .89$, $p > .05$]; (ii) Standard III students with up to 2 year preschooling ($M = 44.15$, $SD = 18.62$, $N = 211$) and those with >2 year preschooling ($M = 49.08$, $SD =$

20.29, $N = 71$) [$t = 1.81, p > .05$]; and, (iii) Standard V students with up to 2 year preschooling ($M = 41.23, SD = 17.31, N = 302$) and those with >2 year preschooling ($M = 44.61, SD = 18.74, N = 127$) [$t = 1.74, p > .05$]. Malayalam vocabulary of standard I, III and V students did not differ by their preschool duration.

Influence of Preschool Duration on Malayalam Comprehension. Indices of Malayalam comprehension among standard I, III and V students by their preschool duration are given in Table 125.

Table 125

Data and Results of Tests of Significance of Difference in Means of Malayalam Comprehension by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t
	up to 2 years			> 2 years			
	M	S.D	N	M	S.D	N	
I	42.12	23.28	220	45.55	23.85	91	-1.16
III	53.88	22.17	211	57.54	24.77	71	-1.10
V	38.61	20.69	302	40.88	23.78	127	-0.94

Table 125 shows that there is no significant difference in Malayalam comprehension of: (i) Standard I students with up to 2 year preschooling ($M = 42.12, SD = 23.28, N = 220$) and those with >2 year preschooling ($M = 45.55, SD = 23.85, N = 91$) [$t = -1.16, p > .05$]; (ii) Standard III students with up to 2 year preschooling ($M = 53.88, SD = 22.17, N = 211$) and those with >2 year preschooling ($M = 57.54, SD = 24.77, N = 71$) [$t = -1.10, p > .05$]; and, (iii) Standard V students with up to 2 year preschooling ($M = 38.61, SD = 20.69, N = 302$) and those with >2 year preschooling ($M = 40.88, SD = 23.78, N = 127$) [$t = -0.94, p > .05$]. Malayalam comprehension of standard I, III and V students did not differ by their preschool duration.

Influence of Preschool Duration on Vocabulary in English. Indices of vocabulary in English among standard I, III and V students by their preschool duration are given in Table 126.

Table 126

Data and Results of Tests of Significance of Difference in Means of Vocabulary in English by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t	Cohen's d
	up to 2 years			> 2 years				
	M	S.D	N	M	S.D	N		
I	59.00	21.10	220	65.87	22.01	91	-2.53*	0.32
III	39.09	22.62	211	47.44	23.81	71	-2.59*	0.36
V	42.57	20.90	302	48.22	20.42	127	-2.60*	0.27

Note. *P<.01

Table 126 shows that there is significant difference in vocabulary in English of: (i) Standard I students with up to 2 year preschooling ($M = 59.00$, $SD = 21.10$, $N = 220$) and those with >2 year preschooling ($M = 65.87$, $SD = 22.01$, $N = 91$) [$t = -2.53$, $p < .05$] (Cohen's $d = 0.32$); (ii) Standard III students with up to 2 year preschooling ($M = 39.09$, $SD = 22.62$, $N = 211$) and those with >2 year preschooling ($M = 47.44$, $SD = 23.81$, $N = 71$) [$t = -2.59$, $p < .05$] (Cohen's $d = 0.36$); and, (iii) Standard V students with up to 2 year preschooling ($M = 42.57$, $SD = 20.90$, $N = 302$) and those with >2 year preschooling ($M = 48.22$, $SD = 20.42$, $N = 127$) [$t = -2.60$, $p < .05$] (Cohen's $d = 0.27$).

Vocabulary in English of standard I, III and V students differ by their preschool duration. Vocabulary in English of standard I, III and V students with >2 year preschooling is significantly higher with small effect size, when compared to those students with up to 2 year preschooling.

Influence of Preschool Duration on English Comprehension. Indices of English comprehension among standard I, III and V students by their preschool duration are given in Table 127.

Table 127

Data and Results of Tests of Significance of Difference in Means of English Comprehension by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t	Cohen's d
	up to 2 years			> 2 years				
	M	S.D	N	M	S.D	N		
I	36.33	22.58	220	43.71	23.32	91	-2.57*	0.32
III	35.24	23.41	211	45.00	26.62	71	-2.75*	0.39
V	49.76	21.11	302	56.67	22.35	127	-2.97*	0.32

Note. *P<.01

Table 127 shows that there is significant difference in English Comprehension of: (i) Standard I students with up to 2 year preschooling ($M = 36.33$, $SD = 22.58$, $N = 220$) and those with >2 year preschooling ($M = 43.71$, $SD = 23.32$, $N = 91$) [$t = -2.57$, $p < .05$] (Cohen's $d = 0.32$); (ii) Standard III students with up to 2 year preschooling ($M = 35.24$, $SD = 23.41$, $N = 211$) and those with >2 year preschooling ($M = 45.00$, $SD = 26.62$, $N = 71$) [$t = -2.75$, $p < .05$] (Cohen's $d = 0.39$); and, (iii) Standard V students with up to 2 year preschooling ($M = 49.76$, $SD = 21.11$, $N = 302$) and those with >2 year preschooling ($M = 56.67$, $SD = 22.35$, $N = 127$) [$t = -2.97$, $p < .05$] (Cohen's $d = 0.32$).

English comprehension of standard I, III and V students differ by their preschool duration. English comprehension of standard I, III and V students with >2 year preschooling is significantly higher with small effect size, when compared to those students with up to 2 year preschooling.

Influence of Preschool Duration on Achievement in Mathematics. Indices of achievement in Mathematics among standard I, III and V students by their preschool duration are given in Table 128.

Table 128

Data and Results of Tests of Significance of Difference in Means of Achievement in Mathematics by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t	Cohen's <i>d</i>
	up to 2 years			> 2 years				
	<i>M</i>	<i>S.D</i>	<i>N</i>	<i>M</i>	<i>S.D</i>	<i>N</i>		
I	62.16	18.76	220	65.46	19.00	91	-1.40	-
III	47.25	21.62	211	53.63	23.04	71	-2.05*	0.29
V	47.96	18.48	302	52.59	16.98	127	-2.51*	0.26

Note. * $P < .05$

Table 128 shows that there is no significant difference in achievement in Mathematics of Standard I students with up to 2 year preschooling ($M = 62.16$, $SD = 18.76$, $N = 220$) and those with >2 year preschooling ($M = 65.46$, $SD = 19.00$, $N =$

91) [$t = -1.40, p > .05$]. But there is significant difference in Mathematics of: (i) Standard III students with up to 2 year preschooling ($M = 47.25, SD = 21.62, N = 211$) and those with >2 year preschooling ($M = 53.63, SD = 23.04, N = 71$) [$t = -2.05, p < .05$] (Cohen's $d = 0.29$); and, (ii) Standard V students with up to 2 year preschooling ($M = 47.96, SD = 18.48, N = 302$) and those with >2 year preschooling ($M = 52.59, SD = 16.98, N = 127$) [$t = -2.51, p < .05$] (Cohen's $d = 0.26$).

Achievement in Mathematics did not differ in Standard I students by their duration of preschool education, but did so in Standard III and V students. The difference in achievement in Mathematics of standard III and V students with >2 year preschooling is significantly higher with small effect size, when compared to those students with up to 2 year preschooling.

Influence of Preschool Duration on Socio-Emotional Outcomes among Primary Standard Students

Mean and standard deviation of socio-emotional nine outcomes of primary standard students who attended preschools up to 2 year and >2 year were found. For comparing the preschool duration of the two groups independent samples t -test was employed.

Influence of Preschool Duration on Personal Independence. Indices of personal independence among standard I, III and V students by their preschool duration are given in Table 129.

Table 129

Data and Results of Tests of Significance of Difference in Means of Personal Independence by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t
	up to 2 years			> 2 years			
	M	S.D	N	M	S.D	N	
I	90.67	15.46	159	91.40	14.77	77	-0.35
III	91.19	14.93	157	94.72	12.23	58	-1.77
V	94.14	14.00	201	96.53	6.71	97	-1.99*

Note. * $P < .05$

Table 129 shows that there is no significant difference in personal independence of: (i) Standard I students with up to 2 year preschooling ($M = 90.67$, $SD = 15.46$, $N = 159$) and those with >2 year preschooling ($M = 91.40$, $SD = 14.77$, $N = 77$) [$t = -0.35$, $p > .05$]; and, (ii) Standard III students with up to 2 year preschooling ($M = 91.19$, $SD = 14.93$, $N = 157$) and those with >2 year preschooling ($M = 94.72$, $SD = 12.23$, $N = 58$) [$t = -1.77$, $p > .05$]. But there is significant difference in personal independence of Standard V students with up to 2 year preschooling ($M = 94.14$, $SD = 14.00$, $N = 201$) and those with >2 year preschooling ($M = 96.53$, $SD = 6.71$, $N = 97$) [$t = -1.99$, $p < .05$] (Cohen's $d = 0.22$).

Personal independence of Standard I and III students did not differ by their preschool duration. But personal independence of Standard V students differs by their preschool duration. Personal independence of Standard V students with >2 year preschooling is significantly higher with small effect size, when compared to those students with up to 2 year preschooling.

Influence of Preschool Duration on Academic Independence. Indices of academic independence among standard I, III and V students by their preschool duration are given in Table 130.

Table 130

Data and Results of Tests of Significance of Difference in Means of Academic Independence by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t
	up to 2 years			> 2 years			
	M	S.D	N	M	S.D	N	
I	83.91	15.27	159	83.49	15.14	77	0.20
III	90.50	14.37	157	88.40	14.49	58	0.95
V	85.61	14.97	201	86.71	14.53	97	-0.61

Table 130 shows that there is no significant difference in Academic independence of: (i) Standard I students with up to 2 year Preschooling ($M = 83.91$, $SD = 15.27$, $N = 159$) and those with >2 year preschooling ($M = 83.49$, $SD = 15.14$, $N = 77$) [$t = 0.20$, $p > .05$]; (ii) Standard III students with up to 2 year preschooling ($M =$

90.50, $SD = 14.37$, $N = 157$) and those with >2 year preschooling ($M = 88.40$, $SD = 14.49$, $N = 58$) [$t=0.95$, $p>.05$]; and, (iii) Standard V students with up to 2 year Preschooling ($M = 85.61$, $SD = 14.97$, $N = 201$) and those with >2 year preschooling ($M = 86.71$, $SD = 14.53$, $N = 97$) [$t = -0.61$, $p>.05$]. Academic independence of Standard I, III and V students did not differ by their preschool duration.

Influence of Preschool Duration on Work Habit. Indices of work habit among standard I, III and V students by their preschool duration are given in Table 131.

Table 131

Data and Results of Tests of Significance of Difference in Means of Work Habit by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t
	up to 2 years			> 2 years			
	M	S.D	N	M	S.D	N	
I	74.04	16.03	159	74.82	14.76	77	-0.37
III	71.03	15.37	157	70.48	13.52	58	0.25
V	69.53	14.37	201	67.78	16.81	97	0.88

Table 131 shows that there is no significant difference in work habit of: (i) Standard I students with up to 2 year Preschooling ($M = 74.04$, $SD = 16.03$, $N = 159$) and those with >2 year preschooling ($M = 74.82$, $SD = 14.76$, $N = 77$) [$t = -0.37$, $p>.05$]; (ii) Standard III students with up to 2 year preschooling ($M = 71.03$, $SD = 15.37$, $N = 157$) and those with >2 year preschooling ($M = 70.48$, $SD = 13.52$, $N = 58$) [$t = 0.25$, $p>.05$]; and, (iii) Standard V students with up to 2 year Preschooling ($M = 69.53$, $SD = 14.37$, $N = 201$) and those with >2 year preschooling ($M = 67.78$, $SD = 16.81$, $N = 97$) [$t = 0.88$, $p>.05$]. Work habit of Standard I, III and V students did not differ by their preschool duration.

Influence of Preschool Duration on Interpersonal Relationship. Indices of interpersonal relationship among standard I, III and V students by their preschool duration are given in Table 132.

Table 132

Data and Results of Tests of Significance of Difference in Means of Interpersonal Relationship by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t
	up to 2 years			> 2 years			
	M	S.D	N	M	S.D	N	
I	84.86	8.95	159	84.57	10.76	77	0.20
III	84.09	10.85	157	86.12	8.87	58	-1.40
V	67.19	10.12	201	67.53	9.60	97	-0.28

Table 132 shows that there is no significant difference in interpersonal relationship of: (i) Standard I students with up to 2 year preschooling ($M = 84.86$, $SD = 8.95$, $N = 159$) and those with >2 year preschooling ($M = 84.57$, $SD = 10.76$, $N = 77$) [$t = 0.20$, $p > .05$]; (ii) Standard III students with up to 2 year preschooling ($M = 84.09$, $SD = 10.85$, $N = 157$) and those with >2 year preschooling ($M = 86.12$, $SD = 8.87$, $N = 58$) [$t = -1.40$, $p > .05$]; and, (iii) Standard V students with up to 2 year Preschooling ($M = 67.19$, $SD = 10.12$, $N = 201$) and those with >2 year preschooling ($M = 67.53$, $SD = 9.60$, $N = 97$) [$t = -0.28$, $p > .05$]. Interpersonal relationship of Standard I, III and V students did not differ by their preschool duration.

Influence of Preschool Duration on Cooperation. Indices of cooperation among standard I, III and V students by their preschool duration are given in Table 133.

Table 133

Data and Results of Tests of Significance of Difference in Means of Cooperation by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t
	up to 2 years			> 2 years			
	M	S.D	N	M	S.D	N	
I	77.53	14.43	159	76.22	15.43	77	0.62
III	77.55	16.85	157	81.59	12.33	58	-1.92
V	72.86	12.01	201	73.12	14.98	97	-0.15

Table 133 shows that there is no significant difference in cooperation of: (i) Standard I students with up to 2 year preschooling ($M = 77.53$, $SD = 14.43$, $N = 159$)

and those with >2 year preschooling ($M = 76.22$, $SD = 15.43$, $N = 77$) [$t = 0.62$, $p > .05$]; (ii) Standard III students with up to 2 year preschooling ($M = 77.55$, $SD = 16.85$, $N = 157$) and those with >2 year preschooling ($M = 81.59$, $SD = 12.33$, $N = 58$) [$t = -1.92$, $p > .05$]; and, (iii) Standard V students with up to 2 year preschooling ($M = 72.86$, $SD = 12.01$, $N = 201$) and those with >2 year preschooling ($M = 73.12$, $SD = 14.98$, $N = 97$) [$t = -0.15$, $p > .05$]. Cooperation of Standard I, III and V students did not differ by their preschool duration.

Influence of Preschool Duration on Communication. Indices of communication among standard I, III and V students by their preschool duration are given in Table 134.

Table 134

Data and Results of Tests of Significance of Difference in Means of Communication by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t
	up to 2 years			> 2 years			
	M	S.D	N	M	S.D	N	
I	87.55	15.29	159	89.42	12.18	77	-1.01
III	89.60	13.03	157	90.55	11.32	58	-0.53
V	86.01	13.63	201	84.85	16.64	97	0.60

Table 134 shows that there is no significant difference in communication of: (i) Standard I students with up to 2 year preschooling ($M = 87.55$, $SD = 15.29$, $N = 159$) and those with >2 year preschooling ($M = 89.42$, $SD = 12.18$, $N = 77$) [$t = -1.01$, $p > .05$]; (ii) Standard III students with up to 2 year preschooling ($M = 89.60$, $SD = 13.03$, $N = 157$) and those with >2 year preschooling ($M = 90.55$, $SD = 11.32$, $N = 58$) [$t = -0.53$, $p > .05$]; and, (iii) Standard V students with up to 2 year preschooling ($M = 86.01$, $SD = 13.63$, $N = 201$) and those with >2 year Preschooling ($M = 84.85$, $SD = 16.64$, $N = 97$) [$t = 0.60$, $p > .05$]. Communication of Standard I, III and V students did not differ by their preschool duration.

Influence of Preschool Duration on Leadership. Indices of leadership among standard I, III and V students by their preschool duration are given in Table 135.

Table 135

Data and Results of Tests of Significance of Difference in Means of Leadership by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t
	up to 2 years			> 2 years			
	M	S.D	N	M	S.D	N	
I	77.11	10.83	159	79.51	11.26	77	-1.55
III	80.25	9.48	157	79.74	10.12	58	0.34
V	70.54	10.18	201	71.33	13.52	97	-0.51

Table 135 shows that there is no significant difference in leadership of: (i) Standard I students with up to 2 year preschooling ($M = 77.11$, $SD = 10.83$, $N = 159$) and those with >2 year preschooling ($M = 79.51$, $SD = 11.26$, $N = 77$) [$t = -1.55$, $p > .05$]; (ii) Standard III students with up to 2 year preschooling ($M = 80.25$, $SD = 9.48$, $N = 157$) and those with >2 year preschooling ($M = 79.74$, $SD = 10.12$, $N = 58$) [$t = 0.34$, $p > .05$]; and, (iii) Standard V students with up to 2 year preschooling ($M = 70.54$, $SD = 10.18$, $N = 201$) and those with >2 year Preschooling ($M = 71.33$, $SD = 13.52$, $N = 97$) [$t = -0.51$, $p > .05$]. Leadership of Standard I, III and V students did not differ by their preschool duration.

Influence of Preschool Duration on Expressing Emotions. Indices of expressing emotions among standard I, III and V students by their preschool duration are given in Table 136.

Table 136

Data and Results of Tests of Significance of Difference in Means of Expressing Emotions by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t
	up to 2 years			> 2 years			
	M	S.D	N	M	S.D	N	
I	73.04	9.63	159	73.90	10.30	77	-0.61
III	70.70	10.62	157	71.78	11.88	58	-0.61
V	72.30	11.32	201	70.96	15.19	97	0.77

Table 136 shows that there is no significant difference in expressing emotions of: (i) Standard I students with up to 2 year preschooling ($M = 73.04$, $SD = 9.63$, $N = 159$) and those with >2 year preschooling ($M = 73.90$, $SD = 10.30$, $N = 77$) [$t = -0.61$, $p > .05$]; (ii) Standard III students with up to 2 year preschooling ($M = 70.70$, $SD = 10.62$, $N = 157$) and those with >2 year preschooling ($M = 71.78$, $SD = 11.88$, $N = 58$)

[$t = -0.61, p > .05$]; and, (iii) Standard V students with up to 2 year Preschooling ($M = 72.30, SD = 11.32, N = 201$) and those with >2 year preschooling ($M = 70.96, SD = 15.19, N = 97$) [$t = 0.77, p > .05$]. Expressing emotions of Standards I, III and V students did not differ by their preschool duration.

Influence of Preschool Duration on Controlling Emotions. Indices of controlling emotions among standard I, III and V students by their preschool duration are given in Table 137.

Table 137

Data and Results of Tests of Significance of Difference in Means of Controlling Emotions by Preschool Duration among Primary Standard Students

Standard	Preschool Duration						t
	up to 2 years			> 2 years			
	M	S.D	N	M	S.D	N	
I	65.55	7.61	159	66.39	8.28	77	-0.75
III	68.63	8.43	157	67.36	6.75	58	1.14
V	70.92	9.40	201	71.65	12.35	97	-0.52

Table 137 shows that there is no significant difference in controlling emotions of: (i) Standard I students with up to 2 year Preschooling ($M = 65.55, SD = 7.61, N = 159$) and those with >2 year preschooling ($M = 66.39, SD = 8.28, N = 77$) [$t = -0.75, p > .05$]; (ii) Standard III students with up to 2 year preschooling ($M = 68.63, SD = 8.43, N = 157$) and those with >2 year preschooling ($M = 67.36, SD = 6.75, N = 58$) [$t = 1.14, p > .05$]; and, (iii) Standard V students with up to 2 year Preschooling ($M = 70.92, SD = 9.40, N = 201$) and those with >2 year preschooling ($M = 71.65, SD = 12.35, N = 97$) [$t = -0.52, p > .05$]. Controlling emotions of Standard I, III and V students did not differ by their preschool duration.

Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Gender

Whether influence of preschool duration on cognitive and socio-emotional outcomes of primary standard students vary by their gender was studied by using 2×2 ANOVAs. Wherever a significant 2×2 interaction is revealed, further one way Anova of the dependent variable with preschool duration were done for gender separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschool Duration on Cognitive Outcomes by Gender

Influence of preschool duration on cognitive outcomes of Standard I, III and V students by their gender were studied and the results are given distinctly.

Gender-wise Influence of Preschool Duration on Vocabulary in Malayalam. Influence of preschool duration on vocabulary in Malayalam of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 138.

Table 138

Results of 2×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	938656.723	1	938656.7	2225.36	0.879
	Preschool Duration	223.733	1	223.733	0.53	0.002
	Gender	4466.051	1	4466.051	10.59	0.033
	Preschool Duration* Gender	931.481	1	931.481	2.21	0.007
	Error	129492.806	307	421.801		
	Total	1253896	311			
III	Intercept	458207.966	1	458208	1346.61	0.829
	Preschool Duration	1213.118	1	1213.118	3.57	0.013
	Gender	5545.938	1	5545.938	16.30	0.055
	Preschool Duration* Gender	10.05	1	10.05	0.03	0
	Error	94594.591	278	340.268		
	Total	683950	282			
V	Intercept	657404.654	1	657404.7	2220.25	0.839
	Preschool Duration	1563.348	1	1563.348	5.28	0.012
	Gender	7379.09	1	7379.09	24.92	0.055
	Preschool Duration* Gender	16.763	1	16.763	0.06	0
	Error	125840.112	425	296.094		
	Total	900640	429			

Table 138 shows that the influence of preschool duration on vocabulary in Malayalam does not vary by gender of: (a) Standard I students [$F(1, 307) = 2.21, p > .05$] (b) Standard III students [$F(1, 278) = 0.03, p > .05$] and (c) Standard V students [$F(1, 425) = 0.06, p > .05$]. Among primary standard students, the influence of preschool duration on vocabulary in Malayalam does not vary significantly by gender.

Gender-wise Influence of Preschool Duration on Malayalam Comprehension. Influence of preschool duration on Malayalam comprehension of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 139.

Table 139

Results of 2×2 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	493339.51	1	493339.5	896.03	0.745
	Preschool Duration	683.582	1	683.582	1.24	0.004
	Gender	841.388	1	841.388	1.53	0.005
	Preschool Duration* Gender	169.297	1	169.297	0.31	0.001
	Error	169028.745	307	550.582		
	Total	748941	311			
III	Intercept	652895.802	1	652895.8	1338.22	0.828
	Preschool Duration	573.689	1	573.689	1.18	0.004
	Gender	10415.633	1	10415.63	21.35	0.071
	Preschool Duration* Gender	1896.163	1	1896.163	3.89*	0.014
	Error	135631.55	278	487.883		
	Total	993726	282			
V	Intercept	562863.926	1	562863.9	1311.31	0.755
	Preschool Duration	874.553	1	874.553	2.04	0.005
	Gender	11983.399	1	11983.4	27.92	0.062
	Preschool Duration* Gender	525.998	1	525.998	1.23	0.003
	Error	182425.587	425	429.237		
	Total	862469	429			

Note. * $p < .05$

Table 139 shows that the influence of preschool duration on Malayalam comprehension does not vary by gender of: (a) Standard I students [$F(1, 307) = 0.31, p > .05$] and (b) Standard V students [$F(1, 425) = 1.23, p > .05$]. However, the influence of preschooling duration on Malayalam comprehension of Standard III students vary significantly by gender [$F(1, 278) = 3.89, p < .05, \eta^2 = .01$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on Malayalam comprehension of Standard III girls

(upto 2 years: $M = 57.84$, $SD = 23.45$, $N = 107$ and >2 years $M = 67.11$, $SD = 21.67$, $N = 37$) [$F(1, 142) = 4.458$, $p < .05$, $\eta^2 = 0.03$], but not among boys (up to 2 years: $M = 49.81$, $SD = 20.06$, $N = 104$ and >2 years $M = 47.12$, $SD = 23.97$, $N = 34$) [$F(1, 136) = .417$, $p > .05$]. Among girls in Standard III, Malayalam comprehension is higher among those who have >2 years preschooling than who have up to 2 years of preschooling.

Gender-wise Influence of Preschool Duration on Vocabulary in English. Influence of preschool duration on vocabulary in English of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 140.

Table 140

Results of 2×2 ANOVAs of Vocabulary in English of Primary Standard Students by their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1000272.08	1	1000272	2196.67	0.877
	Preschool Duration	2862.366	1	2862.366	6.29	0.02
	Gender	1239.249	1	1239.249	2.72	0.009
	Preschool Duration* Gender	467.896	1	467.896	1.03	0.003
	Error	139795.229	307	455.359		
	Total	1301847	311			
III	Intercept	395534.587	1	395534.6	800.33	0.742
	Preschool Duration	3705.17	1	3705.17	7.50	0.026
	Gender	4002.916	1	4002.916	8.10	0.028
	Preschool Duration* Gender	1165.942	1	1165.942	2.36	0.008
	Error	137391.547	278	494.214		
	Total	629290	282			
V	Intercept	726909.207	1	726909.2	1703.28	0.8
	Preschool Duration	3076.743	1	3076.743	7.21	0.017
	Gender	1468.61	1	1468.61	3.44	0.008
	Preschool Duration* Gender	216.821	1	216.821	0.51	0.001
	Error	181377.88	425	426.771		
	Total	1026564	429			

Table 140 shows that the influence of preschool duration on vocabulary in English does not vary by gender of: (a) Standard I students [$F(1, 307) = 1.03, p > .05$] (b) Standard III students [$F(1, 278) = 2.36, p > .05$] and (c) Standard V students [$F(1, 425) = 0.51, p > .05$]. Among primary standard students, the influence of preschool duration on vocabulary in English does not vary significantly by gender.

Gender-wise Influence of Preschool Duration on English Comprehension.

Influence of preschool duration on English Comprehension of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 141.

Table 141

Results of 2×2 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	410792.064	1	410792.1	789.19	0.72
	Preschool Duration	3372.024	1	3372.024	6.48	0.021
	Gender	744.504	1	744.504	1.43	0.005
	Preschool Duration* Gender	336.625	1	336.625	0.65	0.002
	Error	159799.877	307	520.521		
	Total	624828	311			
III	Intercept	338739.781	1	338739.8	590.59	0.68
	Preschool Duration	4807.931	1	4807.931	8.38	0.029
	Gender	5098.159	1	5098.159	8.89	0.031
	Preschool Duration* Gender	742.936	1	742.936	1.30	0.005
	Error	159449.964	278	573.561		
	Total	570400	282			
V	Intercept	1005588.18	1	1005588	2199.27	0.838
	Preschool Duration	4947.953	1	4947.953	10.82	0.025
	Gender	2752.626	1	2752.626	6.02	0.014
	Preschool Duration* Gender	230.347	1	230.347	0.50	0.001
	Error	194325.941	425	457.238		
	Total	1352799	429			

Table 141 shows that the influence of preschool duration on English comprehension does not vary by gender of: (a) Standard I students [$F(1, 307) = 0.65$,

$p > .05$] (b) Standard III students [$F(1, 278) = 1.30, p > .05$] and (c) Standard V students [$F(1, 425) = 0.50, p > .05$]. Among primary standard students, the influence of preschool duration on English comprehension does not vary significantly by gender.

Gender-wise Influence of Preschool Duration on Achievement in Mathematics. Influence of preschool duration on achievement in Mathematics of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 142.

Table 142

Results of 2×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1045472.6	1	1045473	2956.61	0.906
	Preschool Duration	623.114	1	623.114	1.76	0.006
	Gender	1017.265	1	1017.265	2.88	0.009
	Preschool Duration* Gender	228.192	1	228.192	0.65	0.002
	Error	108556.874	307	353.605		
	Total	1349683	311			
III	Intercept	537457.016	1	537457	1132.50	0.803
	Preschool Duration	2064.809	1	2064.809	4.35	0.015
	Gender	3014.231	1	3014.231	6.35	0.022
	Preschool Duration* Gender	97.273	1	97.273	0.21	0.001
	Error	131932.613	278	474.578		
Total	810682	282				
V	Intercept	890330.065	1	890330.1	2723.19	0.865
	Preschool Duration	1953.653	1	1953.653	5.98	0.014
	Gender	88.659	1	88.659	0.27	0.001
	Preschool Duration* Gender	0.85	1	0.85	0.00	0
	Error	138951.115	425	326.944		
Total	1184977	429				

Table 142 shows that the influence of preschool duration on achievement in Mathematics does not vary by gender of: (a) Standard I students [$F(1, 307) = 0.65, p > .05$] (b) Standard III students [$F(1, 278) = 0.21, p > .05$] and (c) Standard V students [$F(1, 425) = 0.00, p > .05$]. Among primary standard students, the influence of preschool duration on achievement in Mathematics does not vary significantly by gender.

Gender-wise Influence of Preschool Duration on Socio-Emotional Outcomes

Influence of preschool duration on socio-emotional outcomes of Standard I, III and V students by gender were studied and the results are given distinctly.

Influence of Preschool Duration on Personal Independence of Primary Standard Students by Gender. Influence of preschool duration on personal independence of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 143.

Table 143

Results of 2×2 ANOVAs of Personal Independence of Primary Standard Students by Their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1718989.49	1	1718989	7513.79	0.97
	Preschool Duration	17.867	1	17.867	0.08	0
	Gender	82.529	1	82.529	0.36	0.002
	Preschool Duration*Gender	1236.216	1	1236.216	5.40*	0.023
	Error	53076.485	232	228.778		
	Total	2004847	236			
III	Intercept	1436718.31	1	1436718	7019.65	0.971
	Preschool Duration	484.822	1	484.822	2.37	0.011
	Gender	114.252	1	114.252	0.56	0.003
	Preschool Duration*Gender	22.908	1	22.908	0.11	0.001
	Error	43185.562	211	204.671		
	Total	1869297	215			
V	Intercept	2312506.42	1	2312506	15670.34	0.982
	Preschool Duration	321.407	1	321.407	2.18	0.007
	Gender	85.003	1	85.003	0.58	0.002
	Preschool Duration*Gender	1.388	1	1.388	0.01	0
	Error	43386.214	294	147.572		
	Total	2728758	298			

Note. * $p < .05$

Table 143 shows that the influence of preschool duration on personal independence does not vary by gender of: (a) Standard III students [$F(1, 211) = 0.11, p > .05$] and (b) Standard V students [$F(1, 469) = 0.01, p > .05$]. However, the influence of preschooling duration on personal independence of Standard I students vary significantly by gender [$F(1, 343) = 5.40, p < .05, \eta^2 = .01$], though the interaction is small.

But follow up analysis of variance revealed that there is no significant effect of preschool duration on personal independence of Standard I girls (up to 2 years: $M = 92.59$, $SD = 11.99$, $N = 75$ and >2 years $M = 88.29$, $SD = 19.39$, $N = 38$) [$F(1, 111) = 2.106$, $p > .05$] and boys (up to 2 years: $M = 88.96$, $SD = 17.90$, $N = 84$ and >2 years $M = 94.44$, $SD = 7.16$, $N = 39$) [$F(1, 121) = 3.381$, $p > .05$]. It seems that, in Standard I, personal independence tends to be higher for those with more preschooling, for boys than girls.

Gender-wise Influence of Preschool Duration on Academic Independence.

Influence of preschool duration on academic independence of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 144.

Table 144

Results of 2×2 ANOVAs of Academic Independence of Primary Standard Students by their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1455387.2	1	1455387	6424.12	0.965
	Preschool Duration	15.962	1	15.962	0.07	0
	Gender	1241.708	1	1241.708	5.48	0.023
	Preschool Duration*Gender	55.789	1	55.789	0.25	0.001
	Error	52559.746	232	226.551		
	Total	1710406	236			
III	Intercept	1323142.64	1	1323143	6499.56	0.969
	Preschool Duration	257.793	1	257.793	1.27	0.006
	Gender	1239.352	1	1239.352	6.09	0.028
	Preschool Duration*Gender	215.235	1	215.235	1.06	0.005
	Error	42954.184	211	203.574		
	Total	1783366	215			
V	Intercept	1904147.06	1	1904147	8847.95	0.968
	Preschool Duration	236.017	1	236.017	1.10	0.004
	Gender	1835.266	1	1835.266	8.53	0.028
	Preschool Duration*Gender	281.484	1	281.484	1.31	0.004
	Error	63271.072	294	215.208		
	Total	2267476	298			

Table 144 shows that the influence of preschool duration on academic independence does not vary by gender of: (a) Standard I students [$F(1, 232) = 0.25, p > .05$] (b) Standard III students [$F(1, 211) = 1.06, p > .05$] and (c) Standard V students [$F(1, 294) = 1.31, p > .05$]. Among primary standard students, the influence of preschool duration on academic independence does not vary significantly by gender.

Gender-wise Influence of Preschool Duration on Work Habit. Influence of preschool duration on work habit of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 145.

Table 145

Results of 2×2 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1151259.87	1	1151260	4842.76	0.954
	Preschool Duration	23.086	1	23.086	0.10	0
	Gender	1886.385	1	1886.385	7.94	0.033
	Preschool Duration* Gender	26.566	1	26.566	0.11	0
	Error	55152.892	232	237.728		
	Total	1359898	236			
III	Intercept	826351.073	1	826351.1	3823.17	0.948
	Preschool Duration	20.318	1	20.318	0.09	0
	Gender	1374.935	1	1374.935	6.36	0.029
	Preschool Duration* Gender	2.315	1	2.315	0.01	0
	Error	45606.158	211	216.143		
	Total	1127576	215			
V	Intercept	1203744.68	1	1203745	5216.67	0.947
	Preschool Duration	122.287	1	122.287	0.53	0.002
	Gender	534.897	1	534.897	2.32	0.008
	Preschool Duration* Gender	0.003	1	0.003	0.00	0
	Error	67840.455	294	230.75		
	Total	1485919	298			

Table 145 shows that the influence of preschool duration on work habit does not vary by gender of: (a) Standard I students [$F(1, 232) = 0.11, p > .05$] (b) Standard

III students [$F(1, 211) = 0.01, p > .05$] and (c) Standard V students [$F(1, 294) = 0.00, p > .05$]. Among primary standard students, the influence of preschool duration on work habit does not vary significantly by gender.

Gender-wise Influence of Preschool Duration on Interpersonal Relationship. Influence of preschool duration on interpersonal relationship of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 146.

Table 146

Results of 2×2 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1487535.03	1	1487535	16127.08	0.986
	Preschool Duration	3.787	1	3.787	0.04	0
	Gender	25.086	1	25.086	0.27	0.001
	Preschool duration* Gender	35.336	1	35.336	0.38	0.002
	Error	21399.3	232	92.238		
	Total	1717042	236			
III	Intercept	1208487.58	1	1208488	11226.15	0.982
	Preschool Duration	160.297	1	160.297	1.49	0.007
	Gender	48.076	1	48.076	0.45	0.002
	Preschool Duration* Gender	26.28	1	26.28	0.24	0.001
	Error	22714.011	211	107.649		
	Total	1563169	215			
V	Intercept	1158148.4	1	1158148	11660.40	0.975
	Preschool Duration	19.407	1	19.407	0.20	0.001
	Gender	118.731	1	118.731	1.20	0.004
	Preschool Duration* Gender	25.106	1	25.106	0.25	0.001
	Error	29201.033	294	99.323		
	Total	1379003	298			

Table 146 shows that the influence of preschool duration on interpersonal relationship does not vary by gender of: (a) Standard I students [$F(1, 232) = 0.38,$

$p > .05$] (b) Standard III students [$F(1, 211) = 0.24, p > .05$] and (c) Standard V students [$F(1, 294) = 0.25, p > .05$]. Among primary standard students, the influence of preschool duration on interpersonal relationship does not vary significantly by gender.

Gender-wise Influence of Preschool Duration on Cooperation. Influence of preschool duration on Cooperation of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 147.

Table 147

Results of 2×2 ANOVAs of Cooperation of Primary Standard Students by Their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1227993.31	1	1227993	5778.70	0.961
	Preschool Duration	109.441	1	109.441	0.52	0.002
	Gender	1241.28	1	1241.28	5.84	0.025
	Preschool Duration* Gender	65.207	1	65.207	0.31	0.001
	Error	49300.816	232	212.504		
	Total	1454040	236			
III	Intercept	1052234.85	1	1052235	4214.61	0.952
	Preschool Duration	685.052	1	685.052	2.74	0.013
	Gender	155.103	1	155.103	0.62	0.003
	Preschool Duration* Gender	12.497	1	12.497	0.05	0
	Error	52679.032	211	249.664		
	Total	1383310	215			
V	Intercept	1362990.02	1	1362990	8000.30	0.965
	Preschool Duration	23.235	1	23.235	0.14	0
	Gender	181.738	1	181.738	1.07	0.004
	Preschool Duration* Gender	214.124	1	214.124	1.26	0.004
	Error	50087.995	294	170.367		
	Total	1636090	298			

Table 147 shows that the influence of preschool duration on cooperation does not vary by gender of: (a) Standard I students [$F(1, 232) = 0.31, p > .05$] (b) Standard III students [$F(1, 211) = 0.05, p > .05$] and (c) Standard V students [$F(1, 294) = 1.26, p > .05$]. Among primary standard students, the influence of preschool duration on cooperation does not vary significantly by gender.

Gender-wise Influence of Preschool Duration on Communication.

Influence of preschool duration on communication of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 148.

Table 148

Results of 2×2 ANOVAs of Communication of Primary Standard Students by their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1624446.69	1	1624447	7914.80	0.972
	Preschool Duration	173.538	1	173.538	0.85	0.004
	Gender	598.749	1	598.749	2.92	0.012
	Preschool Duration* Gender	54.743	1	54.743	0.27	0.001
	Error	47616.047	232	205.242		
	Total	1882499	236			
III	Intercept	1352597.07	1	1352597	8447.76	0.976
	Preschool Duration	36.6	1	36.6	0.23	0.001
	GENDER	5.217	1	5.217	0.03	0
	Preschool Duration* Gender	1.645	1	1.645	0.01	0
	Error	33783.847	211	160.113		
	Total	1769759	215			
V	Intercept	1868215.4	1	1868215	8755.79	0.968
	Preschool Duration	20.808	1	20.808	0.10	0
	Gender	995.098	1	995.098	4.66	0.016
	Preschool Duration* Gender	133.931	1	133.931	0.63	0.002
	Error	62730.532	294	213.369		
	Total	2249115	298			

Table 148 shows that the influence of preschool duration on communication does not vary by gender of: (a) Standard I students [$F(1, 232) = 0.27, p > .05$] (b) Standard III students [$F(1, 211) = 0.01, p > .05$] and (c) Standard V students [$F(1, 294) = 0.63, p > .05$]. Among primary standard students, the influence of preschool duration on communication does not vary significantly by gender.

Gender-wise Influence of Preschool Duration on Leadership. Influence of preschool duration on leadership of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 149.

Table 149

Results of 2 × 2 ANOVAs of Leadership of Primary Standard Students by their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1272434.14	1	1272434	10647.70	0.979
	Preschool Duration	287.302	1	287.302	2.40	0.01
	Gender	429.124	1	429.124	3.59	0.015
	Preschool Duration* Gender	24.988	1	24.988	0.21	0.001
	Error	27724.73	232	119.503		
	Total	1460383	236			
III	Intercept	1071571.85	1	1071572	11638.57	0.982
	Preschool Duration	5.105	1	5.105	0.06	0
	Gender	410.95	1	410.95	4.46	0.021
	Preschool Duration* Gender	28.626	1	28.626	0.31	0.001
	Error	19426.921	211	92.071		
	Total	1399873	215			
V	Intercept	1286075.29	1	1286075	9921.00	0.971
	Preschool Duration	66.253	1	66.253	0.51	0.002
	Gender	54.49	1	54.49	0.42	0.001
	Preschool Duration* Gender	174.015	1	174.015	1.34	0.005
	Error	38111.7	294	129.632		
	Total	1532044	298			

Table 149 shows that the influence of preschool duration on leadership does not vary by gender of: (a) Standard I students [$F(1, 232) = 0.21, p > .05$] (b) Standard III students [$F(1, 211) = 0.31, p > .05$] and (c) Standard V students [$F(1, 294) = 1.34, p > .05$]. Among primary standard students, the influence of preschool duration on leadership does not vary significantly by gender.

Gender-wise Influence of Preschool Duration on Expressing Emotions.

Influence of preschool duration on Expressing Emotions of Standard I, III and V students by gender were studied using 2 × 2 ANOVAs. Results are given in Table 150.

Table 150

Results of 2×2 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1119833.57	1	1119834	11677.08	0.981
	Preschool Duration	36.516	1	36.516	0.38	0.002
	Gender	451.322	1	451.322	4.71	0.02
	Preschool Duration* Gender	88.448	1	88.448	0.92	0.004
	Error	22248.838	232	95.9		
	Total	1291361	236			
III	Intercept	843151.17	1	843151.2	6971.29	0.971
	Preschool Duration	37.208	1	37.208	0.31	0.001
	Gender	117.312	1	117.312	0.97	0.005
	Preschool Duration* Gender	27.361	1	27.361	0.23	0.001
	Error	25519.653	211	120.946		
	Total	1109217	215			
V	Intercept	1311655.42	1	1311655	8121.93	0.965
	Preschool Duration	61.371	1	61.371	0.38	0.001
	Gender	321.214	1	321.214	1.99	0.007
	Preschool Duration* Gender	74.461	1	74.461	0.46	0.002
	Error	47479.664	294	161.495		
	Total	1586857	298			

Table 150 shows that the influence of preschool duration on expressing emotions does not vary by gender of: (a) Standard I students [$F(1, 232) = 0.92, p > .05$] (b) Standard III students [$F(1, 211) = 0.23, p > .05$] and (c) Standard V students [$F(1, 294) = 0.46, p > .05$]. Among primary standard students, the influence of preschool duration on expressing emotions does not vary significantly by gender.

Gender-wise Influence of Preschool Duration on Controlling Emotions.

Influence of preschool duration on controlling emotions of Standard I, III and V students by gender were studied using 2×2 ANOVAs. Results are given in Table 151.

Table 151

Results of 2 × 2 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschool Duration and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	902146.681	1	902146.7	14634.87	0.984
	Preschool Duration	37.516	1	37.516	0.61	0.003
	Gender	31.784	1	31.784	0.52	0.002
	Preschool Duration* Gender	27.892	1	27.892	0.45	0.002
	Error	14301.326	232	61.644		
	Total	1036862	236			
III	Intercept	769036.343	1	769036.3	11921.10	0.983
	Preschool Duration	67.132	1	67.132	1.04	0.005
	Gender	51.469	1	51.469	0.80	0.004
	Preschool Duration* Gender	1.567	1	1.567	0.02	0
	Error	13611.716	211	64.511		
	Total	1016368	215			
V	Intercept	1296824.93	1	1296825	11870.44	0.976
	Preschool Duration	60.968	1	60.968	0.56	0.002
	Gender	189.035	1	189.035	1.73	0.006
	Preschool Duration* Gender	10.525	1	10.525	0.10	0
	Error	32118.993	294	109.248		
	Total	1541104	298			

Table 151 shows that the influence of preschool duration on controlling emotions does not vary by gender of: (a) Standard I students [$F(1, 232) = 0.45, p > .05$] (b) Standard III students [$F(1, 211) = 0.02, p > .05$] and (c) Standard V students [$F(1, 294) = 0.10, p > .05$]. Among primary standard students, the influence of preschool duration on controlling emotions does not vary significantly by gender.

Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Birth Order

Whether influence of preschool duration on cognitive and socio-emotional outcomes of primary standard students vary by their Birth Order (BO) was studied

using 2×3 ANOVAs. Wherever a significant 2×3 interaction is revealed, further one way Anova of the dependent variable with preschool duration were done for BO separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschool Duration on Cognitive Outcomes by BO

Influence of preschool duration on cognitive outcomes of Standard I, III and V students by their BO were studied and the results are given distinctly.

Influence of Preschool Duration on Vocabulary in Malayalam by BO.

Influence of preschool duration on vocabulary in Malayalam of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 152.

Table 152

Results of 2×3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	811005.311	1	811005.3	1871.977	0.86
	Preschool Duration	77.553	1	77.553	0.179	0.001
	BO	791.12	2	395.56	0.913	0.006
	Preschool Duration* BO	530.757	2	265.379	0.61	0.004
	Error	132136.583	305	433.235		
	Total	1253896	311			
III	Intercept	394044.197	1	394044.2	1107.382	0.8
	Preschool Duration	1278.729	1	1278.729	3.594	0.013
	BO	2079.016	2	1039.508	2.921	0.021
	Preschool Duration* BO	1578.774	2	789.387	2.22	0.016
	Error	98210.196	276	355.834		
	Total	683950	282			
V	Intercept	537320.297	1	537320.3	1711.654	0.802
	Preschool Duration	1023.176	1	1023.176	3.259	0.008
	BO	563.727	2	281.863	0.898	0.004
	Preschool Duration* BO	485.483	2	242.742	0.78	0.004
	Error	132787.636	423	313.919		
	Total	900640	429			

Table 152 shows that the influence of preschool duration on vocabulary in Malayalam does not vary by BO of: (a) Standard I students [$F(2,305) = 0.61, p > .05$] (b) Standard III students [$F(2,276) = 2.22, p > .05$] and (c) Standard V students [$F(2, 423) = 0.78, p > .05$]. Among primary standard students, the influence of preschool duration on vocabulary in Malayalam does not vary significantly by birth order.

Influence of Preschool Duration on Malayalam Comprehension by BO.

Influence of preschool duration on Malayalam Comprehension of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 153.

Table 153

Results of 2×3 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	423002.135	1	423002.1	761.627	0.714
	Preschool Duration	439.466	1	439.466	0.791	0.003
	BO	321.39	2	160.695	0.289	0.002
	Preschool Duration* BO	133.516	2	66.758	0.12	0.001
	Error	169394.825	305	555.393		
	Total	748941	311			
III	Intercept	577595	1	577595	1115.032	0.802
	Preschool Duration	645.654	1	645.654	1.246	0.004
	BO	153.569	2	76.784	0.148	0.001
	Preschool Duration* BO	2151.12	2	1075.56	2.01	0.015
	Error	142970.126	276	518.008		
	Total	993726	282			
V	Intercept	452799.49	1	452799.5	967.79	0.696
	Preschool Duration	886.327	1	886.327	1.894	0.004
	BO	123.957	2	61.979	0.132	0.001
	Preschool Duration* BO	1420.669	2	710.334	1.56	0.007
	Error	197908.828	423	467.87		
	Total	862469	429			

Table 153 shows that the influence of preschool duration on Malayalam comprehension does not vary by BO of: (a) Standard I students [$F(2,305) = 0.12,$

$p > .05$] (b) Standard III students [$F(2,276) = 2.01, p > .05$] and (c) Standard V students [$F(2, 423) = 1.56, p > .05$]. Among primary standard students, the influence of preschool duration on Malayalam comprehension does not vary significantly by BO.

Influence of Preschool Duration on Vocabulary in English by BO.

Influence of preschool duration on Vocabulary in English of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 154.

Table 154

Results of 2×3 ANOVAs of Vocabulary in English of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	861592.066	1	861592.1	1893.61	0.861
	Preschool Duration	2024.287	1	2024.287	4.449	0.014
	BO	1998.956	2	999.478	2.197	0.014
	Preschool Duration* BO	222.395	2	111.197	0.244	0.002
	Error	138774.905	305	455		
	Total		1301847	311		
III	Intercept	331682.033	1	331682	631.467	0.696
	Preschool Duration	2543.942	1	2543.942	4.843	0.017
	BO	2055.33	2	1027.665	1.957	0.014
	Preschool Duration* BO	321.724	2	160.862	0.306	0.002
	Error	144970.688	276	525.256		
	Total		629290	282		
V	Intercept	598994.784	1	598994.8	1380.09	0.765
	Preschool Duration	2918.117	1	2918.117	6.723	0.016
	BO	12.089	2	6.045	0.014	0
	Preschool Duration* BO	308.94	2	154.47	0.34	0.002
	Error	183592.986	423	434.026		
	Total		1026564	429		

Table 154 shows that the influence of preschool duration on vocabulary in English does not vary by BO of: (a) Standard I students [$F(2,305) = 0.24, p > .05$] (b) Standard III students [$F(2,276) = 0.31, p > .05$] and (c) Standard V students [$F(2,$

423) = 0.34, $p > .05$]. Among primary standard students, the influence of preschool duration on vocabulary in English does not vary significantly by BO.

Influence of Preschool Duration on English Comprehension by BO.

Influence of preschool duration on English comprehension of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 155.

Table 155

Results of 2×3 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	346343.824	1	346343.8	666.473	0.686
	Preschool Duration	2972.408	1	2972.408	5.72	0.018
	BO	2037.863	2	1018.932	1.961	0.013
	Preschool Duration* BO	250.599	2	125.3	0.241	0.002
	Error	158498.28	305	519.666		
	Total	624828	311			
III	Intercept	285500.155	1	285500.2	484.185	0.637
	Preschool Duration	3977.506	1	3977.506	6.746	0.024
	BO	1812.665	2	906.333	1.537	0.011
	Preschool Duration* BO	132.5	2	66.25	0.112	0.001
	Error	162743.595	276	589.651		
	Total	570400	282			
V	Intercept	822209.762	1	822209.8	1771.363	0.807
	Preschool Duration	4366.691	1	4366.691	9.408	0.022
	BO	432.407	2	216.204	0.466	0.002
	Preschool Duration* BO	492.272	2	246.136	0.53	0.003
	Error	196343.028	423	464.168		
	Total	1352799	429			

Table 155 shows that the influence of preschool duration on English comprehension does not vary by BO of: (a) Standard I students [$F(2,305) = 0.24$, $p > .05$] (b) Standard III students [$F(2,276) = 0.11$, $p > .05$] and (c) Standard V students [$F(2, 423) = 0.53$, $p > .05$]. Among primary standard students, the influence of preschool duration on English comprehension does not vary significantly by BO.

Influence of Preschool Duration on Achievement in Mathematics by BO.

Influence of preschool duration on Achievement in Mathematics of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 156.

Table 156

Results of 2×3 ANOVAs of Achievement in Mathematics of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	895732.043	1	895732	2551.099	0.893
	Preschool Duration	491.01	1	491.01	1.398	0.005
	BO	2377.861	2	1188.93	3.386	0.022
	Preschool Duration* BO	115.812	2	57.906	0.12	0.001
	Error	107090.429	305	351.116		
	Total	1349683	311			
III	Intercept	457469.094	1	457469.1	947.924	0.774
	Preschool Duration	1710.419	1	1710.419	3.544	0.013
	BO	1639.979	2	819.989	1.699	0.012
	Preschool Duration* BO	194.724	2	97.362	0.22	0.001
	Error	133197.852	276	482.601		
	Total	810682	282			
V	Intercept	740955.884	1	740955.9	2258.92	0.842
	Preschool Duration	1343.345	1	1343.345	4.095	0.01
	BO	129.637	2	64.818	0.198	0.001
	Preschool Duration* BO	127.52	2	63.76	0.19	0.001
	Error	138749.625	423	328.013		
	Total	1184977	429			

Table 156 shows that the influence of preschool duration on achievement in Mathematics does not vary by BO of: (a) Standard I students [$F(2,305) = 0.12$, $p > .05$] (b) Standard III students [$F(2,276) = 0.22$, $p > .05$] and (c) Standard V students [$F(2, 423) = 0.19$, $p > .05$]. Among primary standard students, the influence of preschool duration on achievement in Mathematics does not vary significantly by BO.

Influence of Preschool Duration on Socio-Emotional Outcomes of Primary Standard Students by BO

Influence of preschool duration on socio-emotional outcomes of Standard I, III and V students by BO were studied and the results are given distinctly.

Influence of Preschool Duration on Personal Independence of Primary Standard Students by BO. Influence of preschool duration on personal independence of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 157.

Table 157

Results of 2×3 ANOVAs of Personal Independence of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1344683.3	1	1344683	5802.177	0.962
	Preschool Duration	307.648	1	307.648	1.327	0.006
	BO	496.792	2	248.396	1.072	0.009
	Preschool Duration* BO	799.048	2	399.524	1.72	0.015
	Error	53303.646	230	231.755		
	Total	2004847	236			
III	Intercept	1235952.71	1	1235953	5999.025	0.966
	Preschool Duration	457.143	1	457.143	2.219	0.011
	BO	154.551	2	77.276	0.375	0.004
	Preschool Duration* BO	45.778	2	22.889	0.11	0.001
	Error	43059.353	209	206.026		
	Total	1869297	215			
V	Intercept	1465494.75	1	1465495	9931.415	0.971
	Preschool Duration	279.6	1	279.6	1.895	0.006
	BO	242.652	2	121.326	0.822	0.006
	Preschool Duration* BO	144.438	2	72.219	0.49	0.003
	Error	43087.965	292	147.562		
	Total	2728758	298			

Table 157 shows that the influence of preschool duration on personal independence does not vary by BO of: (a) Standard I students [$F(2,230) = 1.72, p > .05$] (b) Standard III students [$F(2,209) = 0.11, p > .05$] and (c) Standard V students [$F(2,292) = 0.49, p > .05$]. Among primary standard students, the influence of preschool duration on personal independence does not vary significantly by BO.

Influence of Preschool Duration on Academic Independence by BO.

Influence of preschool duration on academic independence of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 158.

Table 158

Results of 2×3 ANOVAs of Academic Independence of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1123006.07	1	1123006	4849.083	0.955
	Preschool Duration	87.828	1	87.828	0.379	0.002
	BO	65.005	2	32.502	0.14	0.001
	Preschool Duration* BO	969.998	2	484.999	2.09	0.018
	Error	53266.029	230	231.591		
	Total	1710406	236			
III	Intercept	1165977.43	1	1165977	5562.269	0.964
	Preschool Duration	223.764	1	223.764	1.067	0.005
	BO	287.004	2	143.502	0.685	0.007
	Preschool Duration* BO	24.709	2	12.355	0.06	0.001
	Error	43811.129	209	209.623		
	Total	1783366	215			
V	Intercept	1202870.14	1	1202870	5424.237	0.949
	Preschool Duration	156.61	1	156.61	0.706	0.002
	BO	185.493	2	92.747	0.418	0.003
	Preschool Duration* BO	72.177	2	36.089	0.16	0.001
	Error	64753.45	292	221.758		
	Total	2267476	298			

Table 158 shows that the influence of preschool duration on academic independence does not vary by BO of: (a) Standard I students [$F(2,230) = 2.09, p > .05$] (b) Standard III students [$F(2,209) = 0.06, p > .05$] and (c) Standard V students [$F(2,292) = 0.16, p > .05$]. Among primary standard students, the influence of preschool duration on academic independence does not vary significantly by BO.

Influence of Preschool Duration on Work Habit by BO. Influence of preschool duration on work habit of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 159.

Table 159

Results of 2 × 3 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	865591.439	1	865591.4	3549.308	0.939
	Preschool Duration	173.327	1	173.327	0.711	0.003
	BO	431.352	2	215.676	0.884	0.008
	Preschool Duration* BO	253.157	2	126.578	0.52	0.004
	Error	56091.498	230	243.876		
	Total	1359898	236			
III	Intercept	706412.67	1	706412.7	3177.994	0.938
	Preschool Duration	1.623	1	1.623	0.007	0
	BO	682.774	2	341.387	1.536	0.014
	Preschool Duration* BO	7.539	2	3.77	0.02	0
	Error	46457.061	209	222.283		
	Total	1127576	215			
V	Intercept	771623.183	1	771623.2	3372.675	0.92
	Preschool Duration	0.64	1	0.64	0.003	0
	BO	68.957	2	34.478	0.151	0.001
	Preschool Duration* BO	1623.258	2	811.629	3.55*	0.024
	Error	66805.719	292	228.787		
	Total	1485919	298			

Note. * $p < .05$

Table 159 shows that the influence of preschool duration on work habit does not vary by BO of: (a) Standard I students [$F(2, 230) = 0.52, p > .05$] and (b) Standard III students [$F(2, 209) = 0.02, p > .05$]. But, the influence of preschool duration on work habit of Standard V students vary significantly by BO [$F(2, 292) = 3.55, p < .05, \eta^2 = 0.02$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on work habit of Standard V first child (up to 2 years: $M = 71.91, SD = 14.42, N = 74$ and > 2 years $M = 64.08, SD = 14.61, N = 37$) [$F(1, 109) = 7.200, p < .05, \eta^2 = .062$], but not among later borns (up to 2 years: $M = 68.54, SD$

=14.24, $N = 110$ and >2 years $M = 69.63$, $SD = 17.24$, $N = 49$) [$F(1, 157) = .176$, $p > .05$] and single child (up to 2 years: $M = 65.65$, $SD = 14.27$, $N = 17$ and >2 years $M = 72.00$, $SD = 20.81$, $N = 11$) [$F(1, 26) = .923$, $p > .05$]. Among first borns, in Standard V students, work habit is higher for those who have up to 2 years preschooling than those who have >2 years preschooling.

Influence of Preschool Duration on Interpersonal Relationship by BO.

Influence of preschool duration on interpersonal relationship of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 160.

Table 160

Results of 2×3 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1136244.58	1	1136245	12525.29	0.982
	Preschool Duration	5.612	1	5.612	0.062	0
	BO	279.906	2	139.953	1.543	0.013
	Preschool Duration* BO	377.562	2	188.781	2.08	0.018
	Error	20864.688	230	90.716		
	Total		1717042	236		
III	Intercept	1044618.09	1	1044618	9645.598	0.979
	Preschool Duration	83.033	1	83.033	0.767	0.004
	BO	8.055	2	4.027	0.037	0
	Preschool Duration* BO	113.632	2	56.816	0.53	0.005
	Error	22634.695	209	108.3		
	Total		1563169	215		
V	Intercept	750072.449	1	750072.4	7522.17	0.963
	Preschool Duration	13.006	1	13.006	0.13	0
	BO	91.558	2	45.779	0.459	0.003
	Preschool Duration* BO	82.946	2	41.473	0.42	0.003
	Error	29116.751	292	99.715		
	Total		1379003	298		

Table 160 shows that the influence of preschool duration on interpersonal relationship does not vary by BO of: (a) Standard I students [$F(2,230) = 2.08$, $p > .05$] (b) Standard III students [$F(2,209) = 0.53$, $p > .05$] and (c) Standard V students [F

(2,292) = 0.42, $p > .05$]. Among primary standard students, the influence of preschool duration on interpersonal relationship does not vary significantly by BO.

Influence of Preschool Duration on Cooperation by BO. Influence of preschool duration on cooperation of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 161.

Table 161

Results of 2×3 ANOVAs of Cooperation of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	931966.994	1	931967	4232.149	0.948
	Preschool Duration	112.227	1	112.227	0.51	0.002
	BO	307.001	2	153.5	0.697	0.006
	Preschool Duration* BO	60.551	2	30.275	0.14	0.001
	Error	50648.594	230	220.211		
	Total	1454040	236			
III	Intercept	894641.743	1	894641.7	3583.86	0.945
	Preschool Duration	316.976	1	316.976	1.27	0.006
	BO	595.31	2	297.655	1.192	0.011
	Preschool Duration* BO	572.494	2	286.247	1.15	0.011
	Error	52172.833	209	249.631		
	Total	1383310	215			
V	Intercept	875985.13	1	875985.1	5271.004	0.948
	Preschool Duration	153.596	1	153.596	0.924	0.003
	BO	51.652	2	25.826	0.155	0.001
	Preschool Duration* BO	1764.017	2	882.008	5.31*	0.035
	Error	48527.312	292	166.189		
	Total	1636090	298			

Note. * $p < .05$

Table 161 shows that the influence of preschool duration on cooperation does not vary by BO of: (a) Standard I students [$F(2, 230) = 0.14, p > .05$] and (b) Standard III students [$F(2, 209) = 1.15, p > .05$]. But, the influence of preschool duration on cooperation of Standard V students vary significantly by BO [$F(2, 292) = 5.31, p < .05, \eta^2 = 0.04$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on cooperation of Standard V later borns (up to 2 years: $M=70.86$, $SD=11.64$, $N=110$ and >2 years $M=76.06$, $SD=14.12$, $N=49$) [$F(1, 157) = 5.908$, $p < .05$, $\eta^2 = .04$] but not among first child (up to 2 years: $M=75.01$, $SD=11.77$, $N=74$ and >2 years $M=70.05$, $SD=16.38$, $N=37$) [$F(1, 109) = 3.346$, $p > .05$], and single child (up to 2 years: $M=76.41$, $SD=13.61$, $N=17$ and >2 years $M=70.36$, $SD=12.10$, $N=11$) [$F(1, 26) = 1.434$, $p > .05$]. Among later borns in Standard V, cooperation is higher among for those who had >2 years preschooling than who had only up to 2 years preschooling.

Influence of Preschool Duration on Communication by BO. Influence of preschool duration on communication of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 162.

Table 162

Results of 2×3 ANOVAs of Communication of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	1254601	1	1254601	6006.94	0	0.963
	Preschool Duration	202.799	1	202.799	0.971	0.325	0.004
	BO	172.251	2	86.125	0.412	0.663	0.004
	Preschool Duration* BO	16.87	2	8.435	0.04	0.96	0
	Error	48037.474	230	208.859			
	Total	1882499	236				
III	Intercept	1171800.78	1	1171801	7284.99	0	0.972
	Preschool Duration	54.929	1	54.929	0.341	0.56	0.002
	BO	79.561	2	39.78	0.247	0.781	0.002
	Preschool Duration* BO	138.193	2	69.097	0.43	0.651	0.004
	Error	33617.942	209	160.851			
	Total	1769759	215				
V	Intercept	1196193.54	1	1196194	5512.421	0	0.95
	Preschool Duration	183.761	1	183.761	0.847	0.358	0.003
	BO	5.007	2	2.504	0.012	0.989	0
	Preschool Duration* BO	294.148	2	147.074	0.68	0.509	0.005
	Error	63363.902	292	217			
	Total	2249115	298				

Table 162 shows that the influence of preschool duration on communication does not vary by BO of: (a) Standard I students [$F(2,230) = 0.04, p > .05$] (b) Standard III students [$F(2,209) = 0.43, p > .05$] and (c) Standard V students [$F(2,292) = 0.68, p > .05$]. Among primary standard students, the influence of preschool duration on communication does not vary significantly by BO.

Influence of Preschool Duration on Leadership by BO. Influence of preschool duration on leadership of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 163.

Table 163

Results of 2×3 ANOVAs of Leadership of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	979816.161	1	979816.2	8134.64	0.973
	Preschool Duration	418.911	1	418.911	3.478	0.015
	BO	339.424	2	169.712	1.409	0.012
	Preschool Duration* BO	205.757	2	102.879	0.85	0.007
	Error	27703.466	230	120.45		
	Total	1460383	236			
III	Intercept	932233.639	1	932233.6	10085.75	0.98
	Preschool Duration	37.2	1	37.2	0.402	0.002
	BO	367.573	2	183.786	1.988	0.019
	Preschool Duration* BO	58.955	2	29.477	0.32	0.003
	Error	19318.028	209	92.431		
	Total	1399873	215			
V	Intercept	822450.815	1	822450.8	6486.342	0.957
	Preschool Duration	125.286	1	125.286	0.988	0.003
	BO	969.053	2	484.527	3.821	0.026
	Preschool Duration* BO	653.275	2	326.638	2.58	0.017
	Error	37024.817	292	126.797		
	Total	1532044	298			

Table 163 shows that the influence of preschool duration on leadership does not vary by BO of: (a) Standard I students [$F(2,230) = 0.85, p > .05$] (b) Standard III students [$F(2,209) = 0.32, p > .05$] and (c) Standard V students [$F(2,292) = 2.58, p > .05$]. Among primary standard students, the influence of preschool duration on leadership does not vary significantly by BO.

Influence of Preschool Duration on Expressing Emotions by BO.

Influence of preschool duration on expressing emotions of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 164.

Table 164

Results of 2×3 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	875101.554	1	875101.6	8982.441	0.975
	Preschool Duration	120.531	1	120.531	1.237	0.005
	BO	218.468	2	109.234	1.121	0.01
	Preschool Duration* BO	185.092	2	92.546	0.95	0.008
	Error	22407.424	230	97.424		
	Total	1291361	236			
III	Intercept	722887.83	1	722887.8	6338.051	0.968
	Preschool Duration	202.921	1	202.921	1.779	0.008
	BO	1708.051	2	854.025	7.488	0.067
	Preschool Duration* BO	144.564	2	72.282	0.63	0.006
	Error	23837.543	209	114.055		
	Total	1109217	215			
V	Intercept	815309.793	1	815309.8	5074.833	0.946
	Preschool Duration	128.797	1	128.797	0.802	0.003
	BO	563.101	2	281.551	1.752	0.012
	Preschool Duration* BO	416.325	2	208.163	1.30	0.009
	Error	46911.975	292	160.657		
	Total	1586857	298			

Table 164 shows that the influence of preschool duration on expressing emotions does not vary by BO of: (a) Standard I students [$F(2,230) = 0.95, p > .05$] (b) Standard III students [$F(2,209) = 0.63, p > .05$] and (c) Standard V students [$F(2,292) = 1.30, p > .05$]. Among primary standard students, the influence of preschool duration on expressing emotions does not vary significantly by BO.

Influence of Preschool Duration on Controlling Emotions by BO.

Influence of preschool duration on controlling emotions of Standard I, III and V students by BO were studied using 2×3 ANOVAs. Results are given in Table 165.

Table 165

Results of 2×3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Preschool Duration and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	702571.819	1	702571.8	11485.16	0.98
	Preschool Duration	89.174	1	89.174	1.458	0.006
	BO	161.864	2	80.932	1.323	0.011
	Preschool Duration* BO	117.832	2	58.916	0.96	0.008
	Error	14069.594	230	61.172		
	Total	1036862	236			
III	Intercept	659292.106	1	659292.1	10340.76	0.98
	Preschool Duration	13.625	1	13.625	0.214	0.001
	BO	158.605	2	79.302	1.244	0.012
	Preschool Duration* BO	81.442	2	40.721	0.64	0.006
	Error	13325.141	209	63.757		
	Total	1016368	215			
V	Intercept	818360.122	1	818360.1	7470.456	0.962
	Preschool Duration	2.647	1	2.647	0.024	0
	BO	189.486	2	94.743	0.865	0.006
	Preschool Duration* BO	207.644	2	103.822	0.95	0.006
	Error	31987.492	292	109.546		
	Total	1541104	298			

Table 165 shows that the influence of preschool duration on controlling emotions does not vary by BO of: (a) Standard I students [$F(2,230) = 0.96, p > .05$] (b) Standard III students [$F(2,209) = 0.64, p > .05$] and (c) Standard V students [$F(2,292) = 0.95, p > .05$]. Among primary standard students, the influence of preschool duration on controlling emotions does not vary significantly by BO.

Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Medium of Instruction

Whether influence of preschool duration on cognitive and socio-emotional outcomes of primary standard students vary by their Medium of Instruction (MoI) was studied by using 2×2 ANOVAs. Wherever a significant 2×2 interaction is revealed, further one way Anova of the dependent variable with preschool duration were done for MoI separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschool Duration on Cognitive Outcomes of Primary Standard Students by MoI

Influence of preschool duration on cognitive outcomes of Standard I, III and V students by their MoI were studied and the results are given distinctly.

Influence of Preschool Duration on Vocabulary in Malayalam by MoI

Influence of preschool duration on vocabulary in Malayalam of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 166.

Table 166

Results of 2 × 2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	815170	1	815170	1978.65	0.866
	Preschool Duration	0.992	1	0.992	0.00	0
	MoI	5700.84	1	5700.84	13.84	0.043
	Preschool Duration * MoI	1.141	1	1.141	0.00	0
	Error	126479	307	411.983		
	Total	1253896	311			
III	Intercept	451848	1	451848	1257.35	0.819
	Preschool Duration	934.042	1	934.042	2.60	0.009
	MoI	1717.98	1	1717.98	4.78	0.017
	Preschool Duration * MoI	228.677	1	228.677	0.64	0.002
	Error	99904	278	359.367		
	Total	683950	282			
V	Intercept	597722	1	597722	1891.85	0.817
	Preschool Duration	1178.08	1	1178.08	3.73	0.009
	MoI	34.962	1	34.962	0.11	0
	Preschool Duration * MoI	160.739	1	160.739	0.51	0.001
	Error	134277	425	315.946		
	Total	900640	429			

Table 166 shows that the influence of preschool duration on vocabulary in Malayalam does not vary by MoI of: (a) Standard I students [$F(1, 307) = 0.00, p > .05$] (b) Standard III students [$F(1, 278) = 0.64, p > .05$] and (c) Standard V students [$F(1, 425) = 0.51, p > .05$]. Among primary standard students, the influence of preschool duration on vocabulary in Malayalam does not vary significantly by MoI.

Influence of Preschool Duration on Malayalam Comprehension by MoI.

Influence of preschool duration on Malayalam comprehension of Standard I, III and V students by MoI were studied using 2 × 2 ANOVAs. Results are given in Table 167.

Table 167

Results of 2 × 2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	423708	1	423708	801.68	0.723
	Preschool Duration	95.499	1	95.499	0.18	0.001
	Mol	5799.1	1	5799.1	10.97	0.035
	Preschool Duration * Mol	1.051	1	1.051	0.00	0
	Error	162257	307	528.52		
	Total	748941	311			
III	Intercept	644472	1	644472	1234.27	0.816
	Preschool Duration	516.25	1	516.25	0.99	0.004
	Mol	864.86	1	864.86	1.66	0.006
	Preschool Duration * Mol	529.45	1	529.45	1.01	0.004
	Error	145157	278	522.15		
	Total	993726	282			
V	Intercept	511856	1	511856	1087.31	0.719
	Preschool Duration	480.92	1	480.92	1.02	0.002
	Mol	28.186	1	28.186	0.06	0
	Preschool Duration * Mol	18.153	1	18.153	0.04	0
	Error	200070	425	470.75		
	Total	862469	429			

Table 167 shows that the influence of preschool duration on Malayalam comprehension does not vary by MoI of: (a) Standard I students [$F(1, 307) = 0.00$, $p > .05$] (b) Standard III students [$F(1, 278) = 1.01$, $p > .05$] and (c) Standard V students [$F(1, 425) = 0.04$, $p > .05$]. There is no interaction between preschool duration and MoI in Malayalam comprehension of primary standard students.

Influence of Preschool Duration on Vocabulary in English by MoI.

Influence of preschool duration on vocabulary in English of Standard I, III and V students by MoI were studied using 2 × 2 ANOVAs. Results are given in Table 168.

Table 168

Results of 2 × 2 ANOVAs of Vocabulary in English of Primary Standard Students by their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	831128.6	1	831128.6	2152.51	0.875
	Preschool Duration	183.834	1	183.834	0.48	0.002
	Mol	21445.73	1	21445.73	55.54	0.153
	Preschool Duration * Mol	1658.717	1	1658.717	4.30*	0.014
	Error	118539	307	386.12		
	Total	1301847	311			
III	Intercept	387946.3	1	387946.3	768.25	0.734
	Preschool Duration	2556.77	1	2556.77	5.06	0.018
	Mol	6269.521	1	6269.521	12.42	0.043
	Preschool Duration * Mol	434.016	1	434.016	0.86	0.003
	Error	140382.7	278	504.974		
	Total	629290	282			
V	Intercept	632807.5	1	632807.5	1493.97	0.779
	Preschool Duration	1498.129	1	1498.129	3.54	0.008
	Mol	3953.863	1	3953.863	9.34	0.021
	Preschool Duration * Mol	948.043	1	948.043	2.24	0.005
	Error	180018.9	425	423.574		
	Total	1026564	429			

Note. * $p < .05$

Table 168 shows that the influence of preschool duration on vocabulary in English does not vary by MoI of: (a) Standard III students [$F(1, 278) = 0.86, p > .05$] and (b) Standard V students [$F(1, 425) = 2.24, p > .05$]. However, the influence of preschooling duration on vocabulary in English of Standard I students vary significantly by MoI [$F(1, 307) = 4.30, p < .05, \eta^2 = 0.014$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on vocabulary in English of Standard I English medium (up to 2 years: $M = 66.30, SD = 17.19, N = 105$ and >2 years $M = 73.48, SD = 14.11, N = 63$) [$F(1, 166) = 7.81, p < .05, \eta^2 = 0.05$], but not among Malayalam medium (up to 2 years: $M = 52.34, SD = 22.18, N = 115$ and >2 years $M = 48.75, SD = 26.82, N = 28$) [$F(1, 141) = 0.54, p > .05$]. Among English medium Standard I students, vocabulary in

English is higher for those who have >2 years preschooling than those who have up to 2 years preschooling.

Influence of Preschool Duration on English Comprehension by MoI.

Influence of preschool duration on English comprehension of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 169.

Table 169

Results of 2×2 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	328863	1	328863	744.43	0.708
	Preschool Duration	326.023	1	326.023	0.74	0.002
	Mol	22843.1	1	22843.1	51.71	0.144
	Preschool Duration * Mol	999.561	1	999.561	2.26	0.007
	Error	135622	307	441.766		
	Total	624828	311			
III	Intercept	334382	1	334382	618.53	0.69
	Preschool Duration	3261.79	1	3261.79	6.03	0.021
	Mol	12012.2	1	12012.2	22.22	0.074
	Preschool Duration * Mol	157.539	1	157.539	0.29	0.001
	Error	150289	278	540.607		
	Total	570400	282			
V	Intercept	892567	1	892567	1936.09	0.82
	Preschool Duration	3038.86	1	3038.86	6.59	0.015
	Mol	1190.58	1	1190.58	2.58	0.006
	Preschool Duration * Mol	320.896	1	320.896	0.70	0.002
	Error	195932	425	461.016		
	Total	1352799	429			

Table 169 shows that the influence of preschool duration on English comprehension does not vary by MoI of: (a) Standard I students [$F(1, 307) = 2.26, p > .05$] (b) Standard III students [$F(1, 278) = 0.29, p > .05$] and (c) Standard V students [$F(1, 425) = 0.70, p > .05$]. Among primary standard students, the influence of preschool duration on English comprehension does not vary significantly by MoI.

Influence of Preschool Duration on Achievement in Mathematics by MoI.

Influence of preschool duration on achievement in Mathematics of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 170.

Table 170

Results of 2×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	903639.6	1	903639.6	2684.73	0.897
	Preschool Duration	44.526	1	44.526	0.13	0
	Mol	5584.33	1	5584.33	16.59	0.051
	Preschool Duration * Mol	171.733	1	171.733	0.51	0.002
	Error	103331.5	307	336.585		
	Total	1349683	311			
III	Intercept	528868.2	1	528868.2	1214.24	0.814
	Preschool Duration	1059.952	1	1059.952	2.43	0.009
	Mol	12187.05	1	12187.05	27.98	0.091
	Preschool Duration * Mol	235.242	1	235.242	0.54	0.002
	Error	121084.7	278	435.557		
	Total	810682	282			
V	Intercept	827280.5	1	827280.5	2601.37	0.86
	Preschool Duration	1054.967	1	1054.967	3.32	0.008
	Mol	883.009	1	883.009	2.78	0.006
	Preschool Duration * Mol	1345.394	1	1345.394	4.23*	0.01
	Error	135157.5	425	318.018		
	Total	1184977	429			

Note. * $p < .05$

Table 170 shows that the influence of preschool duration on achievement in Mathematics does not vary by MoI of: (a) Standard I students [$F(1, 307) = 0.51, p > .05$] and (b) Standard III students [$F(1, 278) = 0.54, p > .05$]. However, the influence of preschooling duration on achievement in Mathematics of Standard V students vary significantly by MoI [$F(1, 425) = 4.23, p < .05, \eta^2 = 0.01$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on achievement in Mathematics of Standard V English medium (up to 2 years: $M = 45.14, SD = 19.99, N = 187$ and > 2 years $M = 52.85, SD$

=16.29, $N = 85$) [$F(1, 270) = 9.69, p < .05, \eta^2 = 0.04$], but not among Malayalam medium (up to 2 years: $M = 52.54, SD = 14.67, N = 115$ and >2 years $M = 52.07, SD = 18.48, N = 42$) [$F(1, 155) = 0.03, p > .05$]. Among Standard V students, in English medium, achievement in Mathematics is higher among those who have >2 years preschooling than those who have up to 2 years preschooling only.

Influence of Preschool Duration on Socio-Emotional Outcomes by MoI

Influence of preschool duration on socio-emotional outcomes of Standard I, III and V students by MoI were studied and the results are given distinctly.

Influence of Preschool Duration on Personal Independence by MoI.

Influence of preschool duration on personal independence of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 171.

Table 171

Results of 2×2 ANOVAs of Personal Independence of Primary Standard Students by their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1323189	1	1323189	5771.86	0.961
	Preschool Duration	107.946	1	107.946	0.47	0.002
	MoI	567.396	1	567.396	2.48	0.011
	Preschool Duration * MoI	1052.21	1	1052.21	4.59*	0.019
	Error	53185.6	232	229.248		
	Total	2004847	236			
III	Intercept	1447118	1	1447118	7110.73	0.971
	Preschool Duration	478.494	1	478.494	2.35	0.011
	MoI	52.588	1	52.588	0.26	0.001
	Preschool Duration * MoI	356.036	1	356.036	1.75	0.008
	Error	42941	211	203.512		
	Total	1869297	215			
V	Intercept	1971222	1	1971222	13343.75	0.978
	Preschool Duration	271.458	1	271.458	1.84	0.006
	MoI	55.149	1	55.149	0.37	0.001
	Preschool Duration * MoI	0.344	1	0.344	0.00	0
	Error	43431.5	294	147.726		
	Total	2728758	298			

Note. * $p < .05$

Table 171 shows that the influence of preschool duration on personal independence does not vary by MoI of: (a) Standard III students [$F(1, 211) = 1.75, p > .05$] and (b) Standard V students [$F(1, 294) = 0.00, p > .05$]. However, the influence of preschooling duration on personal independence of Standard I students vary significantly by MoI [$F(1, 232) = 4.59, p < .05, \eta^2 = 0.019$], though the interaction is small.

But follow up analysis of variance revealed that there is no significant effect of preschool duration on personal independence of Standard I Malayalam medium students (up to 2 years: $M = 91.36, SD = 15.60, N = 78$ and >2 years $M = 84.67, SD = 22.94, N = 18$) [$F(1, 94) = 2.22, p > .05$] and English medium students (up to 2 years: $M = 90.01, SD = 15.39, N = 81$ and >2 years $M = 93.46, SD = 10.64, N = 59$) [$F(1, 138) = 2.19, p > .05$].

Influence of Preschool Duration on Academic Independence by MoI.

Influence of preschool duration on academic independence of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 172.

Table 172

Results of 2×2 ANOVAs of Academic Independence of Primary Standard Students by their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1109447	1	1109447	4887.86	0.955
	Preschool Duration	418.664	1	418.664	1.84	0.008
	MoI	1408.46	1	1408.46	6.21	0.026
	Preschool Duration * MoI	881.832	1	881.832	3.89*	0.016
	Error	52659.3	232	226.98		
	Total	1710406	236			
III	Intercept	1344563	1	1344563	6456.41	0.968
	Preschool Duration	155.91	1	155.91	0.75	0.004
	MoI	206.176	1	206.176	0.99	0.005
	Preschool Duration * MoI	0.166	1	0.166	0.00	0
	Error	43941.3	211	208.252		
Total	1783366	215				
V	Intercept	1612521	1	1612521	7292.15	0.961
	Preschool Duration	82.593	1	82.593	0.37	0.001
	MoI	32.351	1	32.351	0.15	0
	Preschool Duration * MoI	22.285	1	22.285	0.10	0
	Error	65012.5	294	221.131		
Total	2267476	298				

Note. * $p < .05$

Table 172 shows that the influence of preschool duration on academic independence does not vary by MoI of: (a) Standard III students [$F(1, 211)=0.00, p>.05$] and (b) Standard V students [$F(1, 294) = 0.10, p>.05$]. However, the influence of preschooling duration on academic independence of Standard I students vary significantly by MoI [$F(1,232)=3.89, p<.05, \eta^2= 0.016$], though the interaction is small.

But follow up analysis of variance revealed that preschool duration does not significantly influence academic independence of Standard I Malayalam medium students (up to 2 years: $M =83.28, SD =16.35, N =78$ and >2 years $M =75.44, SD =21.10, N =18$) [$F(1, 94) = 3.00, p>.05$], and English medium students (up to 2 years: $M =84.51, SD =14.22, N =81$ and >2 years $M =85.95, SD =11.98, N =59$) [$F(1,138) = 0.40, p>.05$].

Influence of Preschool Duration on Work Habit by MoI. Influence of preschool duration on work habit of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 173.

Table 173

Results of 2×2 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	913095.7	1	913095.7	3710.31	0.941
	Preschool Duration	60.689	1	60.689	0.25	0.001
	MoI	55.621	1	55.621	0.23	0.001
	Preschool Duration * MoI	11.159	1	11.159	0.05	0
	Error	57094.43	232	246.097		
	Total	1359898	236			
III	Intercept	840907.3	1	840907.3	3782.93	0.947
	Preschool Duration	21.387	1	21.387	0.10	0
	MoI	215.878	1	215.878	0.97	0.005
	Preschool Duration * MoI	24.581	1	24.581	0.11	0.001
	Error	46903.13	211	222.29		
Total	1127576	215				
V	Intercept	1040855	1	1040855	4510.64	0.939
	Preschool Duration	8.466	1	8.466	0.04	0
	MoI	151.595	1	151.595	0.66	0.002
	Preschool Duration * MoI	612.95	1	612.95	2.66	0.009
	Error	67842.13	294	230.756		
Total	1485919	298				

Table 173 shows that the influence of preschool duration on work habit does not vary by MoI of: (a) Standard I students [$F(1, 232) = 0.05, p > .05$] (b) Standard III students [$F(1, 211) = 0.11, p > .05$] and (c) Standard V students [$F(1, 294) = 2.66, p > .05$]. Among primary standard students, the influence of preschool duration on work habit does not vary significantly by MoI.

Influence of Preschool Duration on Interpersonal Relationship by MoI.

Influence of preschool duration on interpersonal relationship of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 174.

Table 174

Results of 2×2 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1155132	1	1155132	12768.35	0.982
	Preschool Duration	125.1	1	125.1	1.38	0.006
	MoI	426.62	1	426.62	4.72	0.02
	Preschool Duration * MoI	217.31	1	217.31	2.40	0.01
	Error	20988.66	232	90.468		
	Total	1717042	236			
III	Intercept	1218201	1	1218201	11407.74	0.982
	Preschool Duration	216.12	1	216.12	2.02	0.01
	MoI	309.133	1	309.133	2.90	0.014
	Preschool Duration * MoI	29.075	1	29.075	0.27	0.001
	Error	22532.11	211	106.787		
	Total	1563169	215			
V	Intercept	973378.4	1	973378.4	9905.38	0.971
	Preschool Duration	1.035	1	1.035	0.01	0
	MoI	395.692	1	395.692	4.03	0.014
	Preschool Duration * MoI	10.491	1	10.491	0.11	0
	Error	28890.69	294	98.268		
	Total	1379003	298			

Table 174 shows that the influence of preschool duration on interpersonal relationship does not vary by MoI of: (a) Standard I students [$F(1, 232) = 2.40, p > .05$] (b) Standard III students [$F(1, 211) = 0.27, p > .05$] and (c) Standard V students [$F(1, 294) = 0.11, p > .05$]. Among primary standard students, the influence of preschool duration on interpersonal relationship does not vary significantly by MoI.

Influence of Preschool Duration on Cooperation by MoI. Influence of preschool duration on Cooperation of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 175.

Table 175

Results of 2×2 ANOVAs of Cooperation of Primary Standard Students by their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	939504	1	939504	4393.56	0.95
	Preschool Duration	546.089	1	546.089	2.55	0.011
	MoI	333.714	1	333.714	1.56	0.007
	Preschool Duration * MoI	1398.73	1	1398.73	6.54*	0.027
	Error	49610.1	232	213.837		
	Total	1454040	236			
III	Intercept	1067147	1	1067147	4293.79	0.953
	Preschool Duration	731.564	1	731.564	2.94	0.014
	MoI	27.202	1	27.202	0.11	0.001
	Preschool Duration * MoI	474.253	1	474.253	1.91	0.009
	Error	52440.3	211	248.532		
	Total	1383310	215			
V	Intercept	1135001	1	1135001	6752.55	0.958
	Preschool Duration	112.211	1	112.211	0.67	0.002
	MoI	573.035	1	573.035	3.41	0.011
	Preschool Duration * MoI	789.074	1	789.074	4.69*	0.016
	Error	49416.9	294	168.085		
	Total	1636090	298			

Note. * $p < .05$

Table 175 shows that the influence of preschool duration on cooperation does not vary by MoI of Standard III students [$F(1, 211) = 1.91, p > .05$]. However, the influence of preschooling duration on cooperation of Standard I students vary significantly by MoI [$F(1, 232) = 6.54, p < .05, \eta^2 = 0.027$] and Standard V students [$F(1, 294) = 4.69, p < .05, \eta^2 = 0.016$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on cooperation of Standard I Malayalam medium (up to 2 years: $M = 79.05, SD = 13.55, N = 78$ and > 2 years $M = 69.56, SD = 13.79, N = 18$) [$F(1, 94) = 7.14, p < .05, \eta^2 = 0.07$], but not among English medium (up to 2 years: M

=76.06, $SD = 15.17$, $N = 59$ and >2 years $M = 78.25$, $SD = 15.44$, $N = 59$) [$F(1,138) = 0.70$, $p > .05$]. Cooperation is higher among Malayalam medium students who have up to 2 years preschooling than Malayalam medium students who have >2 years preschooling in Standard I.

But follow up analysis of variance revealed that preschool duration does not significantly influence cooperation of Standard V Malayalam medium students (up to 2 years: $M = 73.21$, $SD = 12.39$, $N = 78$ and >2 years $M = 67.96$, $SD = 16.64$, $N = 26$) [$F(1, 102) = 2.92$, $p > .05$], and English medium students (up to 2 years: $M = 72.64$, $SD = 11.80$, $N = 123$ and >2 years $M = 75.01$, $SD = 13.98$, $N = 71$) [$F(1,192) = 1.59$, $p > .05$].

Influence of Preschool Duration on Communication by MoI. Influence of preschool duration on Communication of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 176.

Table 176

Results of 2×2 ANOVAs of Communication of Primary Standard Students by their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1233676	1	1233676	6229.42	0.964
	Preschool Duration	97.571	1	97.571	0.49	0.002
	Mol	1532.384	1	1532.384	7.74	0.032
	Preschool Duration * Mol	1826.747	1	1826.747	9.22**	0.038
	Error	45945.37	232	198.04		
	Total	1882499	236			
III	Intercept	1364848	1	1364848	8566.90	0.976
	Preschool Duration	55.168	1	55.168	0.35	0.002
	Mol	173.972	1	173.972	1.09	0.005
	Preschool Duration * Mol	69.488	1	69.488	0.44	0.002
	Error	33615.8	211	159.317		
	Total	1769759	215			
V	Intercept	1564424	1	1564424	7346.91	0.962
	Preschool Duration	488.798	1	488.798	2.30	0.008
	Mol	275.178	1	275.178	1.29	0.004
	Preschool Duration * Mol	1116.226	1	1116.226	5.24*	0.018
	Error	62603.33	294	212.937		
	Total	2249115	298			

Note. * $p < .05$, ** $p < .001$

Table 176 shows that the influence of preschool duration on communication does not vary by MoI of Standard III students [$F(1, 211) = 0.44, p > .05$]. However, the influence of preschooling duration on communication of Standard I students vary significantly by MoI [$F(1, 232) = 9.22, p < .05, \eta^2 = 0.038$] and Standard V students [$F(1, 294) = 5.24, p < .05, \eta^2 = 0.018$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on communication of Standard I Malayalam medium (up to 2 years: $M = 87.83, SD = 15.94, N = 78$ and >2 years $M = 79.61, SD = 16.02, N = 18$) [$F(1, 94) = 3.89, p < .05, \eta^2 = 0.040$], and English medium (up to 2 years: $M = 87.27, SD = 14.73, N = 81$ and >2 years $M = 92.41, SD = 8.97, N = 59$) [$F(1, 138) = 5.64, p < .05, \eta^2 = 0.039$]. Communication is higher among Malayalam medium students who have up to 2 years preschooling than Malayalam medium students who have >2 years preschooling in Standard I, communication is also higher among English medium students who have >2 years preschooling than English medium students who have up to 2 years preschooling in Standard I.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on communication of Standard V Malayalam medium students (up to 2 years: $M = 87.41, SD = 12.28, N = 78$ and >2 years $M = 79.88, SD = 20.73, N = 26$) [$F(1, 102) = 5.04, p < .05, \eta^2 = 0.047$], but not among English medium students (up to 2 years: $M = 85.13, SD = 14.40, N = 123$ and >2 years $M = 86.66, SD = 14.61, N = 71$) [$F(1, 192) = 0.50, p > .05$]. Communication is also higher among Malayalam medium students who have up to 2 years preschooling than Malayalam medium students who have >2 years preschooling in Standard V.

Influence of Preschool Duration on Leadership by MoI. Influence of preschool duration on leadership of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 177.

Table 177

Results of 2 × 2 ANOVAs of Leadership of Primary Standard Students by their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	971480	1	971480	8418.07	0.973
	Preschool Duration	1.358	1	1.358	0.01	0
	MoI	1273.86	1	1273.86	11.04	0.045
	Preschool Duration * MoI	704.292	1	704.292	6.10*	0.026
	Error	26773.8	232	115.404		
	Total	1460383	236			
III	Intercept	1074373	1	1074373	11455.09	0.982
	Preschool Duration	9.101	1	9.101	0.10	0
	MoI	24.103	1	24.103	0.26	0.001
	Preschool Duration * MoI	13.535	1	13.535	0.14	0.001
	Error	19789.7	211	93.79		
	Total	1399873	215			
V	Intercept	1064311	1	1064311	8508.21	0.967
	Preschool Duration	94.271	1	94.271	0.75	0.003
	MoI	1002.02	1	1002.02	8.01	0.027
	Preschool Duration * MoI	1161.55	1	1161.55	9.29**	0.031
	Error	36777.1	294	125.092		
	Total	1532044	298			

Note. * $p < .05$, ** $p < .001$

Table 177 shows that the influence of preschool duration on leadership does not vary by MoI of Standard III students [$F(1, 211) = 0.14, p > .05$]. However, the influence of preschooling duration on leadership of Standard I students vary significantly by MoI [$F(1, 232) = 6.10, p < .05, \eta^2 = 0.026$] and Standard V students [$F(1, 294) = 9.29, p < .05, \eta^2 = 0.031$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on leadership of Standard I English medium students (up to 2 years: $M = 77.81, SD = 10.07, N = 81$ and >2 years $M = 81.78, SD = 9.00, N = 59$) [$F(1, 138) = 5.78, p < .05, \eta^2 = 0.04$], but not among Malayalam medium students (up to 2 years: $M = 76.38, SD = 11.59, N = 78$ and >2 years $M = 72.06, SD = 14.63, N = 18$) [$F(1, 94) = 1.84, p > .05$]. Leadership is higher among English medium students who have >2 years preschooling than English medium students who have up to 2 years preschooling in Standard I.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on leadership of Standard V Malayalam medium students (up to 2 years: $M = 70.74$, $SD = 9.42$, $N = 78$ and >2 years $M = 64.81$, $SD = 15.21$, $N = 26$) [$F(1, 102) = 5.56$, $p < .05$, $\eta^2 = 0.05$], and English medium students (up to 2 years: $M = 70.41$, $SD = 10.67$, $N = 123$ and >2 years $M = 73.72$, $SD = 12.11$, $N = 71$) [$F(1, 192) = 3.90$, $p < .05$, $\eta^2 = 0.020$]. Leadership is higher among Malayalam medium students who have up to 2 years preschooling than Malayalam medium students who have >2 years preschooling in Standard V. Leadership is also higher among English medium students who have >2 years preschooling than English medium students who have up to 2 years preschooling in Standard V.

Influence of Preschool Duration on Expressing Emotions by MoI.

Influence of preschool duration on expressing emotions of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 178.

Table 178

Results of 2×2 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	874527	1	874527	9002.14	0.975
	Preschool Duration	0.227	1	0.227	0.00	0
	MoI	166.915	1	166.915	1.72	0.007
	Preschool Duration * MoI	38.001	1	38.001	0.39	0.002
	Error	22538	232	97.147		
	Total	1291361	236			
III	Intercept	850981	1	850981	7133.26	0.971
	Preschool Duration	27.796	1	27.796	0.23	0.001
	MoI	410.687	1	410.687	3.44	0.016
	Preschool Duration * MoI	8.118	1	8.118	0.07	0
	Error	25171.8	211	119.298		
	Total	1109217	215			
V	Intercept	1117466	1	1117466	6882.12	0.959
	Preschool Duration	60.628	1	60.628	0.37	0.001
	MoI	2.509	1	2.509	0.02	0
	Preschool Duration * MoI	44.241	1	44.241	0.27	0.001
	Error	47737.5	294	162.372		
	Total	1586857	298			

Table 178 shows that the influence of preschool duration on expressing emotions does not vary by MoI of: (a) Standard I students [$F(1, 232) = 0.39, p > .05$] (b) Standard III students [$F(1, 211) = 0.07, p > .05$] and (c) Standard V students [$F(1, 294) = 0.27, p > .05$]. Among primary standard students, the influence of preschool duration on expressing emotions does not vary significantly by MoI.

Influence of Preschool Duration on Controlling Emotions by MoI.

Influence of preschool duration on controlling emotions of Standard I, III and V students by MoI were studied using 2×2 ANOVAs. Results are given in Table 179.

Table 179

Results of 2×2 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschool Duration and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	702989	1	702989	11554.12	0.98
	Preschool Duration	0.113	1	0.113	0.00	0
	MoI	229.49	1	229.49	3.77	0.016
	Preschool Duration * MoI	44.42	1	44.42	0.73	0.003
	Error	14115.6	232	60.843		
	Total	1036862	236			
III	Intercept	778093	1	778093	12101.50	0.983
	Preschool Duration	60.253	1	60.253	0.94	0.004
	MoI	6.74	1	6.74	0.11	0
	Preschool Duration * MoI	115.947	1	115.947	1.80	0.008
	Error	13566.7	211	64.297		
	Total	1016368	215			
V	Intercept	1103876	1	1103876	10046.49	0.972
	Preschool Duration	22.313	1	22.313	0.20	0.001
	MoI	7.826	1	7.826	0.07	0
	Preschool Duration * MoI	1.071	1	1.071	0.01	0
	Error	32303.8	294	109.877		
	Total	1541104	298			

Table 179 shows that the influence of preschool duration on controlling emotions does not vary by MoI of: (a) Standard I students [$F(1, 232) = 0.73, p > .05$] (b) Standard III students [$F(1, 211) = 1.80, p > .05$] and (c) Standard V students [$F(1, 294) = 0.01, p > .05$]. Among primary standard students, the influence of preschool duration on controlling emotions does not vary significantly by MoI.

Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Father's Educational Qualification

Whether influence of preschool duration on cognitive and socio-emotional outcomes of primary standard students vary by their Father's Educational Qualification (FEQ) was studied by using 2×3 ANOVAs. Wherever a significant 2×3 interaction is revealed, further one way Anova of the dependent variable with preschool duration were done for FEQ separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschool Duration on Cognitive Outcomes of Primary Standard Students by FEQ

Influence of preschool duration on cognitive outcomes of Standard I, III and V students by their FEQ were studied and the results are given distinctly.

Influence of Preschool Duration on Vocabulary in Malayalam by FEQ.

Influence of preschool duration on vocabulary in Malayalam of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 180.

Table 180

Results of 2 × 3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	872265.242	1	872265.2	2032.94	0	0.87
	Preschool Duration	7.112	1	7.112	0.02	0.898	0
	FEQ	2891.147	2	1445.573	3.37	0.036	0.022
	Preschool Duration* FEQ	554.694	2	277.347	0.65	0.525	0.004
	Error	130865.112	305	429.066			
	Total	1253896	311				
III	Intercept	453616.275	1	453616.3	1330.70	0	0.828
	Preschool Duration	513.498	1	513.498	1.51	0.221	0.005
	FEQ	6041.93	2	3020.965	8.86	0	0.06
	Preschool Duration* FEQ	1505.948	2	752.974	2.21	0.112	0.016
	Error	94084.589	276	340.886			
	Total	683950	282				
V	Intercept	603717.947	1	603717.9	1947.43	0	0.822
	Preschool Duration	1037.493	1	1037.493	3.35	0.068	0.008
	FEQ	2421.565	2	1210.782	3.91	0.021	0.018
	Preschool Duration* FEQ	86.617	2	43.309	0.14	0.87	0.001
	Error	131133.145	423	310.007			
	Total	900640	429				

Table 180 shows that the influence of preschool duration on vocabulary in Malayalam does not vary by FEQ of: (a) Standard I students [$F(2,305) = 0.65, p > .05$] (b) Standard III students [$F(2,276) = 2.21, p > .05$] and (c) Standard V students [$F(2,423) = 0.14, p > .05$]. Among primary standard students, the influence of preschooling duration on vocabulary in Malayalam does not vary significantly by FEQ.

Influence of Preschool Duration on Malayalam Comprehension by FEQ. Influence of preschool duration on Malayalam comprehension of Standard I, III and V students by FEQ were studied using 2 × 3 ANOVAs. Results are given in Table 181.

Table 181

Results of 2 × 3 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	455066.868	1	455066.9	846.45	0.735
	Preschool Duration	47.96	1	47.96	0.09	0
	FEQ	5492.568	2	2746.284	5.11	0.032
	Preschool Duration* FEQ	1213.965	2	606.983	1.13	0.007
	Error	163973.001	305	537.616		
	Total	748941	311			
III	Intercept	612946.657	1	612946.7	1177.30	0.81
	Preschool Duration	841.143	1	841.143	1.62	0.006
	FEQ	1440.785	2	720.393	1.38	0.01
	Preschool Duration* FEQ	1720.433	2	860.217	1.65	0.012
	Error	143696.429	276	520.639		
	Total	993726	282			
V	Intercept	534175.695	1	534175.7	1160.57	0.733
	Preschool Duration	313.552	1	313.552	0.68	0.002
	FEQ	5090.246	2	2545.123	5.53	0.025
	Preschool Duration* FEQ	272.125	2	136.062	0.30	0.001
	Error	194694.123	423	460.27		
	Total	862469	429			

Table 181 shows that the influence of preschool duration on Malayalam comprehension does not vary by FEQ of: (a) Standard I students [$F(2,305) = 1.13$, $p > .05$] (b) Standard III students [$F(2,276) = 1.65$, $p > .05$] and (c) Standard V students [$F(2,423) = 0.30$, $p > .05$]. Among primary standard students, the influence of preschooling duration on Malayalam comprehension does not vary significantly by FEQ.

Influence of Preschool Duration on Vocabulary in English by FEQ.

Influence of preschool duration on vocabulary in English of Standard I, III and V students by FEQ were studied using 2 × 3 ANOVAs. Results are given in Table 182.

Table 182

Results of 2 × 3 ANOVAs of Vocabulary in English of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	917890.674	1	917890.7	2160.63	0.876
	Preschool Duration	734.892	1	734.892	1.73	0.006
	FEQ	11311.246	2	5655.623	13.31	0.08
	Preschool Duration* FEQ	3158.665	2	1579.332	3.72*	0.024
	Error	129571.609	305	424.825		
	Total	1301847	311			
III	Intercept	405947.963	1	405948	843.03	0.753
	Preschool Duration	1439.722	1	1439.722	2.99	0.011
	FEQ	11672.415	2	5836.207	12.12	0.081
	Preschool Duration* FEQ	1594.531	2	797.266	1.66	0.012
	Error	132903.66	276	481.535		
	Total	629290	282			
V	Intercept	717966.73	1	717966.7	1806.30	0.81
	Preschool Duration	1587.144	1	1587.144	3.99	0.009
	FEQ	13286.444	2	6643.222	16.71	0.073
	Preschool Duration* FEQ	261.605	2	130.802	0.33	0.002
	Error	168134.008	423	397.48		
	Total	1026564	429			

Note. * $p < .05$

Table 182 shows that the influence of Preschooling Status on vocabulary in English does not vary by FEQ of: (a) Standard III students [$F(2,276) = 1.66, p > .05$] and (b) Standard V students [$F(2,423) = 0.33, p > .05$]. But, the influence of preschool duration on vocabulary in English of Standard I students vary significantly by FEQ [$F(2,305) = 3.72, p < .05, \eta^2 = 0.02$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on vocabulary in English of Standard I students having above secondary FEQ (upto 2 years: $M = 65.89, SD = 20.81, N = 44$ and > 2 years $M = 75.60, SD = 13.92, N = 35$) [$F(1,77) = 5.619, p < .05, \eta^2 = 0.07$], but not among the students having below secondary FEQ (up to 2 years: $M = 56.77, SD = 20.33, N = 98$ and > 2 years $M = 49.61, SD = 24.67, N = 21$) [$F(1,117) = 1.977, p > .05$] and the

students having secondary FEQ (upto 2 years: $M = 57.94$, $SD = 21.65$, $N = 78$ and >2 years $M = 65.89$, $SD = 21.69$, $N = 35$) [$F(1,111) = 3.254$, $p > .05$]. Among Standard I students with above secondary FEQ, vocabulary in English is higher for those who had >2 years preschooling than those who had up to 2 years preschooling only.

Influence of Preschool Duration on English Comprehension by FEQ.

Influence of preschool duration on English comprehension of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 183.

Table 183

Results of 2×3 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	371826.192	1	371826.2	789.62	0.721
	Preschool Duration	598.098	1	598.098	1.27	0.004
	FEQ	16978.779	2	8489.39	18.03	0.106
	Preschool Duration * FEQ	3912.09	2	1956.045	4.15*	0.027
	Error	143623.021	305	470.895		
	Total	624828	311			
III	Intercept	352892.176	1	352892.2	650.77	0.702
	Preschool Duration	2366.96	1	2366.96	4.37	0.016
	FEQ	10731.932	2	5365.966	9.90	0.067
	Preschool Duration * FEQ	4135.142	2	2067.571	3.81*	0.027
	Error	149667.1	276	542.272		
	Total	570400	282			
V	Intercept	976664.191	1	976664.2	2255.82	0.842
	Preschool Duration	2835.502	1	2835.502	6.55	0.015
	FEQ	13335.896	2	6667.948	15.40	0.068
	Preschool Duration * FEQ	136.137	2	68.069	0.16	0.001
	Error	183139.493	423	432.954		
	Total	1352799	429			

Note. * $p < .05$

Table 183 shows that the influence of preschool duration on English comprehension does not vary by FEQ of Standard V students [$F(2,423) = 0.16$, $p > .05$]. But, the influence of preschool duration on English comprehension of

Standard I [$F(2,305) = 4.15, p < .05, \eta^2 = 0.03$] and Standard III students [$F(2,276) = 3.81, p < .05, \eta^2 = 0.03$] students vary significantly by FEQ, though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on English comprehension of Standard I students having above secondary FEQ (upto 2 years: $M = 44.32, SD = 22.38, N = 44$ and >2 years $M = 53.89, SD = 19.86, N = 35$) [$F(1,77) = 3.932, p < .05, \eta^2 = 0.05$], but not among the students having below secondary FEQ (upto 2 years: $M = 32.13, SD = 21.51, N = 98$ and >2 years $M = 23.43, SD = 16.56, N = 21$) [$F(1,117) = 3.04, p > .05$] and the students having FEQ at secondary level (upto 2 years: $M = 37.08, SD = 22.98, N = 78$ and >2 years $M = 45.71, SD = 22.77, N = 35$) [$F(1,111) = 3.42, p > .05$]. Among Standard I students with above secondary FEQ, English comprehension is higher for those who had >2 years preschooling than those who had upto 2 years preschooling only.

In Standard III, there is significant, but small effect of preschool duration on English comprehension of students having secondary FEQ (upto 2 years: $M = 33.16, SD = 20.13, N = 76$ and >2 years $M = 53.09, SD = 28.61, N = 21$) [$F(1,95) = 13.286, p < .05, \eta^2 = 0.12$], but not among the students having below secondary FEQ (upto 2 years: $M = 31.90, SD = 20.92, N = 105$ and >2 years $M = 34.82, SD = 20.70, N = 28$) [$F(1,131) = 0.43, p > .05$] and the students having above secondary FEQ (upto 2 years: $M = 52.17, SD = 31.64, N = 30$ and >2 years $M = 50.22, SD = 28.26, N = 22$) [$F(1,50) = 0.820, p > .05$]. Among Standard III students with FEQ at secondary level, English comprehension is higher for those with >2 years preschooling than those with up to 2 years preschooling only.

Influence of Preschool Duration on Achievement in Mathematics by FEQ. Influence of preschool duration on achievement in Mathematics of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 184.

Table 184

Results of 2 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	963155.072	1	963155.1	2749.08	0.9
	Preschool Duration	155.264	1	155.264	0.44	0.001
	FEQ	2475.327	2	1237.663	3.53	0.023
	Preschool Duration* FEQ	1345.075	2	672.538	1.92	0.012
	Error	106858.343	305	350.355		
	Total	1349683	311			
III	Intercept	530222.506	1	530222.5	1146.35	0.806
	Preschool Duration	956.049	1	956.049	2.07	0.007
	FEQ	6537.661	2	3268.831	7.07	0.049
	Preschool Duration* FEQ	877.292	2	438.646	0.95	0.007
	Error	127658.696	276	462.532		
	Total	810682	282			
V	Intercept	846083.043	1	846083	2641.98	0.862
	Preschool Duration	1273.841	1	1273.841	3.98	0.009
	FEQ	3432.381	2	1716.191	5.36	0.025
	Preschool Duration* FEQ	63.006	2	31.503	0.10	0
	Error	135463.998	423	320.246		
	Total	1184977	429			

Table 184 shows that the influence of preschool duration on achievement in Mathematics does not vary by FEQ of: (a) Standard I students [$F(2,305) = 1.92$, $p > .05$] (b) Standard III students [$F(2,276) = 0.95$, $p > .05$] and (c) Standard V students [$F(1, 423) = 0.10$, $p > .05$]. Among primary standard students, the influence of preschooling duration on achievement in Mathematics does not vary significantly by FEQ.

Influence of Preschool Duration on Socio-Emotional Outcomes by FEQ

Influence of preschool duration on socio-emotional outcomes of Standard I, III and V students by their FEQ were studied and the results are given distinctly.

Influence of Preschool Duration on Personal Independence by FEQ.

Influence of preschool duration on Personal Independence of Standard I, III and V

students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 185.

Table 185

Results of 2×3 ANOVAs of Personal Independence of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1194717.04	1	1194717	5142.44	0.957
	Preschool Duration	60.791	1	60.791	0.26	0.001
	FEQ	643.29	2	321.645	1.38	0.012
	Preschool Duration* FEQ	662.612	2	331.306	1.43	0.012
	Error	53434.779	230	232.325		
	Total	2004847	236			
III	Intercept	1404284.68	1	1404285	7034.05	0.971
	Preschool Duration	372.641	1	372.641	1.87	0.009
	FEQ	602.262	2	301.131	1.51	0.014
	Preschool Duration* FEQ	370.166	2	185.083	0.93	0.009
	Error	41724.956	209	199.641		
	Total	1869297	215			
V	Intercept	2253618.79	1	2253619	15194.95	0.981
	Preschool Duration	277.67	1	277.67	1.87	0.006
	FEQ	154.916	2	77.458	0.52	0.004
	Preschool Duration* FEQ	78.376	2	39.188	0.26	0.002
	Error	43307.602	292	148.314		
	Total	2728758	298			

Table 185 shows that the influence of preschool duration on personal independence does not vary by FEQ of: (a) Standard I students [$F(2,230) = 1.43, p > .05$] (b) Standard III students [$F(2,209) = 0.93, p > .05$] and (c) Standard V students [$F(2,292) = 0.26, p > .05$]. Among primary standard students, the influence of preschooling duration on personal independence does not vary significantly by FEQ.

Influence of Preschool Duration on Academic Independence by FEQ.

Influence of preschool duration on academic independence of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 186.

Table 186

Results of 2 × 3 ANOVAs of Academic Independence of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	992960.848	1	992960.8	4370.39	0.95
	Preschool Duration	361.111	1	361.111	1.59	0.007
	FEQ	1215.632	2	607.816	2.68	0.023
	Preschool Duration* FEQ	1461.041	2	730.52	3.22*	0.027
	Error	52256.441	230	227.202		
	Total	1710406	236			
III	Intercept	1298920.38	1	1298920	6373.09	0.968
	Preschool Duration	118.401	1	118.401	0.58	0.003
	FEQ	680.839	2	340.419	1.67	0.016
	Preschool Duration* FEQ	1574.182	2	787.091	3.86*	0.036
	Error	42596.99	209	203.813		
	Total	1783366	215			
V	Intercept	1844376.86	1	1844377	8290.52	0.966
	Preschool Duration	47.93	1	47.93	0.22	0.001
	FEQ	8.563	2	4.282	0.02	0
	Preschool Duration* FEQ	146.26	2	73.13	0.33	0.002
	Error	64960.676	292	222.468		
	Total	2267476	298			

Note. * $p < .05$

Table 186 shows that the influence of preschool duration on academic independence does not vary by FEQ of Standard V students [$F(2,292) = 0.33, p > .05$]. But, the influence of preschool duration on academic independence of Standard I [$F(2,230) = 3.22, p < .05, \eta^2 = 0.03$] and Standard III [$F(2,209) = 3.86, p < .05, \eta^2 = 0.04$] students vary significantly by FEQ, though the interaction is small.

But follow up analysis of variance revealed that there is no significant effect of preschool duration on academic independence of Standard 1 students having below secondary FEQ (up to 2 years: $M = 82.84, SD = 16.54, N = 43$ and >2 years $M = 71.50, SD = 22.58, N = 8$) [$F(1,49) = 2.820, p > .05$], secondary FEQ (up to 2 years: $85.43, SD = 12.75, N = 74$ and >2 years $M = 82.53, SD = 15.15, N = 34$) [$F(1,106) = 1.070, p > .05$] and above secondary FEQ (up to 2 years: $M = 82.31, SD = 17.88, N = 42$ and >2 years $M = 87.17, SD = 11.67, N = 35$) [$F(1,75) = 1.908, p > .05$]. It seems that among Standard I students with FEQ at above secondary level, academic independence is more for those have longer preschooling.

In Standard III, there is significant, but small effect of preschool duration on academic independence of students having secondary FEQ (upto 2 years: $M = 91.63$, $SD = 11.33$, $N = 70$ and >2 years $M = 82.80$, $SD = 20.58$, $N = 20$) [$F(1,88) = 6.311$, $p < .05$, $\eta^2 = 0.07$], but not among the students having below secondary FEQ (up to 2 years: 89.08 , $SD = 17.76$, $N = 58$ and >2 years $M = 95.12$, $SD = 6.95$, $N = 17$) [$F(1,73) = 1.862$, $p > .05$] and the students having above secondary FEQ (up to 2 years: $M = 90.62$, $SD = 13.62$, $N = 29$ and >2 years $M = 88.29$, $SD = 9.34$, $N = 21$) [$F(1,48) = 0.459$, $p > .05$]. In Standard III, Academic independence is higher among students having secondary FEQ and up to 2 years preschooling than that of students having secondary FEQ and >2 years preschooling.

Influence of Preschool Duration on Work Habit by FEQ. Influence of preschool duration on work habit of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 187.

Table 187

Results of 2×3 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	804804.025	1	804804	3258.62	0.934
	Preschool Duration	0.023	1	0.023	0.00	0
	FEQ	215.503	2	107.752	0.44	0.004
	Preschool Duration* FEQ	124.409	2	62.204	0.25	0.002
	Error	56804.749	230	246.977		
	Total	1359898	236			
III	Intercept	809176.997	1	809177	3621.10	0.945
	Preschool Duration	4.38	1	4.38	0.02	0
	FEQ	7.106	2	3.553	0.02	0
	Preschool Duration* FEQ	400.411	2	200.205	0.90	0.009
	Error	46703.526	209	223.462		
	Total	1127576	215			
V	Intercept	1160664.43	1	1160664	5088.16	0.946
	Preschool Duration	159.821	1	159.821	0.70	0.002
	FEQ	1095.37	2	547.685	2.40	0.016
	Preschool Duration* FEQ	607.861	2	303.931	1.33	0.009
	Error	66608.374	292	228.111		
	Total	1485919	298			

Table 187 shows that the influence of preschool duration on work habit does not vary by FEQ of: (a) Standard I students [$F(2,230) = 0.25, p > .05$] (b) Standard III students [$F(2,209) = 0.90, p > .05$] and (c) Standard V students [$F(2,292) = 1.33, p > .05$]. Among primary standard students, the influence of preschool duration on work habit does not vary significantly by FEQ.

Influence of Preschool Duration on Interpersonal Relationship by FEQ.

Influence of preschool duration on interpersonal relationship of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 188.

Table 188

Results of 2×3 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	1037775.3	1	1037775	11411.42	0	0.98
	Preschool Duration	141.643	1	141.643	1.56	0.213	0.007
	FEQ	357.165	2	178.582	1.96	0.143	0.017
	Preschool Duration * FEQ	422.37	2	211.185	2.32	0.1	0.02
	Error	20916.626	230	90.942			
	Total	1717042	236				
III	Intercept	1169183.21	1	1169183	11113.70	0	0.982
	Preschool Duration	290.879	1	290.879	2.77	0.098	0.013
	FEQ	728.168	2	364.084	3.46	0.033	0.032
	Preschool Duration * FEQ	204.33	2	102.165	0.97	0.38	0.009
	Error	21987.209	209	105.202			
	Total	1563169	215				
V	Intercept	1112017.7	1	1112018	11406.01	0	0.975
	Preschool Duration	59.115	1	59.115	0.61	0.437	0.002
	FEQ	326.113	2	163.057	1.67	0.19	0.011
	Preschool Duration * FEQ	303.306	2	151.653	1.56	0.213	0.011
	Error	28468.258	292	97.494			
	Total	1379003	298				

Table 188 shows that the influence of preschool duration on interpersonal relationship does not vary by FEQ of: (a) Standard I students [$F(2,230) = 2.32, p > .05$] (b) Standard III students [$F(2,209) = 0.97, p > .05$] and (c) Standard V students [$F(2,292) = 1.56, p > .05$]. Among primary standard students, the influence of preschool duration on Malayalam comprehension does not vary significantly by FEQ.

Influence of Preschool Duration on Cooperation by FEQ. Influence of preschool duration on cooperation of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 189.

Table 189

Results of 2×3 ANOVAs of Cooperation of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	849095.247	1	849095.2	3905.81	0.944
	Preschool Duration	335.698	1	335.698	1.54	0.007
	FEQ	714.51	2	357.255	1.64	0.014
	Preschool Duration* FEQ	533.318	2	266.659	1.23	0.011
	Error	50000.316	230	217.393		
	Total	1454040	236			
III	Intercept	1013596.07	1	1013596	4116.00	0.952
	Preschool Duration	1101.843	1	1101.843	4.47	0.021
	FEQ	913.431	2	456.715	1.86	0.017
	Preschool Duration* FEQ	210.431	2	105.215	0.43	0.004
	Error	51467.817	209	246.257		
	Total	1383310	215			
V	Intercept	1314806.02	1	1314806	8006.45	0.965
	Preschool Duration	7.45	1	7.45	0.05	0
	FEQ	1822.68	2	911.34	5.55	0.037
	Preschool Duration* FEQ	1282.981	2	641.491	3.91*	0.026
	Error	47951.747	292	164.218		
	Total	1636090	298			

Note. * $p < .05$

Table 189 shows that the influence of preschool duration on cooperation does not vary by FEQ of: (a) Standard I students [$F(2,230) = 1.23, p > .05$] and (b) Standard III students [$F(2,209) = 0.43, p > .05$]. But, the influence of preschool duration on cooperation of Standard V [$F(2,292) = 3.91, p < .05, \eta^2 = 0.026$] students vary significantly by FEQ, though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on cooperation of Standard V students having below secondary FEQ (up to 2 years: $M = 72.48, SD = 12.25, N = 65$ and > 2 years $M = 65.70, SD = 12.75, N = 27$) [$F(1,90) = 5.70, p < .05, \eta^2 = 0.06$], but not among the students having secondary

FEQ (up to 2 years: 72.76, SD =12.01, N =96 and >2 years M =73.95, SD =14.60, N =37) [$F(1,131) = 0.230, p > .05$] and the students having above secondary FEQ (up to 2 years: M =73.73, SD =11.86, N =40 and >2 years M =78.27, SD =15.07, N =33) [$F(1,71) = 2.083, p > .05$]. Cooperation is higher among Standard V students having below secondary FEQ and up to 2 years preschooling than that of students having below secondary FEQ and >2 years preschooling.

Influence of Preschool Duration on Communication by FEQ. Influence of preschool duration on communication of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 190.

Table 190

Results of 2×3 ANOVAs of Communication of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1118751.86	1	1118752	5494.13	0.96
	Preschool Duration	7.838	1	7.838	0.04	0
	FEQ	1207.064	2	603.532	2.96	0.025
	Preschool Duration* FEQ	540.095	2	270.047	1.33	0.011
	Error	46834.193	230	203.627		
	Total	1882499	236			
III	Intercept	1308347.65	1	1308348	8251.45	0.975
	Preschool Duration	75.413	1	75.413	0.48	0.002
	FEQ	417.784	2	208.892	1.32	0.012
	Preschool Duration* FEQ	45.134	2	22.567	0.14	0.001
	Error	33139.001	209	158.56		
	Total	1769759	215			
V	Intercept	1800998.49	1	1800998	8351.82	0.966
	Preschool Duration	64.363	1	64.363	0.30	0.001
	FEQ	505.606	2	252.803	1.17	0.008
	Preschool Duration* FEQ	24.104	2	12.052	0.06	0
	Error	62967.301	292	215.641		
	Total	2249115	298			

Table 190 shows that the influence of preschool duration on communication does not vary by FEQ of: (a) Standard I students [$F(2,230) = 1.33, p > .05$] (b)

Standard III students [$F(2,209) = 0.14, p > .05$] and (c) Standard V students [$F(2,292) = 0.06, p > .05$]. Among primary standard students, the influence of preschooling duration on communication does not vary significantly by FEQ.

Influence of Preschool Duration on Leadership by FEQ. Influence of preschool duration on leadership of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 191.

Table 191

Results of 2×3 ANOVAs of Leadership of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	893572.675	1	893572.7	7414.10	0.97
	Preschool Duration	69.623	1	69.623	0.58	0.003
	FEQ	387.89	2	193.945	1.61	0.014
	Preschool Duration* FEQ	27.441	2	13.721	0.11	0.001
	Error	27720.371	230	120.523		
	Total	1460383	236			
III	Intercept	1037133.99	1	1037134	11101.08	0.982
	Preschool Duration	3.199	1	3.199	0.03	0
	FEQ	332.488	2	166.244	1.78	0.017
	Preschool Duration* FEQ	102.521	2	51.26	0.55	0.005
	Error	19526.116	209	93.426		
	Total	1399873	215			
V	Intercept	1246824.74	1	1246825	9545.68	0.97
	Preschool Duration	21.375	1	21.375	0.16	0.001
	FEQ	129.037	2	64.518	0.49	0.003
	Preschool Duration* FEQ	51.59	2	25.795	0.20	0.001
	Error	38140.064	292	130.617		
	Total	1532044	298			

Table 191 shows that the influence of preschool duration on leadership does not vary by FEQ of: (a) Standard I students [$F(2,230) = 0.11, p > .05$] (b) Standard III students [$F(2,209) = 0.55, p > .05$] and (c) Standard V students [$F(2,292) = 0.20, p > .05$]. Among primary standard students, the influence of preschooling duration on leadership does not vary significantly by FEQ.

Influence of Preschool Duration on Expressing Emotions by FEQ.

Influence of preschool duration on expressing emotions of Standard I, III and V students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 192.

Table 192

Results of 2×3 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	788154.465	1	788154.5	8253.22	0.973
	Preschool Duration	6.204	1	6.204	0.07	0
	FEQ	389.121	2	194.56	2.04	0.017
	Preschool Duration* FEQ	264.106	2	132.053	1.38	0.012
	Error	21964.215	230	95.497		
	Total	1291361	236			
III	Intercept	821689.55	1	821689.6	6987.88	0.971
	Preschool Duration	23.442	1	23.442	0.20	0.001
	FEQ	585.321	2	292.66	2.49	0.023
	Preschool Duration* FEQ	60.286	2	30.143	0.26	0.002
	Error	24575.868	209	117.588		
	Total	1109217	215			
V	Intercept	1265908.19	1	1265908	7941.27	0.965
	Preschool Duration	137.975	1	137.975	0.87	0.003
	FEQ	1048.65	2	524.325	3.29	0.022
	Preschool Duration* FEQ	288.62	2	144.31	0.91	0.006
	Error	46547.356	292	159.409		
	Total	1586857	298			

Table 192 shows that the influence of preschool duration on expressing emotions does not vary by FEQ of: (a) Standard I students [$F(2,230) = 1.38, p > .05$] (b) Standard III students [$F(2,209) = 0.26, p > .05$] and (c) Standard V students [$F(2,292) = 0.91, p > .05$]. Among primary standard students, the influence of preschooling duration on expressing emotions does not vary significantly by FEQ.

Influence of Preschool Duration on Controlling Emotions by FEQ.

Influence of preschool duration on controlling emotions of Standard I, III and V

students by FEQ were studied using 2×3 ANOVAs. Results are given in Table 193.

Table 193

Results of 2×3 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschool Duration and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	632708.432	1	632708.4	10420.86	0.978
	Preschool Duration	0.365	1	0.365	0.01	0
	FEQ	287.697	2	143.849	2.37	0.02
	Preschool Duration* FEQ	177.564	2	88.782	1.46	0.013
	Error	13964.58	230	60.716		
	Total	1036862	236			
III	Intercept	746732.814	1	746732.8	11980.62	0.983
	Preschool Duration	33.878	1	33.878	0.54	0.003
	FEQ	146.995	2	73.497	1.18	0.011
	Preschool Duration* FEQ	242.383	2	121.191	1.94	0.018
	Error	13026.631	209	62.328		
	Total	1016368	215			
V	Intercept	1252171.85	1	1252172	11786.45	0.976
	Preschool Duration	34.558	1	34.558	0.33	0.001
	FEQ	777.501	2	388.751	3.66	0.024
	Preschool Duration* FEQ	673.809	2	336.905	3.17*	0.021
	Error	31021.573	292	106.238		
	Total	1541104	298			

Note. * $p < .05$

Table 193 shows that the influence of preschool duration on controlling emotions does not vary by FEQ of: (a) Standard I students [$F(2,230) = 1.46, p > .05$] and (b) Standard III students [$F(2,209) = 1.94, p > .05$]. But, the influence of preschool duration on controlling emotions of Standard V [$F(2,292) = 3.17, p < .05, \eta^2 = 0.021$] students vary significantly by FEQ, though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on controlling emotions of Standard V students

having above secondary FEQ (up to 2 years: $M = 70.38$, $SD = 9.54$, $N = 40$ and >2 years $M = 75.94$, $SD = 13.74$, $N = 33$) [$F(1,71) = 4.145$, $p < .05$, $\eta^2 = 0.06$], but not among the students having below secondary FEQ (up to 2 years: 69.75 , $SD = 9.00$, $N = 65$ and >2 years $M = 67.52$, $SD = 12.49$, $N = 27$) [$F(1,90) = 0.928$, $p > .05$] and the students having secondary FEQ (up to 2 years: $M = 71.93$, $SD = 9.58$, $N = 96$ and >2 years $M = 70.84$, $SD = 9.81$, $N = 37$) [$F(1,131) = 0.341$, $p > .05$]. Among Standard V students with above secondary FEQ, controlling emotions is higher for those with >2 years preschooling than those with upto 2 years preschooling only.

Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Mother's Educational Qualification

Whether influence of preschool duration on cognitive and socio-emotional outcomes of primary standard students vary by their Mother's Educational Qualification (MEQ) was studied by using 2×3 ANOVAs. Wherever a significant 2×3 interaction is revealed, further one way Anova of the dependent variable with preschool duration were done for MEQ separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschool Duration on Cognitive Outcomes by MEQ

Influence of preschool duration on cognitive outcomes of Standard I, III and V students by their MEQ were studied and the results are given distinctly.

Influence of Preschool Duration on Vocabulary in Malayalam by MEQ.

Influence of preschool duration on vocabulary in Malayalam of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 194.

Table 194

Results of 2 × 3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	825506.754	1	825506.8	1921.14	0	0.863
	Preschool Duration	814.521	1	814.521	1.90	0.17	0.006
	MEQ	563.065	2	281.532	0.66	0.52	0.004
	Preschool Duration* MEQ	1872.133	2	936.067	2.18	0.115	0.014
	Error	131057.582	305	429.697			
	Total	1253896	311				
III	Intercept	418454.637	1	418454.6	1181.54	0	0.811
	Preschool Duration	1240.542	1	1240.542	3.50	0.062	0.013
	MEQ	3832.248	2	1916.124	5.41	0.005	0.038
	Preschool Duration* MEQ	1125.987	2	562.994	1.59	0.206	0.011
	Error	97748.55	276	354.161			
	Total	683950	282				
V	Intercept	642198.495	1	642198.5	2062.34	0	0.83
	Preschool Duration	1049.872	1	1049.872	3.37	0.067	0.008
	MEQ	1541.891	2	770.946	2.48	0.085	0.012
	Preschool Duration* MEQ	307.996	2	153.998	0.50	0.61	0.002
	Error	131719.018	423	311.392			
	Total	900640	429				

Table 194 shows that the influence of preschool duration on vocabulary in Malayalam does not vary by MEQ of: (a) Standard I students [$F(2,305) = 2.18, p > .05$] (b) Standard III students [$F(2,276) = 1.59, p > .05$] and (c) Standard V students [$F(2,423) = 0.50, p > .05$]. Among primary standard students, the influence of preschooling duration on vocabulary in Malayalam does not vary significantly by MEQ.

Influence of Preschool Duration on Malayalam Comprehension by MEQ.

Influence of preschool duration on Malayalam comprehension of Standard I, III and V students by MEQ were studied using 2 × 3 ANOVAs. Results are given in Table 195.

Table 195

Results of 2 × 3 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	427588.345	1	427588.3	801.20	0.724
	Preschool Duration	1352.181	1	1352.181	2.53	0.008
	MEQ	2691.19	2	1345.595	2.52	0.016
	Preschool Duration* MEQ	4000.756	2	2000.378	3.75*	0.024
	Error	162773.616	305	533.684		
	Total	748941	311			
III	Intercept	580138.933	1	580138.9	1139.52	0.805
	Preschool Duration	455.351	1	455.351	0.89	0.003
	MEQ	4174.029	2	2087.014	4.10	0.029
	Preschool Duration* MEQ	3227.954	2	1613.977	3.17*	0.022
	Error	140514.34	276	509.11		
	Total	993726	282			
V	Intercept	554174.904	1	554174.9	1200.76	0.739
	Preschool Duration	642.443	1	642.443	1.39	0.003
	MEQ	4706.686	2	2353.343	5.10	0.024
	Preschool Duration* MEQ	474.538	2	237.269	0.51	0.002
	Error	195222.873	423	461.52		
	Total	862469	429			

Note. * $p < .05$

Table 195 shows that the influence of Preschool duration on Malayalam comprehension does not vary by MEQ of Standard V students [$F(2,423) = 0.51$, $p > .05$]. But, the influence of preschool duration on vocabulary in English of Standard I [$F(2,305) = 3.75$, $p < .05$, $\eta^2 = 0.02$] and Standard III students [$F(2,276) = 3.17$, $p < .05$, $\eta^2 = 0.02$] students vary significantly by MEQ, though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on Malayalam comprehension of Standard I students having secondary MEQ (up to 2 years: $M = 37.97$, $SD = 20.01$, $N = 59$ and >2 years $M = 54.90$, $SD = 27.17$, $N = 20$) [$F(1,77) = 8.85$, $p < .05$, $\eta^2 = 0.10$], but not among the students having below secondary MEQ (up to 2 years: $M = 38.45$, $SD = 23.04$, $N = 65$ and >2 years $M = 38.71$, $SD = 16.37$, $N = 21$) [$F(1,84) = .00$, $p > .05$] and the students having above secondary MEQ (up to 2 years: $M = 47.16$, $SD = 24.52$, $N = 96$ and >2

years $M = 44.68$, $SD = 24.35$, $N = 50$) [$F(1,144) = 0.34$, $p > .05$]. Among Standard I students with MEQ at secondary level Malayalam comprehension is higher for those with >2 years preschooling than those with up to 2 years preschooling only.

In Standard III, there is no significant effect of preschool duration on Malayalam comprehension of students having below secondary MEQ (up to 2 years: $M = 53.91$, $SD = 21.74$, $N = 81$ and >2 years $M = 45.64$, $SD = 27.06$, $N = 22$) [$F(1,101) = 2.250$, $p > .05$], the students having below secondary MEQ (up to 2 years: $M = 38.45$, $SD = 23.04$, $N = 65$ and >2 years $M = 38.71$, $SD = 16.37$, $N = 21$) [$F(1,84) = .002$, $p > .05$] and the students having above secondary MEQ (up to 2 years: $M = 47.16$, $SD = 24.52$, $N = 96$ and >2 years $M = 44.68$, $SD = 24.35$, $N = 50$) [$F(1,144) = 0.337$, $p > .05$].

Influence of Preschool Duration on English Vocabulary by MEQ.

Influence of preschool duration on English vocabulary of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 196.

Table 196

Results of 2×3 ANOVAs of English Vocabulary of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	845323.904	1	845323.9	1897.77	0	0.862
	Preschool Duration	1972.961	1	1972.961	4.43	0.036	0.014
	MEQ	4120.104	2	2060.052	4.63	0.011	0.029
	Preschool Duration* MEQ	2020.338	2	1010.169	2.27	0.105	0.015
	Error	135856.004	305	445.43			
	Total	1301847	311				
III	Intercept	351015.756	1	351015.8	703.03	0	0.718
	Preschool Duration	2885.304	1	2885.304	5.78	0.017	0.021
	MEQ	8332.054	2	4166.027	8.34	0	0.057
	Preschool Duration* MEQ	2264.514	2	1132.257	2.27	0.105	0.016
	Error	137803.21	276	499.287			
	Total	629290	282				
V	Intercept	715038.949	1	715038.9	1714.62	0	0.802
	Preschool Duration	2606.82	1	2606.82	6.25	0.013	0.015
	MEQ	6297.917	2	3148.958	7.55	0.001	0.034
	Preschool Duration* MEQ	55.222	2	27.611	0.07	0.936	0
	Error	176401.79	423	417.026			
	Total	1026564	429				

Table 196 shows that the influence of preschool duration on vocabulary in English does not vary by MEQ of: (a) Standard I students [$F(2,305) = 2.27, p > .05$] (b) Standard III students [$F(2,276) = 2.27, p > .05$] and (c) Standard V students [$F(2,423) = 0.07, p > .05$]. Among primary standard students, the influence of preschooling duration on vocabulary in English does not vary significantly by MEQ.

Influence of Preschool Duration on English Comprehension by MEQ.

Influence of preschool duration on English comprehension of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 197.

Table 197

Results of 2×3 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	332427.431	1	332427.4	671.47	0.688
	Preschool Duration	2075.474	1	2075.474	4.19	0.014
	MEQ	7697.767	2	3848.883	7.77	0.049
	Preschool Duration*MEQ	3023.002	2	1511.501	3.05*	0.02
	Error	150997.482	305	495.074		
	Total		624828	311		
III	Intercept	302526.883	1	302526.9	524.30	0.655
	Preschool Duration	3990.251	1	3990.251	6.92	0.024
	MEQ	5185.081	2	2592.541	4.49	0.032
	Preschool Duration*MEQ	1432.403	2	716.202	1.24	0.009
	Error	159254.3	276	577.008		
	Total		570400	282		
V	Intercept	989540.836	1	989540.8	2224.94	0.84
	Preschool Duration	4247.349	1	4247.349	9.55	0.022
	MEQ	6108.4	2	3054.2	6.87	0.031
	Preschool Duration*MEQ	978.549	2	489.275	1.10	0.005
	Error	188128.652	423	444.749		
	Total		1352799	429		

Note. * $p < .05$

Table 197 shows that the influence of preschool duration on English comprehension does not vary by MEQ of: (a) Standard III students [$F(2,276) = 1.24, p > .05$] and (b) Standard V students [$F(2,423) = 1.10, p > .05$]. But, the influence of preschool duration on English comprehension of Standard I [$F(2,305) = 3.05, p < .05, \eta^2 = 0.02$] students vary significantly by MEQ, though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on English comprehension of Standard I students having secondary MEQ (up to 2 years: $M = 31.68, SD = 21.94, N = 59$ and >2 years $M = 46.75, SD = 27.20, N = 20$) [$F(1,77) = 6.226, p < .05, \eta^2 = 0.08$], and the students having above secondary MEQ (up to 2 years: $M = 41.00, SD = 22.25, N = 96$ and >2 years $M = 48.58, SD = 20.48, N = 50$) [$F(1,144) = 3.974, p < .05, \eta^2 = 0.05$], but not among the students having below secondary MEQ (up to 2 years: $M = 33.65, SD = 22.37, N = 65$ and >2 years $M = 29.24, SD = 20.68, N = 21$) [$F(1,84) = 0.638, p > .05$]. Among Standard I students with secondary or above MEQ, English comprehension is higher for those with >2 years preschooling than those with up to 2 years preschooling only.

Influence of Preschool Duration on Achievement in Mathematics by MEQ. Influence of preschool duration on achievement in Mathematics of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 198.

Table 198

Results of 2 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	908239.942	1	908239.9	2566.89	0.894
	Preschool Duration	775.727	1	775.727	2.19	0.007
	MEQ	869.578	2	434.789	1.23	0.008
	Preschool Duration* MEQ	834.999	2	417.499	1.18	0.008
	Error	107917.661	305	353.828		
	Total	1349683	311			
III	Intercept	477341.676	1	477341.7	1020.74	0.787
	Preschool Duration	1651.853	1	1651.853	3.53	0.013
	MEQ	5385.485	2	2692.742	5.76	0.04
	Preschool Duration* MEQ	1809.53	2	904.765	1.94	0.014
	Error	129069.787	276	467.644		
	Total	810682	282			
V	Intercept	881881.224	1	881881.2	2726.49	0.866
	Preschool Duration	1861.506	1	1861.506	5.76	0.013
	MEQ	2191.711	2	1095.856	3.39	0.016
	Preschool Duration* MEQ	555.017	2	277.508	0.86	0.004
	Error	136819.296	423	323.45		
	Total	1184977	429			

Table 198 shows that the influence of preschool duration on achievement in Mathematics does not vary by MEQ of: (a) Standard I students [$F(2,305) = 1.18, p > .05$] (b) Standard III students [$F(2,276) = 1.94, p > .05$] and (c) Standard V students [$F(2,423) = 0.86, p > .05$]. Among primary standard students, the influence of preschooling duration on achievement in Mathematics does not vary significantly by MEQ.

Influence of Preschool Duration on Socio-Emotional Outcomes of Primary Standard Students by MEQ

Influence of preschool duration on socio-emotional outcomes of Standard I, III and V students by their MEQ were studied and the results are given distinctly.

Influence of Preschool Duration on Personal Independence by MEQ.

Influence of preschool duration on personal independence of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 199.

Table 199

Results of 2×3 ANOVAs of Personal Independence of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	919723.385	1	919723.4	3954.96	0.945
	Preschool Duration	20.077	1	20.077	0.09	0
	MEQ	790.912	2	395.456	1.70	0.015
	Preschool Duration* MEQ	217.295	2	108.648	0.47	0.004
	Error	53486.351	230	232.549		
	Total	2004847	236			
III	Intercept	1192844.3	1	1192844	5895.77	0.966
	Preschool Duration	340.308	1	340.308	1.68	0.008
	MEQ	921.64	2	460.82	2.28	0.021
	Preschool Duration* MEQ	158.75	2	79.375	0.39	0.004
	Error	42285.299	209	202.322		
	Total	1869297	215			
V	Intercept	1723508.86	1	1723509	11718.95	0.976
	Preschool Duration	460.012	1	460.012	3.13	0.011
	MEQ	368.19	2	184.095	1.25	0.009
	Preschool Duration* MEQ	183.508	2	91.754	0.62	0.004
	Error	42944.513	292	147.07		
	Total	2728758	298			

Table 199 shows that the influence of preschool duration on personal independence does not vary by MEQ of: (a) Standard I students [$F(2,230) = 0.47, p > .05$] (b) Standard III students [$F(2,209) = 0.39, p > .05$] and (c) Standard V students [$F(2,292) = 0.62, p > .05$]. Among primary standard students, the influence of preschooling duration on personal independence does not vary significantly by MEQ.

Influence of Preschool Duration on Academic Independence by MEQ.

Influence of preschool duration on academic independence of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 200.

Table 200

Results of 2 × 3 ANOVAs of Academic Independence of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	756587.343	1	756587.3	3281.66	0.935
	Preschool Duration	14.854	1	14.854	0.06	0
	MEQ	1122.098	2	561.049	2.43	0.021
	Preschool Duration* MEQ	57.952	2	28.976	0.13	0.001
	Error	53026.631	230	230.551		
	Total		1710406	236		
III	Intercept	1124000.34	1	1124000	5522.54	0.964
	Preschool Duration	109.825	1	109.825	0.54	0.003
	MEQ	1640.908	2	820.454	4.03	0.037
	Preschool Duration* MEQ	665.836	2	332.918	1.64	0.015
	Error	42537.717	209	203.53		
	Total		1783366	215		
V	Intercept	1434661.22	1	1434661	6520.07	0.957
	Preschool Duration	177.137	1	177.137	0.81	0.003
	MEQ	557.794	2	278.897	1.27	0.009
	Preschool Duration* MEQ	527.279	2	263.639	1.20	0.008
	Error	64251.033	292	220.038		
	Total		2267476	298		

Table 200 shows that the influence of preschool duration on academic independence does not vary by MEQ of: (a) Standard I students [$F(2,230) = 0.13, p > .05$] (b) Standard III students [$F(2,209) = 1.64, p > .05$] and (c) Standard V students [$F(2,292) = 1.20, p > .05$]. Among primary standard students, the influence of preschooling duration on academic independence does not vary significantly by MEQ.

Influence of Preschool Duration on Work Habit by MEQ. Influence of preschool duration on work habit of Standard I, III and V students by MEQ were studied using 2 × 3 ANOVAs. Results are given in Table 201.

Table 201

Results of 2 × 3 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	627787.288	1	627787.3	2572.61	0.918
	Preschool Duration	473.776	1	473.776	1.94	0.008
	MEQ	292.897	2	146.449	0.60	0.005
	Preschool Duration* MEQ	610.392	2	305.196	1.25	0.011
	Error	56126.402	230	244.028		
	Total	1359898	236			
III	Intercept	689396.68	1	689396.7	3105.40	0.937
	Preschool Duration	1.526	1	1.526	0.01	0
	MEQ	333.859	2	166.93	0.75	0.007
	Preschool Duration* MEQ	165.943	2	82.971	0.37	0.004
	Error	46397.906	209	222		
	Total	1127576	215			
V	Intercept	902482.711	1	902482.7	3871.52	0.93
	Preschool Duration	272.392	1	272.392	1.17	0.004
	MEQ	239.583	2	119.792	0.51	0.004
	Preschool Duration* MEQ	230.751	2	115.376	0.50	0.003
	Error	68067.508	292	233.108		
	Total	1485919	298			

Table 201 shows that the influence of preschool duration on work habit does not vary by MEQ of: (a) Standard I students [$F(2,230) = 1.25, p > .05$] (b) Standard III students [$F(2,209) = 0.37, p > .05$] and (c) Standard V students [$F(2,292) = 0.50, p > .05$]. Among primary standard students, the influence of preschooling duration on work habit does not vary significantly by MEQ.

Influence of Preschool Duration on Interpersonal Relationship by MEQ.

Influence of preschool duration on interpersonal relationship of Standard I, III and V students by MEQ were studied using 2 × 3 ANOVAs. Results are given in Table 202.

Table 202

Results of 2 × 3 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	810349.764	1	810349.8	8765.55	0.974
	Preschool Duration	31.338	1	31.338	0.34	0.001
	MEQ	13.19	2	6.595	0.07	0.001
	Preschool Duration* MEQ	137.083	2	68.541	0.74	0.006
	Error	21262.833	230	92.447		
	Total	1717042	236			
III	Intercept	1020178.18	1	1020178	9493.74	0.978
	Preschool Duration	404.669	1	404.669	3.77	0.018
	MEQ	152.905	2	76.452	0.71	0.007
	Preschool Duration* MEQ	350.926	2	175.463	1.63	0.015
	Error	22458.726	209	107.458		
	Total	1563169	215			
V	Intercept	869030.235	1	869030.2	8714.02	0.968
	Preschool Duration	15.783	1	15.783	0.16	0.001
	MEQ	124.866	2	62.433	0.63	0.004
	Preschool Duration* MEQ	35.686	2	17.843	0.18	0.001
	Error	29120.538	292	99.728		
	Total	1379003	298			

Table 202 shows that the influence of preschool duration on interpersonal relationship does not vary by MEQ of: (a) Standard I students [$F(2,230) = 0.74, p > .05$] (b) Standard III students [$F(2,209) = 1.63, p > .05$] and (c) Standard V students [$F(2,292) = 0.18, p > .05$]. Among primary standard students, the influence of preschooling duration on interpersonal relationship does not vary significantly by MEQ.

Influence of Preschool Duration on Cooperation by MEQ. Influence of preschool duration on cooperation of Standard I, III and V students by MEQ were studied using 2 × 3 ANOVAs. Results are given in Table 203.

Table 203

Results of 2 × 3 ANOVAs of Cooperation of Primary Standard Students by Their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	665692.413	1	665692.4	3017.44	0	0.929
	Preschool Duration	0.142	1	0.142	0.00	0.98	0
	MEQ	192.679	2	96.34	0.44	0.647	0.004
	Preschool Duration* MEQ	73.928	2	36.964	0.17	0.846	0.001
	Error	50741.508	230	220.615			
	Total	1454040	236				
III	Intercept	881468.213	1	881468.2	3565.55	0	0.945
	Preschool Duration	957.986	1	957.986	3.88	0.05	0.018
	MEQ	39.026	2	19.513	0.08	0.924	0.001
	Preschool Duration* MEQ	715.054	2	357.527	1.45	0.238	0.014
	Error	51668.631	209	247.218			
	Total	1383310	215				
V	Intercept	1002455.87	1	1002456	5997.03	0	0.954
	Preschool Duration	44.575	1	44.575	0.27	0.606	0.001
	MEQ	291.907	2	145.953	0.87	0.419	0.006
	Preschool Duration* MEQ	1419.947	2	709.973	4.25*	0.015	0.028
	Error	48810.341	292	167.159			
	Total	1636090	298				

Note. * $p < .05$

Table 203 shows that the influence of preschool duration on cooperation does not vary by MEQ of: (a) Standard I students [$F(2,230) = 0.17, p > .05$] and (b) Standard III students [$F(2,209) = 1.45, p > .05$]. But, the influence of preschool duration on cooperation of Standard V students [$F(2,292) = 4.25, p < .05, \eta^2 = 0.03$] students vary significantly by MEQ, though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on cooperation of Standard V students having above secondary MEQ (up to 2 years: $M = 71.24, SD = 11.88, N = 88$ and > 2 years $M = 76.31, SD = 16.29, N = 51$) [$F(1,137) = 4.461, p < .05, \eta^2 = 0.03$], but not among the students having below secondary MEQ (up to 2 years: $M = 72.55, SD = 12.68, N =$

=20 and >2 years $M = 69.31$, $SD = 11.03$, $N = 16$) [$F(1,34) = 0.649$, $p > .05$] and the students having secondary MEQ (up to 2 years: $M = 74.46$, $SD = 11.91$, $N = 93$ and >2 years $M = 69.73$, $SD = 13.59$, $N = 30$) [$F(1,121) = 3.337$, $p > .05$]. Among Standard V students with above secondary MEQ, cooperation is higher for those > 2 years preschooling than those with up to 2 years preschooling only.

Influence of Preschool Duration on Communication by MEQ. Influence of preschool duration on communication of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 204.

Table 204

Results of 2×3 ANOVAs of Communication of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	867720.839	1	867720.8	4185.31	0.948
	Preschool Duration	109.701	1	109.701	0.53	0.002
	MEQ	442.913	2	221.456	1.07	0.009
	Preschool Duration* MEQ	201.793	2	100.897	0.49	0.004
	Error	47684.826	230	207.325		
	Total	1882499	236			
III	Intercept	1132637.08	1	1132637	7085.98	0.971
	Preschool Duration	97.525	1	97.525	0.61	0.003
	MEQ	75.71	2	37.855	0.24	0.002
	Preschool Duration* MEQ	383.962	2	191.981	1.20	0.011
	Error	33406.994	209	159.842		
	Total	1769759	215			
V	Intercept	1411727.38	1	1411727	6498.75	0.957
	Preschool Duration	2.048	1	2.048	0.01	0
	MEQ	129.967	2	64.983	0.30	0.002
	Preschool Duration* MEQ	198.647	2	99.324	0.46	0.003
	Error	63431.365	292	217.231		
	Total	2249115	298			

Table 204 shows that the influence of preschool duration on communication does not vary by MEQ of: (a) Standard I students [$F(2,230) = 0.49$, $p > .05$] (b) Standard III students [$F(2,209) = 1.20$, $p > .05$] and (c) Standard V students [$F(2,292) = 0.46$, $p > .05$]. Among primary standard students, the influence of preschooling duration on communication does not vary significantly by MEQ.

Influence of Preschool Duration on Leadership by MEQ. Influence of preschool duration on leadership of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 205.

Table 205

Results of 2×3 ANOVAs of Leadership of Primary Standard Students by Their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	673388.444	1	673388.4	5620.50	0.961
	Preschool Duration	311.469	1	311.469	2.60	0.011
	MEQ	433.424	2	216.712	1.81	0.015
	Preschool Duration* MEQ	62.971	2	31.486	0.26	0.002
	Error	27556.157	230	119.809		
	Total	1460383	236			
III	Intercept	904641.174	1	904641.2	9751.38	0.979
	Preschool Duration	9.519	1	9.519	0.10	0
	MEQ	395.17	2	197.585	2.13	0.02
	Preschool Duration* MEQ	115.765	2	57.883	0.62	0.006
	Error	19389.047	209	92.771		
	Total	1399873	215			
V	Intercept	979437.663	1	979437.7	7514.03	0.963
	Preschool Duration	69.873	1	69.873	0.54	0.002
	MEQ	197.163	2	98.581	0.76	0.005
	Preschool Duration* MEQ	59.108	2	29.554	0.23	0.002
	Error	38061.586	292	130.348		
	Total	1532044	298			

Table 205 shows that the influence of preschool duration on leadership does not vary by MEQ of: (a) Standard I students [$F(2,230) = 0.26, p > .05$] (b) Standard III students [$F(2,209) = 0.62, p > .05$] and (c) Standard V students [$F(2,292) = 0.23, p > .05$]. Among primary standard students, the influence of preschooling duration on leadership does not vary significantly by MEQ.

Influence of Preschool Duration on Expressing Emotions by MEQ. Influence of preschool duration on expressing emotions of Standard I, III and V students by MEQ were studied using 2×3 ANOVAs. Results are given in Table 206.

Table 206

Results of 2 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	611317.152	1	611317.2	6255.57	0.965
	Preschool Duration	132.447	1	132.447	1.36	0.006
	MEQ	17.228	2	8.614	0.09	0.001
	Preschool Duration* MEQ	153.58	2	76.79	0.79	0.007
	Error	22476.427	230	97.724		
	Total	1291361	236			
III	Intercept	692432.962	1	692433	6176.36	0.967
	Preschool Duration	78.351	1	78.351	0.70	0.003
	MEQ	1008.041	2	504.02	4.50	0.041
	Preschool Duration* MEQ	368.791	2	184.396	1.65	0.015
	Error	23431.043	209	112.11		
	Total	1109217	215			
V	Intercept	977266.215	1	977266.2	6092.25	0.954
	Preschool Duration	268.444	1	268.444	1.67	0.006
	MEQ	231.733	2	115.866	0.72	0.005
	Preschool Duration*MEQ	608.289	2	304.145	1.90	0.013
	Error	46840.09	292	160.411		
	Total	1586857	298			

Table 206 shows that the influence of preschool duration on expressing emotions does not vary by MEQ of: (a) Standard I students [$F(2,230) = 0.79, p > .05$] (b) Standard III students [$F(2,209) = 1.65, p > .05$] and (c) Standard V students [$F(2,292) = 1.90, p > .05$]. Among primary standard students, the influence of preschooling duration on expressing emotions does not vary significantly by MEQ.

Influence of Preschool Duration on Controlling Emotions by MEQ.

Influence of preschool duration on controlling emotions of Standard I, III and V students by MEQ were studied using 2 × 3 ANOVAs. Results are given in Table 207.

Table 207

Results of 2 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by their Preschool Duration and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	495113.825	1	495113.8	8035.66	0.972
	Preschool Duration	0.477	1	0.477	0.01	0
	MEQ	20.308	2	10.154	0.17	0.001
	Preschool Duration* MEQ	106.877	2	53.439	0.87	0.007
	Error	14171.348	230	61.615		
	Total	1036862	236			
III	Intercept	640117.399	1	640117.4	10186.24	0.98
	Preschool Duration	19.192	1	19.192	0.31	0.001
	MEQ	146.643	2	73.321	1.17	0.011
	Preschool Duration* MEQ	194.102	2	97.051	1.54	0.015
	Error	13133.845	209	62.841		
	Total	1016368	215			
V	Intercept	972375.979	1	972376	8914.84	0.968
	Preschool Duration	1.599	1	1.599	0.02	0
	MEQ	176.278	2	88.139	0.81	0.006
	Preschool Duration* MEQ	419.691	2	209.846	1.92	0.013
	Error	31849.563	292	109.074		
	Total	1541104	298			

Table 207 shows that the influence of preschool duration on controlling emotions does not vary by MEQ of: (a) Standard I students [$F(2,230) = 0.87, p > .05$] (b) Standard III students [$F(2,209) = 1.54, p > .05$] and (c) Standard V students [$F(2,292) = 1.92, p > .05$]. Among primary standard students, the influence of preschooling duration on controlling emotions does not vary significantly by MEQ.

Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by the Level of Cognitive Engagement Outside the School

Whether influence of preschool duration on cognitive and socio-emotional outcomes of primary standard students vary by the levels of their Cognitive Engagement (CE) was studied using 2 × 2 ANOVAs. Wherever a significant 2 × 2 interaction is revealed, further one way Anova of the dependent variable with preschool

duration were done for the two levels of CE separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Preschool Duration on Cognitive Outcomes of Primary Standard Students by the Level of CE Outside the School

Influence of preschool duration on cognitive outcomes of Standard I, III and V students by their CE were studied and the results are given distinctly.

Influence of Preschool Duration on Vocabulary in Malayalam by the Level of CE Outside the School. Influence of preschool duration on vocabulary in Malayalam of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 208.

Table 208

Results of 2×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	890861.207	1	890861.2	2041.76	0.869
	Preschool Duration	322.653	1	322.653	0.74	0.002
	CE	0.259	1	0.259	0.00	0
	Preschool Duration* CE	13.185	1	13.185	0.03	0
	Error	133950.531	307	436.321		
	Total	1253896	311			
III	Intercept	444696.622	1	444696.6	1245.95	0.818
	Preschool Duration	747.568	1	747.568	2.10	0.007
	CE	2440.169	1	2440.169	6.84	0.024
	Preschool Duration* CE	588.608	1	588.608	1.65	0.006
	Error	99221.769	278	356.913		
	Total	683950	282			
V	Intercept	655212.466	1	655212.5	2074.49	0.83
	Preschool Duration	944.804	1	944.804	2.99	0.007
	CE	181.951	1	181.951	0.58	0.001
	Preschool Duration* CE	1.117	1	1.117	0.00	0
	Error	134232.987	425	315.842		
	Total	900640	429			

Table 208 shows that the influence of preschool duration on vocabulary in Malayalam does not vary by the level of CE of: (a) Standard I students [$F(1, 307) =$

0.03, $p > .05$] (b) Standard III students [$F(1, 278) = 1.65, p > .05$] and (c) Standard V students [$F(1, 425) = 0.00, p > .05$]. Among primary standard students, the influence of preschool duration on vocabulary in Malayalam does not vary significantly by their level of CE.

Influence of Preschool Duration on Malayalam Comprehension by the Level of CE Outside the School. Influence of preschool duration on Malayalam comprehension of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 209.

Table 209

Results of 2×2 ANOVAs of Malayalam Comprehension of Primary Standard Students by their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	450866.933	1	450866.9	828.682	0.73
	Preschool Duration	204.653	1	204.653	0.376	0.001
	CE	2168.412	1	2168.412	3.985	0.013
	Preschool Duration* CE	1934.138	1	1934.138	3.555	0.011
	Error	167031.742	307	544.077		
	Total	748941	311			
III	Intercept	631656.084	1	631656.1	1222.108	0.815
	Preschool Duration	368.909	1	368.909	0.714	0.003
	CE	2014.7	1	2014.7	3.898	0.014
	Preschool Duration* CE	1582.251	1	1582.251	3.061	0.011
	Error	143686.515	278	516.858		
	Total	993726	282			
V	Intercept	562277.174	1	562277.2	1200.633	0.739
	Preschool Duration	355.322	1	355.322	0.759	0.002
	CE	977.027	1	977.027	2.086	0.005
	Preschool Duration* CE	14.841	1	14.841	0.032	0
	Error	199034.861	425	468.317		
	Total	862469	429			

Table 209 shows that the influence of preschool duration on Malayalam comprehension does not vary by the level of CE of: (a) Standard I students [$F(1, 307) = 3.55, p > .05$] (b) Standard III students [$F(1, 278) = 3.06, p > .05$] and (c) Standard V students [$F(1, 425) = 0.03, p > .05$]. Among primary standard students,

the influence of preschool duration on Malayalam comprehension does not vary significantly by their level of CE.

Influence of Preschool Duration on Vocabulary in English by the Level of CE Outside the School. Influence of preschool duration on vocabulary in English of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 210

Table 210

Results of 2×2 ANOVAs of Vocabulary in English of Primary Standard Students by their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	933929.133	1	933929.1	2053.13	0.87
	Preschool Duration	2069.762	1	2069.762	4.55	0.015
	CE	1439.198	1	1439.198	3.16	0.01
	Preschool Duration* CE	377.141	1	377.141	0.83	0.003
	Error	139648.549	307	454.881		
	Total		1301847	311		
III	Intercept	381258.806	1	381258.8	750.50	0.73
	Preschool Duration	2236.315	1	2236.315	4.40	0.016
	CE	5868.208	1	5868.208	11.55	0.04
	Preschool Duration* CE	1170.661	1	1170.661	2.30	0.008
	Error	141225.272	278	508.005		
	Total		629290	282		
V	Intercept	731392.883	1	731392.9	1739.01	0.804
	Preschool Duration	2303.211	1	2303.211	5.48	0.013
	CE	5229.503	1	5229.503	12.43	0.028
	Preschool Duration* CE	1041.124	1	1041.124	2.48	0.006
	Error	178746.831	425	420.581		
	Total		1026564	429		

Table 210 shows that the influence of preschool duration on vocabulary in English does not vary by the level of CE of: (a) Standard I students [$F(1, 307) = 0.83, p > .05$] (b) Standard III students [$F(1, 278) = 2.30, p > .05$] and (c) Standard V students [$F(1, 425) = 2.48, p > .05$]. Among primary standard students, the influence of preschool duration on vocabulary in English does not vary significantly by their level of CE.

Influence of Preschool Duration on English Comprehension by the Level of CE Outside the School. Influence of preschool duration on English comprehension of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 211.

Table 211

Results of 2×2 ANOVAs of English Comprehension of Primary Standard Students by their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	372005.666	1	372005.7	729.02	0.704
	Preschool Duration	1848.599	1	1848.599	3.62	0.012
	CE	3294.98	1	3294.98	6.46	0.021
	Preschool Duration* CE	2353.461	1	2353.461	4.61*	0.015
	Error	156656.314	307	510.281		
	Total	624828	311			
III	Intercept	326873.751	1	326873.8	587.45	0.679
	Preschool Duration	2876.223	1	2876.223	5.17	0.018
	CE	9845.203	1	9845.203	17.69	0.06
	Preschool Duration* CE	1581.528	1	1581.528	2.84	0.01
	Error	154687.182	278	556.429		
	Total	570400	282			
V	Intercept	1009231.05	1	1009231	2200.06	0.838
	Preschool Duration	3769.3	1	3769.3	8.22	0.019
	CE	1766.863	1	1766.863	3.85	0.009
	Preschool Duration* CE	2.226	1	2.226	0.01	0
	Error	194959.999	425	458.729		
	Total	1352799	429			

Note. * $p < .05$

Table 211 shows that the influence of preschool duration on English comprehension does not vary by CE of: (a) Standard III students [$F(1, 278) = 2.84, p > .05$] and (b) Standard V students [$F(1, 425) = 0.01, p > .05$] But, the influence of preschool duration on English comprehension of Standard I students vary significantly by CE [$F(1, 307) = 4.61, p < .05, \eta^2 = 0.02$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on English comprehension of Standard I students who have high CE (up to 2 years: $M = 36.91, SD = 22.52, N = 108$ and >2 years: $M = 48.64, SD = 22.88, N = 58$) [$F(1, 164) = 10.127, p < .05, \eta^2 = 0.06$], but not among

students who have low CE (up to 2 years: $M = 35.77$, $SD = 22.73$, $N = 112$ and >2 years: $M = 35.06$, $SD = 21.81$, $N = 33$) [$F(1, 143) = 0.025$, $p > .05$]. Among Standard I students with high CE, English comprehension is higher for those who have >2 years preschooling than those who have up to 2 years preschooling only.

Influence of Preschool Duration on Achievement in Mathematics by the Level of CE Outside the School. Influence of preschool duration on *achievement in Mathematics* of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 212.

Table 212

Results of 2×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	985636.107	1	985636.1	2769.69	0.9
	Preschool Duration	514.617	1	514.617	1.45	0.005
	CE	306.861	1	306.861	0.86	0.003
	Preschool Duration* CE	13.754	1	13.754	0.04	0
	Error	109250.713	307	355.866		
	Total	1349683	311			
III	Intercept	519249.172	1	519249.2	1111.45	0.8
	Preschool Duration	1131.644	1	1131.644	2.42	0.009
	CE	5468.22	1	5468.22	11.71	0.04
	Preschool Duration* CE	1179.735	1	1179.735	2.53	0.009
	Error	129876.846	278	467.183		
	Total	810682	282			
V	Intercept	895373.619	1	895373.6	2747.14	0.866
	Preschool Duration	1851.732	1	1851.732	5.68	0.013
	CE	232.022	1	232.022	0.71	0.002
	Preschool Duration* CE	502.408	1	502.408	1.54	0.004
	Error	138520.005	425	325.929		
	Total	1184977	429			

Table 212 shows that the influence of preschool duration on achievement in Mathematics does not vary by the level of CE of: (a) Standard I students [$F(1, 307) = 0.04$, $p > .05$] (b) Standard III students [$F(1, 278) = 2.53$, $p > .05$] and (c) Standard V students [$F(1, 425) = 1.54$, $p > .05$]. Among primary standard students, the influence of preschool duration on vocabulary in Malayalam does not vary significantly by their level of CE.

Influence of Preschool Duration on Socio-Emotional Outcomes by CE Outside the School

Influence of preschool duration on socio-emotional outcomes of Standard I, III and V students by CE were studied and the results are given distinctly.

Influence of Preschool Duration on Personal Independence by the Level of CE Outside the School. Influence of preschool duration on personal independence of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 213.

Table 213

Results of 2×2 ANOVAs of Personal Independence of Primary Standard Students by their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1390036.99	1	1390037	5948.02	0.962
	Preschool Duration	1.288	1	1.288	0.01	0
	CE	97.118	1	97.118	0.42	0.002
	Preschool Duration* CE	46.926	1	46.926	0.20	0.001
	Error	54217.84	232	233.698		
	Total	2004847	236			
III	Intercept	1346640.56	1	1346641	6772.04	0.97
	Preschool Duration	252.14	1	252.14	1.27	0.006
	CE	1068.998	1	1068.998	5.38	0.025
	Preschool Duration*CE	3.863	1	3.863	0.02	0
	Error	41957.978	211	198.853		
	Total	1869297	215			
V	Intercept	2181159.74	1	2181160	14840.70	0.981
	Preschool Duration	470.852	1	470.852	3.20	0.011
	CE	1.472	1	1.472	0.01	0
	Preschool Duration* CE	224.694	1	224.694	1.53	0.005
	Error	43209.606	294	146.971		
	Total	2728758	298			

Table 213 shows that the influence of preschool duration on personal independence does not vary by the level of CE of: (a) Standard I students [$F(1, 232) = 0.20, p > .05$] (b) Standard III students [$F(1, 211) = 0.02, p > .05$] and (c) Standard V

students [$F(1, 294) = 1.53, p > .05$]. Among primary standard students, the influence of preschool duration on personal independence does not vary significantly by their level of CE.

Influence of Preschool Duration on Academic Independence by the Level of CE Outside the School. Influence of preschool duration on academic independence of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 214.

Table 214

Results of 2×2 ANOVAs of Academic Independence of Primary Standard Students by their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1173067.62	1	1173068	5036.77	0.956
	Preschool Duration	78.976	1	78.976	0.34	0.001
	CE	85.937	1	85.937	0.37	0.002
	Preschool Duration* CE	194.329	1	194.329	0.83	0.004
	Error	54033.01	232	232.901		
	Total	1710406	236			
III	Intercept	1250751.93	1	1250752	5984.92	0.966
	Preschool Duration	253.312	1	253.312	1.21	0.006
	CE	89.361	1	89.361	0.43	0.002
	Preschool Duration* CE	59.737	1	59.737	0.29	0.001
	Error	44095.639	211	208.984		
	Total	1783366	215			
V	Intercept	1781682.67	1	1781683	8048.06	0.965
	Preschool Duration	93.727	1	93.727	0.42	0.001
	CE	21.033	1	21.033	0.10	0
	Preschool Duration* CE	7.381	1	7.381	0.03	0
	Error	65085.875	294	221.381		
	Total	2267476	298			

Table 214 shows that the influence of preschool duration on academic independence does not vary by the level of CE of: (a) Standard I students [$F(1, 232) = 0.83, p > .05$] (b) Standard III students [$F(1, 211) = 0.29, p > .05$] and (c) Standard V students [$F(1, 294) = 0.03, p > .05$]. Among primary standard students, the influence of preschool duration on academic independence does not vary significantly by their level of CE.

Influence of Preschool Duration on Work Habit by the Level of CE Outside the School. Influence of preschool duration on work habit of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 215.

Table 215

Results of 2×2 ANOVAs of Work Habit of Primary Standard Students by their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	920895.439	1	920895.4	3769.68	0.942
	Preschool Duration	4.444	1	4.444	0.02	0
	CE	420.123	1	420.123	1.72	0.007
	Preschool Duration* CE	4.211	1	4.211	0.02	0
	Error	56675.246	232	244.29		
	Total	1359898	236			
III	Intercept	788370.506	1	788370.5	3572.26	0.944
	Preschool Duration	14.579	1	14.579	0.07	0
	CE	149.52	1	149.52	0.68	0.003
	Preschool Duration* CE	218.558	1	218.558	0.99	0.005
	Error	46566.154	211	220.693		
	Total	1127576	215			
V	Intercept	1123560.47	1	1123560	4867.16	0.943
	Preschool Duration	348.532	1	348.532	1.51	0.005
	CE	0.11	1	0.11	0.00	0
	Preschool Duration* CE	503.093	1	503.093	2.18	0.007
	Error	67868.541	294	230.845		
	Total	1485919	298			

Table 215 shows that the influence of preschool duration on work habit does not vary by the level of CE of: (a) Standard I students [$F(1, 232) = 0.02, p > .05$] (b) Standard III students [$F(1, 211) = 0.99, p > .05$] and (c) Standard V students [$F(1, 294) = 2.18, p > .05$]. Among primary standard students, the influence of preschool duration on work habit does not vary significantly by their level of CE.

Influence of Preschool Duration on Interpersonal Relationship by the Level of CE Outside the School. Influence of preschool duration on interpersonal relationship of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 216.

Table 216

Results of 2 × 2 ANOVAs of Interpersonal Relationship of Primary Standard Students by their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1206731.33	1	1206731	13087.33	0.983
	Preschool Duration	24.389	1	24.389	0.27	0.001
	CE	27.885	1	27.885	0.30	0.001
	Preschool Duration*CE	45.708	1	45.708	0.50	0.002
	Error	21391.804	232	92.206		
	Total	1717042	236			
III	Intercept	1143268.68	1	1143269	10669.92	0.981
	Preschool Duration	257.649	1	257.649	2.41	0.011
	CE	228.545	1	228.545	2.13	0.01
	Preschool Duration*CE	18.408	1	18.408	0.17	0.001
	Error	22608.39	211	107.149		
	Total	1563169	215			
V	Intercept	1085376.37	1	1085376	10901.89	0.974
	Preschool Duration	1.41	1	1.41	0.01	0
	CE	0.111	1	0.111	0.00	0
	Preschool Duration*CE	41.014	1	41.014	0.41	0.001
	Error	29270.214	294	99.559		
	Total	1379003	298			

Table 216 shows that the influence of preschool duration on interpersonal relationship does not vary by the level of CE of: (a) Standard I students [$F(1, 232) = 0.50, p > .05$] (b) Standard III students [$F(1, 211) = 0.17, p > .05$] and (c) Standard V students [$F(1, 294) = 0.41, p > .05$]. Among primary standard students, the influence of preschool duration on interpersonal relationship does not vary significantly by their level of CE.

Influence of Preschool Duration on Cooperation by the Level of CE Outside the School. Influence of preschool duration on cooperation of Standard I, III and V students by the level of CE were studied using 2 × 2 ANOVAs. Results are given in Table 217.

Table 217

Results of 2 × 2 ANOVAs of Cooperation of Primary Standard Students by Their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	986702.03	1	986702	4556.74	0	0.952
	Preschool Duration	387.873	1	387.873	1.79	0.182	0.008
	CE	67.648	1	67.648	0.31	0.577	0.001
	Preschool Duration* CE	757.2	1	757.2	3.50	0.063	0.015
	Error	50236.552	232	216.537			
	Total	1454040	236				
III	Intercept	1008477.45	1	1008477	4088.88	0	0.951
	Preschool Duration	980.335	1	980.335	3.98	0.047	0.018
	CE	151.234	1	151.234	0.61	0.434	0.003
	Preschool Duration* CE	894.93	1	894.93	3.63	0.058	0.017
	Error	52040.897	211	246.639			
	Total	1383310	215				
V	Intercept	1258601.49	1	1258601	7499.39	0	0.962
	Preschool Duration	52.278	1	52.278	0.31	0.577	0.001
	CE	347.618	1	347.618	2.07	0.151	0.007
	Preschool Duration*CE	992.363	1	992.363	5.91*	0.016	0.02
	Error	49341.216	294	167.827			
	Total	1636090	298				

Note. * $p < .05$

Table 217 shows that the influence of preschool duration on cooperation does not vary by CE of Standard I students [$F(1, 232) = 2.84, p > .05$]. But the influence of preschool duration on cooperation of Standard III students vary significantly by CE [$F(1, 211) = 4.61, p < .05, \eta^2 = 0.015$] and of Standard V students [$F(1, 294) = 2.84, p < .05, \eta^2 = 0.02$].

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on cooperation of Standard III students who have low CE (up to 2 years: $M = 76.23, SD = 18.43, N = 83$ and > 2 years: $M = 86.00, SD = 9.47, N = 20$) [$F(1, 101) = 5.26, p < .05, \eta^2 = 0.05$], but not among students who have high CE (up to 2 years: $M = 79.04, SD = 14.85, N = 74$ and > 2 years: $M = 79.26, SD = 13.12, N = 38$) [$F(1, 110) = 0.01, p > .05$]. Among Standard III students with low CE, cooperation is higher among the students who have > 2 years preschooling than those who have up to 2 years preschooling only.

But follow up analysis of variance revealed that there is no significant, effect of preschool duration on cooperation of Standard V students who have low CE (up to 2 years: $M=73.79$, $SD=10.95$, $N=89$ and >2 years: $M=68.78$, $SD=16.97$, $N=32$) [$F(1, 119) = 3.60$, $p>.05$], and students who have high CE (up to 2 years: $M=72.13$, $SD=12.79$, $N=112$ and >2 years: $M=75.26$, $SD=13.53$, $N=65$) [$F(1, 175) = 2.37$, $p>.0-5$].

Influence of Preschool Duration on Communication by the Level of CE Outside the School. Influence of preschool duration on communication of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 218.

Table 218

Results of 2×2 ANOVAs of Communication of Primary Standard Students by Their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	1314002.43	1	1314002	6343.455	0.00	0.965
	Preschool Duration	133.074	1	133.074	0.642	0.42	0.003
	CE	115.369	1	115.369	0.557	0.46	0.002
	Preschool Duration* CE	1.918	1	1.918	0.009	0.92	0
	Error	48057.183	232	207.143			
	Total	1882499	236				
III	Intercept	1280133.88	1	1280134	8058.74	0.00	0.974
	Preschool Duration	86.426	1	86.426	0.544	0.46	0.003
	CE	250.487	1	250.487	1.577	0.21	0.007
	Preschool Duration* CE	10.788	1	10.788	0.068	0.80	0
	Error	33517.431	211	158.85			
	Total	1769759	215				
V	Intercept	1726171.16	1	1726171	8140.169	0.00	0.965
	Preschool Duration	380.794	1	380.794	1.796	0.18	0.006
	CE	334.132	1	334.132	1.576	0.21	0.005
	Preschool Duration* CE	1365.502	1	1365.502	6.439*	0.01	0.021
	Error	62344.448	294	212.056			
	Total	2249115	298				

Note. * $p<.05$

Table 218 shows that the influence of preschool duration on communication does not vary by CE of: (a) Standard I s-tudents [$F(1, 232) = 0.01$, $p>.05$] and (b) Standard III students [$F(1, 211) = 0.07$, $p>.05$]. But, the influence of preschool duration on communication of Standard V students vary significantly by CE [$F(1, 294) = 6.44$, $p<.05$, $\eta^2 = 0.02$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on communication of Standard V students who have low CE (up to 2 years: $M=87.36$, $SD=12.87$, $N=89$ and >2 years: $M=80.06$, $SD=19.77$, $N=32$) [$F(1, 119) = 5.59$, $p < .05$, $\eta^2 = 0.05$], but not among students who have high CE (up to 2 years: $M=84.95$, $SD=14.17$, $N=112$ and >2 years: $M=87.20$, $SD=14.44$, $N=65$) [$F(1, 175) = 1.025$, $p > .05$]. Among Standard V students with low CE, communication is higher among the students who have up to 2 years preschooling than those who have >2 years preschooling.

Influence of Preschool Duration on Leadership by the Level of CE Outside the School. Influence of preschool duration on leadership of Standard I, III and V students by the level of CE were studied using 2×2 ANOVA. Results are given in Table 219.

Table 219

Results of 2×2 ANOVAs of Leadership of Primary Standard Students by Their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	1029358.72	1	1029359	8548.40	0	0.974
	Preschool Duration	268.59	1	268.59	2.23	0.137	0.01
	Cognitive Engagement	109.72	1	109.72	0.91	0.341	0.004
	Preschool Duration* CE	26.519	1	26.519	0.22	0.639	0.001
	Error	27936.368	232	120.415			
	Total	1460383	236				
III	Intercept	1006420.83	1	1006421	10702.32	0	0.981
	Preschool Duration	5.643	1	5.643	0.06	0.807	0
	Cognitive Engagement	15.54	1	15.54	0.17	0.685	0.001
	Preschool Duration* CE	0.851	1	0.851	0.01	0.924	0
	Error	19841.947	211	94.038			
	Total	1399873	215				
V	Intercept	1188336.21	1	1188336	9300.36	0	0.969
	Preschool Duration	0.125	1	0.125	0.00	0.975	0
	Cognitive Engagement	701.643	1	701.643	5.49	0.02	0.018
	Preschool Duration* CE	231.423	1	231.423	1.81	0.179	0.006
	Error	37565.305	294	127.773			
	Total	1532044	298				

Table 219 shows that the influence of preschool duration on leadership does not vary by the level of CE of: (a) Standard I students [$F(1, 232) = 0.22, p > .05$] (b) Standard III students [$F(1, 211) = 0.01, p > .05$] and (c) Standard V students [$F(1, 294) = 1.81, p > .05$]. Among primary standard students, the influence of preschool duration on leadership does not vary significantly by their level of CE.

Influence of Preschool Duration on Expressing Emotions by the Level of CE Outside the School. Influence of preschool duration on expressing emotions of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 220.

Table 220

Results of 2×2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	899960.335	1	899960.3	9295.13	0.976
	Preschool Duration	0.508	1	0.508	0.01	0
	CE	175.774	1	175.774	1.82	0.008
	Preschool Duration* CE	170.258	1	170.258	1.76	0.008
	Error	22462.377	232	96.821		
	Total		1291361	236		
III	Intercept	795281.629	1	795281.6	6746.71	0.97
	Preschool Duration	17.811	1	17.811	0.15	0.001
	CE	364.406	1	364.406	3.09	0.014
	Preschool Duration* CE	61.522	1	61.522	0.52	0.002
	Error	24872.042	211	117.877		
	Total		1109217	215		
V	Intercept	1224521.02	1	1224521	7538.51	0.962
	Preschool Duration	153.64	1	153.64	0.95	0.003
	CE	32.569	1	32.569	0.20	0.001
	Preschool Duration* CE	37.046	1	37.046	0.23	0.001
	Error	47755.999	294	162.435		
	Total		1586857	298		

Table 220 shows that the influence of preschool duration on expressing emotions does not vary by the level of CE of: (a) Standard I students [$F(1, 232) = 1.76, p > .05$] (b) Standard III students [$F(1, 211) = 0.52, p > .05$] and (c) Standard V students [$F(1, 294) = 0.23, p > .05$]. Among primary standard students, the influence

of preschool duration on expressing emotions does not vary significantly by their level of CE.

Influence of Preschool Duration on Controlling Emotions by the Level of CE Outside the School. Influence of preschool duration on controlling emotions of Standard I, III and V students by the level of CE were studied using 2×2 ANOVAs. Results are given in Table 221.

Table 221

Results of 2×2 ANOVAs of Controlling Emotions of Primary Standard Students by Their Preschool Duration and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	725789.508	1	725789.5	11881.10	0.981
	Preschool Duration	0.331	1	0.331	0.01	0
	CE	149.558	1	149.558	2.45	0.01
	Preschool Duration* CE	92.733	1	92.733	1.52	0.007
	Error	14172.355	232	61.088		
	Total	1036862	236			
III	Intercept	731944.793	1	731944.8	11424.50	0.982
	Preschool Duration	19.502	1	19.502	0.30	0.001
	CE	150.652	1	150.652	2.35	0.011
	Preschool Duration* CE	101.722	1	101.722	1.59	0.007
	Error	13518.344	211	64.068		
	Total	1016368	215			
V	Intercept	1210060.9	1	1210061	11210.47	0.974
	Preschool Duration	0.029	1	0.029	0.00	0
	CE	6.699	1	6.699	0.06	0
	Preschool Duration* CE	526.957	1	526.957	4.88*	0.016
	Error	31734.44	294	107.94		
	Total	1541104	298			

Note. * $p < .05$

Table 221 shows that the influence of preschool duration on controlling emotions does not vary by CE of: (a) Standard I students [$F(1, 232) = 1.52, p > .05$] and (b) Standard III students [$F(1, 211) = 1.59, p > .05$]. But, the influence of preschool duration on controlling emotions of Standard V students vary significantly by CE [$F(1, 294) = 4.88, p < .05, \eta^2 = 0.02$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of preschool duration on controlling emotions of Standard V students who have high CE (up to 2 years: $M = 69.75$, $SD = 9.47$, $N = 112$ and >2 years: $M = 72.74$, $SD = 10.93$, $N = 65$) [$F(1, 175) = 3.647$, $p < .05$, $\eta^2 = 0.02$], but not among students who have low CE (up to 2 years: $M = 72.38$, $SD = 9.13$, $N = 89$ and >2 years: $M = 69.44$, $SD = 14.77$, $N = 32$) [$F(1, 119) = 1.721$, $p > .05$]. Among Standard V students with high CE, controlling emotions is higher for the students who have >2 years preschooling than those who have up to 2 years preschooling only.

Summary of Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes

The influence of preschool duration on cognitive and socio-emotional outcomes among primary standard students vary by their grade level and socio-demographic factors. There is significant favourable influence of preschooling for more than 2 years on vocabulary and comprehension of English among Standard I, III and V students, and achievement in mathematics among Standard III and V in general and personal independence of Standard V students. There is no significant influence of preschool duration of students of any primary standard in general on their vocabulary in Malayalam, Malayalam comprehension, and academic independence, work habit, interpersonal relationship, communication, leadership cooperation, expressing emotions, and controlling emotions. But, in Standard I, Malayalam comprehension of students having mothers with secondary level of education, vocabulary in English especially of English medium students, and those with above secondary FEQ, or those with secondary and above level of mothers' education, and having high cognitive engagement beyond school, communication and leadership among English medium students are favourably influenced by preschooling for more than 2 years. Also, in Standard III, Malayalam comprehension of girl students, English comprehension among those with secondary above FEQ, cooperation of those with low cognitive engagement beyond school are favourably influenced by preschooling for more than 2 years. Likewise, in Standard V, and cooperation of later

born children and of those with above secondary level of mother's education, leadership among English medium students, and controlling emotions of students having fathers with above secondary educational qualification, and those with high cognitive engagement are favourably influenced by longer preschooling.

The influence of longer preschool duration is not always favourable. In Standard I, cooperation and communication, among Malayalam medium students; In Standard III academic independence of students having fathers with secondary level education; and in Standard V, work habit of first born children, cooperation of students having father with below secondary education, communication among Malayalam medium students, and those with low cognitive engagement, and leadership among Malayalam medium students, are found higher among those who were preschoolled for only two years, than those who had preschooling for more than 2 years.

Results suggest that the favourable influence of preschooling for more than 2 years on cognitive outcomes become more prominent as children move up in school, whereas that on socio-emotional outcomes are more complex according to the social, economic and educational backgrounds of learners and their families.

Influence of Type of Preschooling on Cognitive and Socio-Emotional Outcomes of Primary Standard Students

Type of preschooling considered in this study are Anganwadi, Kindergarten and Montessori. Its effects on cognitive and socio-emotional outcomes among primary standard students are studied using statistical constants, One-way Analysis of Variance (ANOVA) and independent samples *t*-test. The results are detailed under specific heads.

Influence of Type of preschooling on Cognitive Outcomes among Primary Standard Students

Mean and standard deviation scores of cognitive outcomes, i.e., vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension

and achievement in Mathematics, of primary standard students by their type of preschooling were studied. One-way Analysis of Variance (ANOVA) was employed for comparing the cognitive outcomes in the three groups: Anganwadi, Kindergarten and Montessori, and if found significant, were followed up with comparison of means using *t*-test.

Influence of Type of preschooling on Vocabulary in Malayalam. Indices of vocabulary in Malayalam among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 222.

Table 222

Mean and Standard Deviation of Vocabulary in Malayalam by Type of preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	59.26	20.99	124	60.13	21.84	134	61.40	17.79	53
III	46.88	19.59	128	41.06	17.08	94	49.00	20.27	60
V	41.21	16.84	203	42.22	19.24	178	46.60	15.70	48

The results of One-way Analyses of Variance for comparing the vocabulary in Malayalam among standard I, III and V students by their type of preschooling are summarized in Table 223.

Table 223

Analyses of Variance of Vocabulary in Malayalam by Type of preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	173.9967	2	86.99836	0.20	0.819
	Within Groups	134122	308	435.461		
	Total	134296	310			
III	Between Groups	2823.475	2	1411.738	3.93*	0.021
	Within Groups	100133.6	279	358.902		
	Total	102957.1	281			
V	Between Groups	1130.889	2	565.445	1.79	0.168
	Within Groups	134329.8	426	315.328		
	Total	135460.7	428			

Note. * $p < .05$

Table 223 shows that there is no significant difference in vocabulary in Malayalam: (i) among Standard I students who preschooled in Anganwadi, Kindergarten and Montessori [$F(2, 308) = 0.20, p > .05$]; and (ii) among Standard V students who preschooled in Anganwadi, Kindergarten and Montessori [$F(2, 426) = 1.79, p > .05$]. But there is significant difference in vocabulary in Malayalam of Standard III students who preschooled in Anganwadi ($M = 46.88, SD = 19.59, N = 128$); Kindergarten ($M = 41.06, SD = 17.08, N = 94$); and Montessori ($M = 49.00, SD = 20.27, N = 60$), [$F(2, 279) = 3.93, p < .05, \eta^2 = .03$]. There is significant, but small effect of type of preschooling on vocabulary in Malayalam of Standard III students.

The comparison of means using *t* test showed that vocabulary in Malayalam in standard III is significantly less in students who preschooled in Kindergarten compared to students who preschooled in Montessori [$t = 2.52, p < .05$, Cohen's $d = 0.42$] and, those who preschooled in Anganwadi [$t = 2.35, p < .05$, Cohen's $d = 0.32$]. In both the cases, the effects over Kindergarten were small. However, vocabulary in Malayalam does not significantly differ between standard III students who were preschooled in Anganwadi and Montessori [$t = .68, p > .05$].

Type of preschooling did not influence vocabulary in Malayalam of Standard I and V students, but it did so among Standard III students. Vocabulary in Malayalam in standard III is significantly less in students who preschooled in Kindergarten compared to students who preschooled in Montessori and those who preschooled in Anganwadi, though the effect was small. However, vocabulary in Malayalam in standard III did not differ significantly between the students who preschooled in Anganwadi and Montessori.

There is significant, but small effect of type of preschooling on vocabulary in Malayalam of standard III students also. vocabulary in Malayalam in standard III is significantly less in students who preschooled in Kindergarten than in students who preschooled in Montessori or Anganwadi.

Influence of Type of preschooling on Malayalam Comprehension. Indices of Malayalam comprehension among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 224.

Table 224

Mean and Standard Deviation of Malayalam Comprehension by Type of Preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	40.90	21.81	124	43.11	23.38	134	48.36	26.79	53
III	55.16	23.33	128	54.34	21.22	94	54.77	24.62	60
V	38.96	20.14	203	38.17	22.76	178	44.73	23.20	48

The results of One-way Analyses of Variance for comparing the Malayalam comprehension among standard I, III and V students by their type of preschooling are summarized in Table 225.

Table 225

Analyses of Variance of Malayalam Comprehension by Type of preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	2068.21	2	1034.11	1.89	.153
	Within Groups	168561.15	308	547.28		
	Total	170629.36	310			
III	Between Groups	36.165	2	18.082	0.03	0.966
	Within Groups	146788.7	279	526.124		
	Total	146824.9	281			
V	Between Groups	1663.669	2	831.834	1.78	0.170
	Within Groups	198902.8	426	466.908		
	Total	200566.4	428			

Table 225 shows that there is no significant difference in Malayalam comprehension by preschooling type (Anganwadi, Montessori, Kindergarten) (i) neither in Standard I [$F(2, 308) = 1.89, p > .05$]; (ii) nor in Standard III [$F(2, 279) = 0.03, p > .05$]; nor in, (iii) Standard V students [$F(2, 426) = 1.78, p > .05$]. Malayalam comprehension did not differ by type of preschooling of standard I, III and V students.

Influence of Type of preschooling on Vocabulary in English. Indices of vocabulary in English among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 226.

Table 226

Mean and Standard Deviation of Vocabulary in English by Type of preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	55.27	21.25	124	61.28	20.56	134	73.75	19.46	53
III	36.84	22.68	128	38.02	19.56	94	55.43	24.12	60
V	42.88	21.03	203	41.85	19.74	178	58.90	18.90	48

The results of One-way Analyses of Variance for comparing vocabulary in English among standard I, III and V students by their type of preschooling are summarized in Table 227.

Table 227

Analyses of Variance of Vocabulary in English by Type of Preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	12698.24	2	6349.12	14.88**	.000
	Within Groups	131429.71	308	426.72		
	Total	144127.95	310			
III	Between Groups	15534.09	2	7767.047	16.02**	.000
	Within Groups	135275.6	279	484.859		
	Total	150809.7	281			
V	Between Groups	11705.48	2	5852.742	14.24**	.000
	Within Groups	175137.3	426	411.12		
	Total	186842.8	428			

Note. ** $p < .01$

Table 227 shows that, in Standard I, there is significant, but small effect of type of preschooling on vocabulary in English. Vocabulary in English significantly differ among Standard I students who preschooled in Anganwadi ($M = 55.27$, $SD = 21.25$, $N = 124$), Kindergarten ($M = 61.28$, $SD = 20.56$, $N = 134$) and Montessori ($M = 73.75$, $SD = 19.46$, $N = 53$), [$F(2, 308) = 14.88$, $p < .01$, $\eta^2 = .088$]. The comparison of means using t test showed that vocabulary in English in standard I is significantly higher in students who preschooled in Montessori compared to students who preschooled in Kindergarten, with medium effect [$t = 3.89$, $p < .01$, Cohen's $d = 0.62$];

and, those who preschooled in Anganwadi, with large effect [$t = 5.63, p < .01$, Cohen's $d = 0.91$]. Standard I students who preschooled in Kindergarten have significantly higher vocabulary in English than those who preschooled in Anganwadi with small effect [$t = 2.31, p < .05$, Cohen's $d = 0.29$].

Significant, but small effect of type of preschooling is observed on English vocabulary of standard I students. Vocabulary in English in standard I is the highest in students who preschooled in Montessori, and the least in those who preschooled in Anganwadi. Vocabulary in English of the students who preschooled in Kindergarten is between the other two groups.

Table 227 shows that, in Standard III also, there is significant, but small effect of type of preschooling on vocabulary in English. Vocabulary in English significantly differ among Standard III students who preschooled in Anganwadi ($M = 36.84, SD = 22.68, N = 128$), Kindergarten ($M = 38.02, SD = 19.56, N = 94$) and Montessori ($M = 55.43, SD = 24.12, N = 60$) [$F(2, 279) = 16.02, p < .01, \eta^2 = .103$]. Vocabulary in English in standard III is significantly higher in students who preschooled in Montessori compared to those who preschooled in Kindergarten, with medium effect [$t = 4.69, p < .01$, Cohen's $d = 0.79$]; and, those who preschooled in Anganwadi, with large effect [$t = 5.02, p < .01$, Cohen's $d = 0.80$]. However, vocabulary in English of Standard III students who preschooled in Anganwadi and those who preschooled in Kindergarten did not differ significantly [$t = 0.41, p > .05$].

There is significant, but small effect of type of preschooling on English vocabulary of standard III students also. Vocabulary in English in standard III is significantly higher in students who preschooled in Montessori than in students who preschooled in Kindergarten or Anganwadi.

Table 227 shows that, in Standard V too, there is significant, but small effect of type of preschooling on vocabulary in English. Vocabulary in English significantly differ among students who preschooled in Anganwadi ($M = 42.88, SD = 21.03, N = 203$), Kindergarten ($M = 41.85, SD = 19.74, N = 178$) and Montessori ($M = 58.90, SD = 18.90, N = 48$); [$F(2, 426) = 14.24, p < .01, \eta^2 = .063$]. As observed in Standard III, Vocabulary in English is significantly higher in standard V students preschooled

in Montessori compared to those who preschooled in Kindergarten with large effect [$t = 5.49, p < .01$, Cohen's $d = 0.88$]; and, those who preschooled in Anganwadi with large effect [$t = 5.16, p < .01$, Cohen's $d = 0.80$]. However, vocabulary in English of Standard V students who preschooled in Anganwadi and those who preschooled in Kindergarten did not differ significantly [$t = 0.49, p > .05$].

There is significant, but small effect of type of preschooling on English vocabulary of standard V students also. As in standard III, in standard V also, Vocabulary in English is significantly higher in students who preschooled in Montessori than in students who preschooled in Kindergarten or Anganwadi.

There is significant, but small effect of type of preschooling on English vocabulary of standard I, III and V students. Vocabulary in English of standard I, III and V is significantly higher in students who preschooled in Montessori than in students who preschooled in Kindergarten or Anganwadi. In Standard I, Vocabulary in English is significantly higher in students who preschooled in Kindergarten than in students who preschooled in Anganwadi. But in Standard III and V, vocabulary in English of students who preschooled in Anganwadi and Kindergarten did not differ significantly.

Influence of Type of preschooling on English Comprehension. Indices of English comprehension among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 228.

Table 228

Mean and Standard Deviation of English Comprehension by Type of preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	32.52	21.71	124	37.01	21.59	134	56.19	20.97	53
III	32.73	23.68	128	35.74	20.69	94	51.33	27.32	60
V	49.89	20.51	203	50.04	22.27	178	66.44	19.07	48

The results of One-way Analyses of Variance for comparing English comprehension among standard I, III and V students by their type of preschooling are summarized in Table 229.

Table 229

Analyses of Variance of English Comprehension by Type of Preschooling of Primary Standard Student

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	21309.68	2	10654.84	22.98**	.000
	Within Groups	142808.03	308	463.66		
	Total	164117.71	310			
III	Between Groups	14667.6	2	7333.799	13.20**	.000
	Within Groups	155034.2	279	555.678		
	Total	169701.8	281			
V	Between Groups	11571.87	2	5785.937	12.98**	.000
	Within Groups	189827.1	426	445.603		
	Total	201398.9	428			

Note. ** $p < .01$

Table 229 shows that there is significant, but medium effect of type of preschooling on English comprehension of Standard I students. English comprehension significantly differ among Standard I students who preschooled in Anganwadi ($M=32.52$, $SD=21.71$, $N=124$); Kindergarten ($M=37.01$, $SD=21.59$, $N=134$); and, Montessori ($M=56.19$, $SD=20.97$, $N=53$), [$F(2, 308) = 22.98$, $p < .01$, $\eta^2 = .13$]. The comparison of means using t test showed that English comprehension in Standard I is significantly higher in students who preschooled in Montessori compared to students who preschooled in Kindergarten, with large effect [$t = 5.59$, $p < .01$, Cohen's $d = 0.90$]; and, those who preschooled in Anganwadi, with large effect [$t = 6.80$, $p < .01$, Cohen's $d = 1.11$]. However, English comprehension of standard I students who preschooled in Anganwadi and those who preschooled in Kindergarten did not differ significantly [$t = 1.66$, $p > .05$].

There is significant, but medium effect of type of preschooling on English comprehension of standard I students. English comprehension in standard I is significantly higher in students who preschooled in Montessori than in students who preschooled in Kindergarten or Anganwadi.

In standard III, there is significant, but small effect of type of preschooling on English comprehension. English comprehension significantly differ among Standard III students who preschooled in Anganwadi ($M=32.73$, $SD=23.68$, $N=128$);

Kindergarten ($M=35.74$, $SD=20.69$, $N=94$); and, Montessori ($M=51.33$, $SD=27.32$, $N=60$) [$F(2, 279) = 13.20$, $p < .01$, $\eta^2 = .086$]. As observed in Standard I, English comprehension in standard III is significantly higher in students who preschooled in Montessori compared to students who preschooled in Kindergarten with medium effect [$t = 3.78$, $p < .01$, Cohen's $d = 0.64$]; and, those who preschooled in Anganwadi with medium effect [$t = 4.53$, $p < .01$, Cohen's $d = 0.73$]. However, English Comprehension of standard III students who preschooled in Anganwadi and Kindergarten did not differ significantly [$t = 1.00$, $p > .05$].

There is significant, but small effect of type of preschooling on English comprehension of standard III students also. As in Standard I, English comprehension in Standard III is significantly higher in students who preschooled in Montessori than in students who preschooled in Kindergarten or Anganwadi.

In Standard V too, there is significant, but small effect of type of preschooling on English Comprehension. English Comprehension significantly differ among Standard V students who preschooled in Anganwadi ($M=49.89$, $SD=20.51$, $N=203$); Kindergarten ($M=50.04$, $SD=22.27$, $N=178$); and, Montessori ($M=66.44$, $SD=19.07$, $N=48$) [$F(2, 426) = 12.98$, $p < .01$, $\eta^2 = .057$]. As observed in Standard I and III, English Comprehension in standard V is significantly higher in students who preschooled in Montessori compared to students who preschooled in Kindergarten, with medium effect [$t = 5.09$, $p < .01$, Cohen's $d = 0.79$]; and, those who preschooled in Anganwadi, with large effect [$t = 5.33$, $p < .01$, Cohen's $d = 0.84$]. However, English Comprehension of standard V students who preschooled in Anganwadi and Kindergarten did not differ significantly [$t = 0.07$, $p > .05$].

There is significant, but small effect of type of preschooling is observed on English comprehension of standard V students too. As in standard I and III, in standard V also, English comprehension is significantly higher in students who preschooled in Montessori than in students who preschooled in Anganwadi or Kindergarten.

There is significant, but small-medium effect of type of preschooling on English comprehension of standard I, III and V students. In all Standards, English comprehension is significantly higher in students who preschooled in Montessori

than in students who preschooled in Anganwadi or Kindergarten. However, English comprehension of students who preschooled in Anganwadi and those who preschooled in Kindergarten did not differ significantly.

Influence of Type of preschooling on Achievement in Mathematics.

Indices of achievement in Mathematics among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 230.

Table 230

Mean and Standard Deviation of Achievement in Mathematics by Type of Preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	58.41	17.55	124	65.49	19.31	134	68.19	18.58	53
III	44.73	20.43	128	46.09	21.75	94	62.00	21.50	60
V	48.04	18.27	203	48.80	18.41	178	56.75	15.01	48

The results of One-way Analyses of Variance for comparing achievement in Mathematics among standard I, III and V students by their type of preschooling are summarized in Table 231.

Table 231

Analyses of Variance of Achievement in Mathematics by Type of Preschooling of Primary Standard Student

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	4865.23	2	2432.61	7.11**	.001
	Within Groups	105413.63	308	342.25		
	Total	110278.86	310			
III	Between Groups	13262.04	2	6631.019	14.89**	0.00
	Within Groups	124252.3	279	445.349		
	Total	137514.3	281			
V	Between Groups	3028.678	2	1514.339	4.68*	0.01
	Within Groups	137956.3	426	323.841		
	Total	140985	428			

Note. *p<.05, **p<.01

Table 231 shows that there is significant, but small effect of type of preschooling on achievement in Mathematics of Standard I students. Achievement in Mathematics significantly differ among Standard I students who preschoolled in Anganwadi ($M=58.41$, $SD=17.55$, $N=124$); Kindergarten ($M=65.49$, $SD=19.31$, $N=134$); and, Montessori ($M=68.19$, $SD=18.58$, $N=53$) [$F(2, 308) = 7.11$, $p < .05$, $\eta^2 = .044$]. The comparison of means using t test showed that achievement in Mathematics in standard I is significantly less in students who preschoolled in Anganwadi than in students who preschoolled in Montessori with medium effect [$t = 3.26$, $p < .05$, Cohen's $d = 0.54$] and in students who preschoolled in Kindergarten with small effect [$t = 3.09$, $p < .05$, Cohen's $d = 0.38$]. However, Mathematics of standard I students who preschoolled in Kindergarten and Montessori did not differ significantly [$t = 0.88$, $p > .05$].

Significant, but small effect of type of preschooling is observed on achievement in Mathematics of standard I students. Mathematics in standard I is significantly less in students who preschoolled in Anganwadi than in students who preschoolled in Montessori, with medium effect and those who preschoolled in Kindergarten, with small effect. However, Mathematics of standard I students did not differ significantly between the students who preschoolled in Kindergarten and Montessori.

In Standard III also, there is significant, but small effect of type of preschooling on achievement in Mathematics. Achievement in Mathematics significantly differ among Standard III students who preschoolled in Anganwadi ($M=44.73$, $SD=20.43$, $N=128$); Kindergarten: ($M=46.09$, $SD=21.75$, $N=94$); and, Montessori ($M=62.00$, $SD=21.50$, $N=60$); [$F(2, 279) = 14.89$, $p < .01$, $\eta^2 = .096$]. Achievement in Mathematics of Standard III is significantly higher in students who preschoolled in Montessori compared to students who preschoolled in Kindergarten, with medium effect) [$t = 4.46$, $p < .01$, Cohen's $d = 0.74$]; and, those who preschoolled in Anganwadi, with large effect [$t = 5.21$, $p < .01$, Cohen's $d = 0.82$]. However, Mathematics of standard III students who preschoolled in Anganwadi and those who preschoolled in Kindergarten did not differ significantly [$t = 0.47$, $p > .05$].

Significant, but small effect of type of preschooling is observed on achievement in Mathematics of standard III students also. Mathematics in standard

III is significantly higher in students who preschooled in Montessori than in students who preschooled Anganwadi or Kindergarten.

In Standard V also, there is significant, but small effect of type of preschooling on achievement in Mathematics. Achievement in Mathematics significantly differ among Standard V students who preschooled in Anganwadi ($M=48.04$, $SD=18.27$, $N=203$); Kindergarten ($M=48.80$, $SD=18.41$, $N=178$); and, Montessori ($M=56.75$, $SD=15.01$, $N=48$) [$F(2, 426) = 4.68$, $p < .05$, $\eta^2 = .021$]. As observed in Standard I and III, achievement in Mathematics of Standard V is significantly higher in Standard V students who preschooled in Montessori compared to students who preschooled in Kindergarten with small effect [$t = 3.10$, $p < .05$, Cohen's $d = 0.47$]; and, those who preschooled in Anganwadi with medium effect [$t = 3.46$, $p < .05$, Cohen's $d = 0.52$]. However, achievement in Mathematics of standard V students who preschooled in Anganwadi and Kindergarten did not differ significantly [$t = 0.40$, $p > .05$].

Significant, but small effect of type of preschooling is observed on achievement in Mathematics of standard V students. As in Standard I and III, in standard V too, achievement in Mathematics is significantly higher in students who preschooled in Montessori than in students who preschooled in Anganwadi or Kindergarten.

Significant, but small effect of type of preschooling is observed on achievement in Mathematics of standard I, III and V students. In all standards, achievement in Mathematics is significantly higher in students who preschooled in Montessori than in students who preschooled in Anganwadi or Kindergarten. However, in Standard I, achievement in Mathematics did not differ significantly between the students who preschooled in Kindergarten and Montessori whereas in Standard III and V, achievement in Mathematics of students who preschooled in Anganwadi and those who preschooled in Kindergarten did not differ significantly.

Influence of Type of preschooling on Socio-Emotional Outcomes among Students in Primary Standards

Mean and standard deviation of socio-emotional outcomes of primary standard students by their type of preschooling were found. For comparing socio-

emotional outcomes of the three groups: Anganwadi, Kindergarten and Montessori, One-way Analysis of Variance (ANOVA) was employed and if found significant, were followed up with comparison of means using *t*-test.

Influence of Type of preschooling on Personal Independence. Indices of personal independence among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 232.

Table 232

Mean and Standard Deviation of Personal Independence by Type of Preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	90.73	14.85	105	91.45	14.85	78	90.47	16.65	53
III	90.75	15.39	104	94.22	12.42	67	92.27	14.27	44
V	94.75	12.90	166	93.99	13.38	84	97.15	5.11	48

The results of One-way Analyses of Variance for comparing personal independence among standard I, III and V students by their type of preschooling are summarized in Table 233.

Table 233

Analyses of Variance of Personal Independence by Type of Preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	36.096	2	18.048	.08	.926
	Within Groups	54315.036	233	233.112		
	Total	54351.131	235			
III	Between Groups	492.661	2	246.331	1.21	0.302
	Within Groups	43335.87	212	204.414		
	Total	43828.53	214			
V	Between Groups	315.726	2	157.863	1.07	0.345
	Within Groups	43550.34	295	147.628		
	Total	43866.07	297			

Table 233 shows that there is no significant difference in personal independence by preschooling (Anganwadi, Montessori, Kindergarten) neither in

Standard I [$F(2, 233) = .08, p > .05$]; nor in Standard III [$F(2, 212) = 1.21, p > .05$]; nor in Standard V students [$F(2, 295) = 1.07, p > .05$]. Personal independence of standard I, III and V students did not differ by their preschool type.

Influence of Type of Preschooling on Academic Independence. *Indices of academic independence among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 234.*

Table 234

Mean and Standard Deviation of Academic Independence by Type of Preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	84.62	15.29	105	82.83	15.22	78	83.47	15.16	53
III	91.83	13.87	104	89.30	13.36	67	86.43	16.61	44
V	86.34	14.49	166	86.14	15.02	84	84.38	15.77	48

The results of One-way Analyses of Variance for comparing academic independence among standard I, III and V students by their type of preschooling are summarized in Table 235.

Table 235

Analyses of Variance of Academic Independence by Type of Preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	148.841	2	74.421	.32	.726
	Within Groups	54100.803	233	232.192		
	Total	54249.644	235			
III	Between Groups	939.378	2	469.689	2.29	0.104
	Within Groups	43445.71	212	204.933		
	Total	44385.09	214			
V	Between Groups	147.02	2	73.51	0.33	0.717
	Within Groups	65040.64	295	220.477		
	Total	65187.66	297			

Table 235 shows that there is no significant difference in academic independence by preschooling (Anganwadi, Montessori, Kindergarten) neither in Standard I [$F(2,$

233) = .32, $p > .05$]; nor in Standard III [$F(2, 212) = 2.29, p > .05$]; and in Standard V [$F(2, 295) = .33, p > .05$]. Academic independence of standard I, III and V students did not differ by their type of preschooling.

Influence of Type of Preschooling on Work Habit. *Indices of work habit among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 236.*

Table 236

Mean and Standard Deviation of Work Habit by Type of Preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	74.10	17.26	105	76.53	13.16	78	71.42	15.22	53
III	69.78	14.27	104	73.96	15.76	67	68.82	14.47	44
V	69.16	14.95	166	68.93	14.79	84	68.33	17.02	48

The results of One-way Analyses of Variance for comparing work habit among standard I, III and V students by their type of preschooling are summarized in Table 237.

Table 237

Analyses of Variance of Work Habit by Type of Preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	831.873	2	415.937	1.72	.181
	Within Groups	56349.364	233	241.843		
	Total	57181.237	235			
III	Between Groups	946.768	2	473.384	2.17	0.117
	Within Groups	46361.33	212	218.685		
	Total	47308.09	214			
V	Between Groups	25.747	2	12.874	0.06	0.946
	Within Groups	68632.85	295	232.654		
	Total	68658.59	297			

Table 237 shows that there is no significant difference in work habit by preschooling (Anganwadi, Montessori, Kindergarten) neither in Standard I [$F(2, 233)$

= 1.72, $p > .05$]; nor in Standard III [$F(2, 212) = 2.17, p > .05$]; and in Standard V [$F(2, 295) = 0.06, p > .05$]. Work habit of standard I, III and V students did not differ by their preschool type.

Influence of Type of preschooling on Interpersonal Relationship. Indices of interpersonal relationship among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori are given in Table 238.

Table 238

Mean and Standard Deviation of Interpersonal Relationship by Type of Preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	83.86	11.31	105	85.27	7.78	78	85.81	7.99	53
III	85.59	11.26	104	83.82	9.69	67	83.64	9.11	44
V	66.65	10.40	166	68.08	9.50	84	68.17	9.03	48

The results of One-way Analyses of Variance for comparing interpersonal relationship among standard I, III and V students by their type of preschooling are summarized in Table 239.

Table 239

Analyses of Variance of Interpersonal Relationship by Type of Preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	164.395	2	82.198	.90	.408
	Within Groups	21284.317	233	91.349		
	Total	21448.712	235			
III	Between Groups	182.449	2	91.224	0.85	0.43
	Within Groups	22843.254	212	107.751		
	Total	23025.702	214			
V	Between Groups	157.601	2	78.801	0.80	0.452
	Within Groups	29170.818	295	98.884		
	Total	29328.419	297			

Table 239 shows that there is no significant difference in interpersonal relationship by preschooling (Anganwadi, Montessori, Kindergarten) neither in

Standard I [$F(2, 233) = 0.90, p > .05$]; nor in Standard III [$F(2, 212) = 0.85, p > .05$]; and in Standard V [$F(2, 295) = 0.80, p > .05$]. Interpersonal relationship of Standard I, III and V students did not influence by their preschool type.

Influence of Type of Preschooling on Cooperation. *Indices of cooperation among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 240*

Table 240

Mean and Standard Deviation of Cooperation by Type of Preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	77.78	13.59	105	78.36	14.66	78	73.91	16.77	53
III	78.34	15.69	104	81.57	14.42	67	74.91	17.62	44
V	71.55	12.04	166	73.73	14.83	84	76.40	12.45	48

The results of One-way Analyses of Variance for comparing cooperation among standard I, III and V students by their type of preschooling are summarized in Table 241.

Table 241

Analyses of Variance of Cooperation by Type of Preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	713.120	2	356.560	1.65	.194
	Within Groups	50384.439	233	216.242		
	Total	51097.559	235			
III	Between Groups	1196.118	2	598.059	2.42	0.092
	Within Groups	52437.31	212	247.346		
	Total	53633.42	214			
V	Between Groups	943.947	2	471.974	2.82	0.061
	Within Groups	49439.19	295	167.59		
	Total	50383.14	297			

Table 241 shows that there is no significant difference in cooperation by preschooling (Anganwadi, Montessori, Kindergarten) neither in Standard I [$F(2,$

233) = 1.65, $p > .05$]; nor in Standard III [$F(2, 212) = 2.42, p > .05$]; and in Standard V [$F(2, 295) = 2.82, p > .05$]. Cooperation of Standard I, III and V students did not influence by their type of preschooling.

Influence of Type of Preschooling on Communication. Indices of communication among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 242.

Table 242

Mean and Standard Deviation of Communication by Type of Preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	87.87	15.72	105	87.19	14.09	78	90.15	11.69	53
III	91.04	12.36	104	88.46	13.71	67	89.18	11.22	44
V	85.19	13.94	166	85.45	16.10	84	87.48	14.59	48

The results of One-way Analyses of Variance for comparing communication among standard I, III and V students by their type of preschooling are summarized in Table 243.

Table 243

Analyses of Variance of Communication by Type of Preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	292.158	2	146.079	0.71	0.494
	Within Groups	48105.041	233	206.459		
	Total	48397.199	235			
III	Between Groups	295.482	2	147.741	0.93	0.395
	Within Groups	33539.05	212	158.203		
	Total	33834.53	214			
V	Between Groups	198.511	2	99.255	0.46	0.632
	Within Groups	63616.62	295	215.65		
	Total	63815.13	297			

Table 243 shows that there is no significant difference in communication by preschooling (Anganwadi, Montessori, Kindergarten) neither in Standard I [$F(2,$

233) = 0.71, $p > .05$], nor in Standard III [$F(2, 212) = 0.93, p > .05$]; nor in Standard V [$F(2, 295) = 0.46, p > .05$]. Communication of Standard I, III and V students did not influence by their type of preschooling.

Influence of Type of preschooling on Leadership. Indices of leadership among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 244.

Table 244

Mean and Standard Deviation of Leadership by Type of Preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	77.40	11.64	105	76.79	10.06	78	80.49	10.84	53
III	80.48	8.96	104	78.76	9.74	67	81.32	10.92	44
V	69.64	10.94	166	71.80	12.16	84	73.06	11.07	48

The results of One-way Analyses of Variance for comparing leadership among standard I, III and V students by their type of preschooling are summarized in Table 245.

Table 245

Analyses of Variance of Leadership by Type of Preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	477.188	2	238.594	1.99	.139
	Within Groups	27979.163	233	120.082		
	Total	28456.352	235			
III	Between Groups	200.407	2	100.203	1.08	0.341
	Within Groups	19669.69	212	92.782		
	Total	19870.09	214			
V	Between Groups	553.234	2	276.617	2.16	0.117
	Within Groups	37780.69	295	128.07		
	Total	38333.92	297			

Table 245 shows that there is no significant difference in leadership by preschooling (Anganwadi, Montessori, Kindergarten) neither in Standard [$F(2, 233)$

= 1.99, $p > .05$], nor in Standard III [$F(2, 212) = 1.08, p > .05$]; and in Standard V [$F(2, 295) = 2.16, p > .05$]. Leadership of Standard I, III and V students did not influence by their type of preschooling.

Influence of Type of Preschooling on Expressing Emotions. Indices of expressing emotions among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 246.

Table 246

Mean and Standard Deviation of Expressing Emotions by Type of Preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	72.59	10.25	105	74.55	8.18	78	72.94	11.15	53
III	69.45	9.84	104	72.72	11.95	67	72.00	11.63	44
V	71.70	12.09	166	71.88	11.94	84	72.38	15.94	48

The results of One-way Analyses of Variance for comparing expressing emotions among standard I, III and V students by their type of preschooling are summarized in Table 247.

Table 247

Analyses of Variance of Expressing Emotions by Type of Preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	181.650	2	90.825	0.94	.393
	Within Groups	22561.516	233	96.831		
	Total	22743.165	235			
III	Between Groups	490.61	2	245.305	2.06	0.129
	Within Groups	25195.37	212	118.846		
	Total	25685.98	214			
V	Between Groups	16.763	2	8.382	0.05	0.95
	Within Groups	47906.6	295	162.395		
	Total	47923.36	297			

Table 247 shows that there is no significant difference in expressing emotions by preschooling (Anganwadi, Montessori, Kindergarten) neither in Standard I [$F(2, 233) = .94, p > .05$]; nor in Standard III [$F(2, 212) = 2.06, p > .05$]; nor in Standard V

[$F(2, 295) = .05, p > .05$]. Expressing emotions of Standard I, III and V students did not influence by their type of preschooling.

Influence of Type of Preschooling on Controlling Emotions. Indices of controlling emotions among standard I, III and V students by their type of preschooling - Anganwadi, Kindergarten and Montessori - are given in Table 248.

Table 248

Mean and Standard Deviation of Controlling Emotions by Type of Preschooling of Primary Standard Students

Standard	Anganwadi			Kindergarten			Montessori		
	M	S.D	N	M	S.D	N	M	S.D	N
I	65.24	7.15	105	65.04	8.50	78	68.13	7.77	53
III	68.55	8.04	104	69.12	8.04	67	66.41	7.80	44
V	70.63	10.07	166	69.98	10.98	84	75.02	10.02	48

The results of One-way Analyses of Variance for comparing controlling emotions among standard I, III and V students by their type of preschooling are summarized in Table 249.

Table 249

Analyses of Variance of Controlling Emotions by Type of Preschooling of Primary Standard Students

Standard	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	366.518	2	183.259	3.05*	.049
	Within Groups	14016.008	233	60.155		
	Total	14382.525	235			
III	Between Groups	208.68	2	104.34	1.63	0.198
	Within Groups	13549.44	212	63.912		
	Total	13758.12	214			
V	Between Groups	879.383	2	439.692	4.12*	0.017
	Within Groups	31467.52	295	106.67		
	Total	32346.9	297			

Note. * $p < .05$

Table 249 shows that there is significant, but small effect of type of preschooling on controlling emotions of Standard I students. Controlling emotions significantly differ among students who preschoolled in Anganwadi ($M=65.24$,

$SD=7.15$, $N=105$); Kindergarten ($M=65.04$, $SD=8.50$, $N=78$); and, Montessori ($M=68.13$, $SD=7.77$, $N=53$), [$F(2, 233) = 3.05$, $p < .05$, $\eta^2 = .025$]. The comparison of means using t test showed that controlling emotions in standard I is significantly higher in students who preschooled in Montessori than in students who preschooled in Kindergarten, with small effect [$t = 2.15$, $p < .05$, Cohen's $d = 0.38$] and, in students who preschooled in Anganwadi, with small effect [$t = 2.27$, $p < .05$, Cohen's $d = 0.39$]. But there is no significant difference in controlling emotions of standard I students who preschooled in Anganwadi and Kindergarten [$t = 0.17$, $p > .05$].

There is significant, but small effect of type of preschooling on controlling emotions of Standard I students. Controlling emotions of Standard I is significantly higher in students who preschooled in Montessori than in students who preschooled in Kindergarten or Anganwadi.

In Standard V also, there is significant, but small effect of type of preschooling on controlling emotions. Controlling emotions significantly differ among Standard V students who preschooled in Anganwadi ($M=70.63$, $SD=10.07$, $N=166$); Kindergarten ($M=69.98$, $SD=10.98$, $N=84$); and, Montessori ($M=75.02$, $SD=10.02$, $N=48$), [$F(2, 295) = 4.12$, $p < .05$, $\eta^2 = .027$]. The comparison of means using t test showed that controlling emotions in standard V is significantly higher in students who preschooled in Montessori than in students who preschooled in Kindergarten with small effect [$t = 2.69$, $p < .05$, Cohen's $d = 0.48$] and, in students who preschooled in Anganwadi with small effect [$t = 2.67$, $p < .05$, Cohen's $d = 0.44$]. But there is no significant difference in controlling emotions of standard V students who preschooled in Anganwadi and Kindergarten [$t = 0.46$, $p > .05$].

There is significant, but small effect of type of Preschooling on controlling emotions of Standard V students also. Controlling emotions of Standard V is significantly higher in students who preschooled in Montessori than in students who preschooled in Kindergarten or Anganwadi.

But in Standard III, there is no significant difference in controlling emotions of students who preschooled in Anganwadi Kindergarten and, Montessori [$F(2, 212) = 1.63$, $p > .05$].

Type of preschooling did not influence controlling emotions of Standard III students. But there is significant, but small effect of type of preschooling in controlling emotions of Standard I and V students. Controlling emotions in standard I and V is significantly higher in students who preschoolled in Montessori than in students who preschoolled in Kindergarten or Anganwadi with small effect. But there is no significant difference in controlling emotions of standard I and V students who preschoolled in Anganwadi and Kindergarten.

Influence of Type of preschooling on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Gender

Whether influence of type of preschooling on cognitive and socio-emotional outcomes of primary standard students vary by their gender was studied using 3×2 ANOVAs. Wherever a significant 3×2 interaction is revealed, further one way Anova of the dependent variable with type of preschooling were done for gender separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Type of Preschooling on Cognitive Outcomes of Primary Standard Students by Gender

Influence of type of preschooling on cognitive outcomes of Standard I, III and V students by their gender were studied and the results are given distinctly.

Gender-wise Influence of Type of Preschooling on Vocabulary in Malayalam. Influence of type of preschooling on vocabulary in Malayalam of Standard I, III and V students by gender were studied using 3×2 ANOVAs. Results are given in Table 250.

Table 250

Results of 3×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	947133.891	1	947133.9	2226.92	0.88
	Type of Preschool	359.46	2	179.73	0.42	0.003
	Gender	4154.641	1	4154.641	9.77	0.031
	Type of Preschool*Gender	673.599	2	336.8	0.79	0.005
	Error	129720.171	305	425.312		
	Total	1253896	311			
III	Intercept	526740.716	1	526740.7	1579.61	0.851
	Type of Preschool	2986.583	2	1493.292	4.48	0.031
	Gender	5820.385	1	5820.385	17.45	0.059
	Type of Preschool*Gender	598.822	2	299.411	0.90	0.006
	Error	92035.789	276	333.463		
	Total	683950	282			
V	Intercept	527370.247	1	527370.2	1776.53	0.808
	Type of Preschool	1394.351	2	697.175	2.35	0.011
	Gender	4393.429	1	4393.429	14.80	0.034
	Type of Preschool*Gender	208.753	2	104.376	0.35	0.002
	Error	125569.23	423	296.854		
	Total	900640	429			

Table 250 shows that the influence of type of preschooling on vocabulary in Malayalam does not vary by gender of: (a) Standard I students [$F(2, 305) = 0.79, p > .05$] (b) Standard III students [$F(2, 276) = 0.90, p > .05$] and (c) Standard V students [$F(2, 423) = 0.35, p > .05$]. Among primary standard students, influence of type of preschooling on vocabulary in Malayalam does not vary by gender.

Gender-wise Influence of Type of Preschooling on Malayalam Comprehension. Influence of type of preschooling on Malayalam comprehension of Standard I, III and V students by gender were studied using 3×2 ANOVAs. Results are given in Table 251.

Table 251

Results of 3 × 2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	506228.381	1	506228.4	922.05	0.751
	Type of Preschool	2348.146	2	1174.073	2.14	0.014
	Gender	1105.022	1	1105.022	2.01	0.007
	Type of Preschool*Gender	234.761	2	117.381	0.21	0.001
	Error	167452.085	305	549.023		
	Total	748941	311			
III	Intercept	764465.931	1	764465.9	1532.87	0.847
	Type of Preschool	100.112	2	50.056	0.10	0.001
	Gender	8749.622	1	8749.622	17.54	0.06
	Type of Preschool*Gender	459.859	2	229.929	0.46	0.003
	Error	137645.676	276	498.716		
	Total	993726	282			
V	Intercept	468654.255	1	468654.3	1091.75	0.721
	Type of Preschool	2182.785	2	1091.392	2.54	0.012
	Gender	10644.166	1	10644.17	24.80	0.055
	Type of Preschool*Gender	31.536	2	15.768	0.04	0
	Error	181581.199	423	429.27		
	Total	862469	429			

Table 251 shows that the influence of type of preschooling on Malayalam comprehension does not vary by gender of: (a) Standard I students [$F(2, 305) = 0.21, p > .05$] (b) Standard III students [$F(2, 276) = 0.46, p > .05$] and (c) Standard V students [$F(2, 423) = 0.04, p > .05$]. Among primary standard students, influence of type of preschooling on Malayalam comprehension does not vary by gender.

Gender-wise Influence of Type of Preschooling on Vocabulary in English.

Influence of type of preschooling on vocabulary in English of Standard I, III and V students by gender were studied using 3 × 2 ANOVAs. Results are given in Table 252.

Table 252

Results of 3 × 2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1040501.69	1	1040502	2448.08	0.889
	Type of Preschool	12882.939	2	6441.469	15.16	0.09
	Gender	1096.094	1	1096.094	2.58	0.008
	Type of Preschool* Gender	428.648	2	214.324	0.50	0.003
	Error	129633.215	305	425.027		
	Total	1301847	311			
III	Intercept	476547.265	1	476547.3	1085.09	0.797
	Type of Preschool	17307.397	2	8653.699	19.70	0.125
	Gender	7844.486	1	7844.486	17.86	0.061
	Type of Preschool* Gender	3312.015	2	1656.007	3.77*	0.027
	Error	121212.745	276	439.177		
	Total	629290	282			
V	Intercept	644228.756	1	644228.8	1582.32	0.789
	Type of Preschool	12023.571	2	6011.786	14.77	0.065
	Gender	1955.753	1	1955.753	4.80	0.011
	Type of Preschool* Gender	292.399	2	146.2	0.36	0.002
	Error	172221.187	423	407.142		
	Total	1026564	429			

Note. * $p < .05$

Table 252 shows that the influence of type of preschooling on vocabulary in English does not vary by gender of: (a) Standard I students [$F(2, 305) = 0.50, p > .05$] and (b) Standard V students [$F(2, 423) = 0.36, p > .05$]. But, the influence of type of preschooling on vocabulary in English of Standard III students vary significantly by gender [$F(2, 276) = 3.77, p < .05, \eta^2 = 0.027$], though the interaction is small.

Follow up analysis of variance revealed that in Standard III, there is significant influence of type of preschooling on vocabulary in English of girls with small effect (Anganwadi: $M = 45.93, SD = 23.96, N = 69$; Kindergarten: $M = 40.18, SD = 17.87, N = 49$; Montessori: $M = 60.62, SD = 24.37, N = 26$) [$F(2, 141) = 7.290, p < .05, \eta^2 = 0.09$], and boys with medium effect (Anganwadi: $M = 26.22, SD = 15.51, N = 59$ and Kindergarten: $M = 35.67, SD = 21.21, N = 45$, Montessori: $M = 51.47, SD = 23.52, N = 34$) [$F(2, 135) = 17.850, p < .05, \eta^2 = 0.21$]. Vocabulary in English is higher among Standard III girls and boys who preschoolled in Montessori than those who preschoolled in Kindergarten and Anganwadi.

Gender-wise Influence of Type of Preschooling on English Comprehension. Influence of type of preschooling on English comprehension of Standard I, III and V students by gender were studied using 3×2 ANOVAs. Results are given in Table 253.

Table 253

Results of 3×2 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	452937.84	1	452937.8	976.64	0.762
	Type of Preschool	20815.054	2	10407.53	22.44	0.128
	Gender	574.001	1	574.001	1.24	0.004
	Type of Preschool*Gender	315.328	2	157.664	0.34	0.002
	Error	141450.368	305	463.772		
	Total	624828	311			
III	Intercept	407962.019	1	407962	781.04	0.739
	Type of Preschool	16950.942	2	8475.471	16.23	0.105
	Gender	5603.217	1	5603.217	10.73	0.037
	Type of Preschool*Gender	4831.453	2	2415.726	4.63*	0.032
	Error	144163.42	276	522.331		
	Total	570400	282			
V	Intercept	860487.111	1	860487.1	1946.89	0.822
	Type of Preschool	11614.053	2	5807.027	13.14	0.058
	Gender	1576.928	1	1576.928	3.57	0.008
	Type of Preschool*Gender	110.659	2	55.329	0.13	0.001
	Error	186957.597	423	441.98		
	Total	1352799	429			

Note. * $p < .05$

Table 253 shows that the influence of type of preschooling on English comprehension does not vary by gender of: (a) Standard I students [$F(2, 305) = 0.34, p > .05$] and (b) Standard V students [$F(2, 423) = 0.13, p > .05$]. But, the influence of type of preschooling on English comprehension of Standard III students vary significantly by gender [$F(2, 276) = 4.63, p < .05, \eta^2 = 0.03$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on English comprehension of Standard III girls (Anganwadi: $M = 39.64$, $SD = 26.82$, $N = 69$; Kindergarten: $M = 34.59$, $SD = 17.82$, $N = 49$; Montessori: $M = 60.19$, $SD = 28.83$, $N = 26$) [$F(2, 141) = 9.678$, $p < .05$, $\eta^2 = 0.12$], and boys with medium effect (Anganwadi: $M = 24.66$, $SD = 16.16$, $N = 59$ and Kindergarten: $M = 37.00$, $SD = 23.56$, $N = 45$, Montessori: $M = 44.56$, $SD = 24.41$, $N = 34$) [$F(2, 135) = 10.619$, $p < .05$, $\eta^2 = 0.14$]. English comprehension is higher among Standard III girls and boys who preschoolled in Montessori than Kindergarten and Anganwadi.

Gender-wise Influence of Type of Preschooling on Achievement in Mathematics. Influence of type of preschooling on achievement in Mathematics of Standard I, III and V Students by gender were studied using 3×2 ANOVAs. Results are given in Table 254.

Table 254

Results of 3×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1060095.96	1	1060096	3096.35	0.91
	Type of Preschool	4969.7	2	2484.85	7.26	0.045
	Gender	873.305	1	873.305	2.55	0.008
	Type of Preschool* Gender	8.352	2	4.176	0.01	0
	Error	104422.573	305	342.369		
	Total	1349683	311			
III	Intercept	660717.921	1	660717.9	1527.33	0.847
	Type of Preschool	14676.973	2	7338.486	16.96	0.109
	Gender	4557.094	1	4557.094	10.53	0.037
	Type of Preschool* Gender	260.114	2	130.057	0.30	0.002
	Error	119396.618	276	432.596		
	Total	810682	282			
V	Intercept	735592.513	1	735592.5	2264.97	0.843
	Type of Preschool	3410.199	2	1705.099	5.25	0.024
	Gender	403.569	1	403.569	1.24	0.003
	Type of Preschool* Gender	456.131	2	228.065	0.70	0.003
	Error	137377.639	423	324.77		
	Total	1184977	429			

Table 254 shows that the influence of type of preschooling on achievement in Mathematics does not vary by gender of: (a) Standard I students [$F(2, 305) = 0.01, p > .05$] (b) Standard III students [$F(2, 276) = 0.30, p > .05$] and (c) Standard V students [$F(2, 423) = 0.70, p > .05$]. Among primary standard students, influence of type of preschooling on achievement in Mathematics does not vary by gender.

Gender-wise Influence of Type of Preschooling on Socio-Emotional Outcomes of Primary Standard Students

Influence of type of preschooling on socio-emotional outcomes of Standard I, III and V students by their gender were studied and the results are given distinctly.

Gender-wise Influence of Type of Preschooling on Personal Independence. Influence of type of preschooling on personal independence of Standard I, III and V students by gender were studied using 3×2 ANOVAs. Results are given in Table 255.

Table 255

Results of 3×2 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1774353	1	1774353	7564.081	0.97
	Type of Preschool	54.933	2	27.466	0.12	0.001
	Gender	4.517	1	4.517	0.02	0
	Type of Preschool * Gender	353.269	2	176.635	0.75	0.007
	Error	53952.52	230	234.576		
	Total	2004847	236			
III	Intercept	1609490	1	1609490	7791.76	0.974
	Type of Preschool	521.781	2	260.891	1.26	0.012
	Gender	99.906	1	99.906	0.48	0.002
	Type of Preschool * Gender	62.927	2	31.464	0.15	0.001
	Error	43171.68	209	206.563		
	Total	1869297	215			
V	Intercept	2057946	1	2057946	13876.26	0.979
	Type of Preschool	300.155	2	150.078	1.01	0.007
	Gender	35.158	1	35.158	0.24	0.001
	Type of Preschool * Gender	115.432	2	57.716	0.39	0.003
	Error	43305.62	292	148.307		
	Total	2728758	298			

Table 255 shows that the influence of type of preschooling on personal independence does not vary by gender of: (a) Standard I students [$F(2, 230) = 0.75, p > .05$] (b) Standard III students [$F(2, 209) = 0.15, p > .05$] and (c) Standard V students [$F(2, 292) = 0.39, p > .05$]. Among primary standard students, influence of type of preschooling on personal independence does not vary by gender.

Gender-wise Influence of Type of Preschooling on Academic Independence. Influence of type of preschooling on academic independence of Standard I, III and V students by gender were studied using 3×2 ANOVAs. Results are given in Table 256.

Table 256

Results of 3×2 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1511787	1	1511787	6653.09	0.967
	Type of Preschool	167.372	2	83.686	0.37	0.003
	Gender	1649.429	1	1649.429	7.26	0.031
	Type of Preschool*Gender	200.331	2	100.165	0.44	0.004
	Error	52263.07	230	227.231		
	Total	1710406	236			
III	Intercept	1497103	1	1497103	7494.72	0.973
	Type of Preschool	847.194	2	423.597	2.12	0.02
	Gender	1221.535	1	1221.535	6.12	0.028
	Type of Preschool*Gender	772.031	2	386.015	1.93	0.018
	Error	41748.67	209	199.754		
	Total	1783366	215			
V	Intercept	1678258	1	1678258	7822.86	0.964
	Type of Preschool	15.382	2	7.691	0.04	0
	Gender	2293.821	1	2293.821	10.69	0.035
	Type of Preschool*Gender	1009.343	2	504.672	2.35	0.016
	Error	62643.48	292	214.532		
	Total	2267476	298			

Table 256 shows that the influence of type of preschooling on academic independence does not vary by gender of: (a) Standard I students [$F(2, 230) = 0.44,$

$p > .05$] (b) Standard III students [$F(2, 209) = 1.93, p > .05$] and (c) Standard V students [$F(2, 292) = 2.35, p > .05$]. Among primary standard students, influence of type of preschooling on academic independence does not vary by gender.

Gender-wise Influence of Type of Preschooling on Work Habit. Influence of type of preschooling on work habit of Standard I, III and V students by gender were studied using 3×2 ANOVAs. Results are given in Table 257.

Table 257

Results of 3×2 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1188224	1	1188224	5062.30	0.957
	Type of Preschool	563.991	2	281.995	1.20	0.01
	Gender	2227.737	1	2227.737	9.49	0.04
	Type of Preschool*Gender	549.729	2	274.865	1.17	0.01
	Error	53985.71	230	234.72		
	Total	1359898	236			
III	Intercept	940876.7	1	940876.7	4401.96	0.955
	Type of Preschool	919.467	2	459.734	2.15	0.02
	Gender	1496.688	1	1496.688	7.00	0.032
	Type of Preschool*Gender	71.793	2	35.897	0.17	0.002
	Error	44671.79	209	213.741		
	Total	1127576	215			
V	Intercept	1076700	1	1076700	4636.02	0.941
	Type of Preschool	8.192	2	4.096	0.02	0
	Gender	657.695	1	657.695	2.83	0.01
	Type of Preschool*Gender	139.691	2	69.846	0.30	0.002
	Error	67815.97	292	232.246		
	Total	1485919	298			

Table 257 shows that the influence of type of preschooling on work habit does not vary by gender of: (a) Standard I students [$F(2, 230) = 1.17, p > .05$] (b) Standard III students [$F(2, 209) = 0.17, p > .05$] and (c) Standard V students [$F(2, 292) = 0.30, p > .05$]. Among primary standard students, influence of type of preschooling on work habit does not vary by gender.

Gender-wise Influence of Type of Preschooling on Interpersonal Relationship. Influence of type of preschooling on interpersonal relationship of Standard I, III and V students by gender were studied using 3×2 ANOVAs. Results are given in Table 258.

Table 258

Results of 3×2 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1552063	1	1552063	16996.47	0.987
	Type of Preschool	136.985	2	68.493	0.75	0.006
	Gender	1.404	1	1.404	0.02	0
	Type of Preschool*Gender	269.314	2	134.657	1.48	0.013
	Error	21002.86	230	91.317		
	Total	1717042	236			
III	Intercept	1344020	1	1344020	12372.74	0.983
	Type of Preschool	174.062	2	87.031	0.80	0.008
	Gender	126.213	1	126.213	1.16	0.006
	Type of Preschool*Gender	25.858	2	12.929	0.12	0.001
	Error	22703.14	209	108.627		
	Total	1563169	215			
V	Intercept	1041070	1	1041070	10504.38	0.973
	Type of Preschool	201.775	2	100.887	1.02	0.007
	Gender	190.183	1	190.183	1.92	0.007
	Type of Preschool*Gender	128.606	2	64.303	0.65	0.004
	Error	28939.58	292	99.108		
	Total	1379003	298			

Table 258 shows that the influence of type of preschooling on interpersonal relationship does not vary by gender of: (a) Standard I students [$F(2, 230) = 1.48, p > .05$] (b) Standard III students [$F(2, 209) = 0.12, p > .05$] and (c) Standard V students [$F(2, 292) = 0.65, p > .05$]. Among primary standard students, influence of type of preschooling on interpersonal relationship does not vary by gender.

Gender-wise Influence of Type of Preschooling on Cooperation. Influence of type of preschooling on cooperation of Standard I, III and V students by gender were studied using 3×2 ANOVAs. Results are given in Table 259.

Table 259

Results of 3 × 2 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1275643	1	1275643	6061.61	0.963
	Type of Preschool	471.699	2	235.85	1.12	0.01
	Gender	1573.101	1	1573.101	7.48	0.031
	Type of Preschool*Gender	497.425	2	248.712	1.18	0.01
	Error	48402.66	230	210.446		
	Total	1454040	236			
III	Intercept	1155252	1	1155252	4692.60	0.957
	Type of Preschool	1178.568	2	589.284	2.39	0.022
	Gender	496.046	1	496.046	2.02	0.01
	Type of Preschool*Gender	761.883	2	380.942	1.55	0.015
	Error	51452.83	209	246.186		
	Total	1383310	215			
V	Intercept	1244407	1	1244407	7430.39	0.962
	Type of Preschool	1125.276	2	562.638	3.36	0.022
	Gender	372.985	1	372.985	2.23	0.008
	Type of Preschool*Gender	417.943	2	208.971	1.25	0.008
	Error	48902.78	292	167.475		
	Total	1636090	298			

Table 259 shows that the influence of type of preschooling on cooperation does not vary by gender of: (a) Standard I students [$F(2, 230) = 1.18, p > .05$] (b) Standard III students [$F(2, 209) = 1.55, p > .05$] and (c) Standard V students [$F(2, 292) = 1.25, p > .05$]. Among primary standard students, influence of type of preschooling on cooperation does not vary by gender.

Gender-wise Influence of Type of Preschooling on Communication.

Influence of type of preschooling on communication of Standard I, III and V students by gender were studied using 3 × 2 ANOVAs. Results are given in Table 260.

Table 260

Results of 3 × 2 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1686436	1	1686436	8176.54	0.973
	Type of Preschool	336.253	2	168.127	0.82	0.007
	Gender	511.258	1	511.258	2.48	0.011
	Type of Preschool*Gender	45.537	2	22.769	0.11	0.001
	Error	47438.18	230	206.253		
	Total	1882499	236			
III	Intercept	1514614	1	1514614	9507.76	0.978
	Type of Preschool	231.864	2	115.932	0.73	0.007
	Gender	21.663	1	21.663	0.14	0.001
	Type of Preschool*Gender	233.073	2	116.537	0.73	0.007
	Error	33294.32	209	159.303		
	Total	1769759	215			
V	Intercept	1690061	1	1690061	8023.18	0.965
	Type of Preschool	365.468	2	182.734	0.87	0.006
	Gender	1707.195	1	1707.195	8.11	0.027
	Type of Preschool*Gender	1114.684	2	557.342	2.65	0.018
	Error	61509	292	210.647		
	Total	2249115	298			

Table 260 shows that the influence of type of preschooling on communication does not vary by gender of: (a) Standard I students [$F(2, 230) = 0.11, p > .05$] (b) Standard III students [$F(2, 209) = 0.73, p > .05$] and (c) Standard V students [$F(2, 292) = 2.65, p > .05$]. Among primary standard students, influence of type of preschooling on communication does not vary by gender.

Gender-wise Influence of Type of Preschooling on Leadership. Influence of type of preschooling on leadership of Standard I, III and V students by gender were studied using 3 × 2 ANOVAs. Results are given in Table 261.

Table 261

Results of 3 × 2 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1319447	1	1319447	11057.39	0.98
	Type of Preschool	510.01	2	255.005	2.14	0.018
	Gender	414.778	1	414.778	3.48	0.015
	Type of Preschool*Gender	40.524	2	20.262	0.17	0.001
	Error	27445.25	230	119.327		
	Total	1460383	236			
III	Intercept	1217320	1	1217320	13482.24	0.985
	Type of Preschool	127.987	2	63.994	0.71	0.007
	Gender	469.736	1	469.736	5.20	0.024
	Type of Preschool*Gender	411.369	2	205.685	2.28	0.021
	Error	18870.75	209	90.291		
	Total	1399873	215			
V	Intercept	1161126	1	1161126	8990.30	0.969
	Type of Preschool	598.085	2	299.042	2.32	0.016
	Gender	39.443	1	39.443	0.31	0.001
	Type of Preschool*Gender	54.243	2	27.121	0.21	0.001
	Error	37712.74	292	129.153		
	Total	1532044	298			

Table 261 shows that the influence of type of preschooling on leadership does not vary by gender of: (a) Standard I students [$F(2, 230) = 0.17, p > .05$] (b) Standard III students [$F(2, 209) = 2.28, p > .05$] and (c) Standard V students [$F(2, 292) = 0.21, p > .05$]. Among primary standard students, influence of type of preschooling on leadership does not vary by gender.

Gender-wise Influence of Type of Preschooling on Expressing Emotions.

Influence of type of preschooling on expressing emotions of Standard I, III and V students by gender were studied using 3 × 2 ANOVAs. Results are given in Table 262.

Table 262

Results of 3 × 2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1161689	1	1161689	12054.45	0.981
	Type of Preschool	162.741	2	81.37	0.84	0.007
	Gender	376.193	1	376.193	3.90	0.017
	Type of Preschool*Gender	42.029	2	21.015	0.22	0.002
	Error	22165.14	230	96.37		
	Total	1291361	236			
III	Intercept	961328.2	1	961328.2	8174.04	0.975
	Type of Preschool	600.275	2	300.137	2.55	0.024
	Gender	97.832	1	97.832	0.83	0.004
	Type of Preschool*Gender	514.509	2	257.255	2.19	0.021
	Error	24579.96	209	117.607		
	Total	1109217	215			
V	Intercept	1181914	1	1181914	7314.37	0.962
	Type of Preschool	64.136	2	32.068	0.20	0.001
	Gender	622.3	1	622.3	3.85	0.013
	Type of Preschool*Gender	419.281	2	209.64	1.30	0.009
	Error	47183.65	292	161.588		
	Total	1586857	298			

Table 262 shows that the influence of type of preschooling on expressing emotions does not vary by gender of: (a) Standard I students [$F(2, 230) = 0.22, p > .05$] (b) Standard III students [$F(2, 209) = 2.19, p > .05$] and (c) Standard V students [$F(2, 292) = 1.30, p > .05$]. Among primary standard students, influence of type of preschooling on expressing emotions does not vary by gender.

Gender-wise Influence of Type of Preschooling on Controlling Emotions.

Influence of type of preschooling on controlling emotions of Standard I, III and V students by gender were studied using 3 × 2 ANOVAs. Results are given in Table 263.

Table 263

Results of 3 × 2 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and Gender

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	942073.9	1	942073.9	15505.74	0.985
	Type of Preschool	362.638	2	181.319	2.98	0.025
	Gender	24.794	1	24.794	0.41	0.002
	Type of Preschool*Gender	11.318	2	5.659	0.09	0.001
	Error	13973.98	230	60.756		
	Total	1036862	236			
III	Intercept	872387.6	1	872387.6	13718.61	0.985
	Type of Preschool	215.453	2	107.727	1.69	0.016
	Gender	43.827	1	43.827	0.69	0.003
	Type of Preschool*Gender	197.206	2	98.603	1.55	0.015
	Error	13290.63	209	63.592		
	Total	1016368	215			
V	Intercept	1175679	1	1175679	11022.24	0.974
	Type of Preschool	1019.661	2	509.831	4.78	0.032
	Gender	306.317	1	306.317	2.87	0.01
	Type of Preschool*Gender	97.124	2	48.562	0.46	0.003
	Error	31145.99	292	106.664		
	Total	1541104	298			

Table 263 shows that the influence of type of preschooling on controlling emotions does not vary by gender of: (a) Standard I students [$F(2, 230) = 0.09, p > .05$] (b) Standard III students [$F(2, 209) = 1.55, p > .05$] and (c) Standard V students [$F(2, 292) = 0.46, p > .05$]. Among primary standard students, influence of type of preschooling on controlling emotions does not vary by gender.

Influence of Type of Preschooling on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Birth Order

Whether influence of type of preschooling on cognitive and socio-emotional outcomes of primary standard students vary by their Birth Order (BO) was studied using 2 × 2 ANOVAs. Wherever a significant 3 × 3 interaction is revealed, further one way Anova of the dependent variable with type of preschooling were done for BO separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Type of Preschooling on Cognitive Outcomes of Primary Standard Students by BO

Influence of type of preschooling on cognitive outcomes of Standard I, III and V students by Their BO were studied and the results are given distinctly.

Influence of Type of Preschooling on Vocabulary in Malayalam BO. Influence of type of preschooling on vocabulary in Malayalam of Standard I, III and V students by BO were studied using 3×3 ANOVAs. Results are given in Table 264.

Table 264

Results of 3×3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	762188.838	1	762188.8	1765.42	0.854
	Type of Preschool	1.947	2	0.973	0.00	0
	BO	1794.373	2	897.187	2.08	0.014
	Type of Preschool* BO	2463.486	4	615.871	1.43	0.019
	Error	130382.847	302	431.731		
	Total	1253896	311			
III	Intercept	457582.284	1	457582.3	1286.42	0.825
	Type of Preschool	2216.352	2	1108.176	3.12	0.022
	BO	1823.376	2	911.688	2.56	0.018
	Type of Preschool* BO	1356.663	4	339.166	0.95	0.014
	Error	97106.843	273	355.703		
	Total	683950	282			
V	Intercept	330928.859	1	330928.9	1046.25	0.714
	Type of Preschool	955.132	2	477.566	1.51	0.007
	BO	536.584	2	268.292	0.85	0.004
	Type of Preschool* BO	288.509	4	72.127	0.23	0.002
	Error	132845.723	420	316.299		
	Total	900640	429			

Table 264, shows that the influence of type of preschooling on vocabulary in Malayalam does not vary by BO of: (a) Standard I students [$F(4, 302) = 1.43, p > .05$] (b) Standard III students [$F(4, 273) = 0.95, p > .05$] and (c) Standard V students [$F(4, 420) = 0.23, p > .05$]. Among primary standard students, influence of type of preschooling on vocabulary in Malayalam does not vary by BO.

Influence of Type of Preschooling on Malayalam Comprehension by BO. Influence of type of preschooling on Malayalam comprehension of Standard I,

III and V students by BO were studied using 3×3 ANOVAs. Results are given in Table 265.

Table 265

Results of 3×3 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	407546.415	1	407546.4	732.55	0.708
	Type of Preschool	1376.655	2	688.327	1.24	0.008
	BO	149.916	2	74.958	0.14	0.001
	Type of Preschool* BO	282.087	4	70.522	0.13	0.002
	Error	168013.896	302	556.337		
	Total	748941	311			
III	Intercept	672213.948	1	672213.9	1279.95	0.824
	Type of Preschool	16.928	2	8.464	0.02	0
	BO	421.17	2	210.585	0.40	0.003
	Type of Preschool* BO	2307.361	4	576.84	1.10	0.016
	Error	143376.027	273	525.187		
	Total	993726	282			
V	Intercept	291772.028	1	291772	634.47	0.602
	Type of Preschool	2488.677	2	1244.338	2.71	0.013
	BO	429.25	2	214.625	0.47	0.002
	Type of Preschool* BO	5178.629	4	1294.657	2.82*	0.026
	Error	193145.896	420	459.871		
	Total	862469	429			

Note. * $p < .05$

Table 265 shows that the influence of type of preschooling on Malayalam comprehension does not vary by BO of: (a) Standard I students [$F(4,302) = 0.13$, $p > .05$] and (b) Standard III students [$F(4, 273) = 1.10$, $p > .05$]. But, the influence of type of preschooling on vocabulary in Malayalam of Standard V students vary significantly by BO [$F(1, 420) = 2.82$, $p < .05$, $\eta^2 = 0.0026$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on Malayalam comprehension of Standard V single child (Anganwadi: $M = 30.43$, $SD = 17.58$, $N = 23$; Kindergarten: $M = 37.43$, $SD = 21.86$, $N = 44$; Montessori: $M = 59.25$, $SD = 18.54$, $N = 4$) [$F(2, 68) = 3.540$, $p < .05$, $\eta^2 = 0.09$], and later born (Anganwadi: $M = 39.50$, $SD = 20.71$, $N = 111$ and Kindergarten: $M = 36.54$, $SD = 23.07$, $N = 85$, Montessori: $M = 48.78$, $SD = 23.50$, $N = 27$) [$F(2, 220) = 3.176$, $p < .05$,

$\eta^2 = 0.03$], but not among first child (Anganwadi: $M = 40.93$, $SD = 19.54$, $N = 69$ and Kindergarten: $M = 41.67$, $SD = 23.08$, $N = 49$, Montessori: $M = 34.88$, $SD = 20.89$, $N = 17$) [$F(2, 132) = 0.695$, $p > .05$]. Malayalam comprehension is higher among single child and later borns in Standard V who preschooled in Montessori than the single child and later borns who preschooled in Kindergarten and Anganwadi.

Influence of Type of Preschooling on Vocabulary in English by BO.

Influence of type of preschooling on vocabulary in English of Standard I, III and V students by BO were studied using 3×3 ANOVAs. Results are given in Table 266.

Table 266

Results of 3×3 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	830288.713	1	830288.7	1959.93	0.866
	Type of Preschool	8025.024	2	4012.512	9.47	0.059
	BO	3083.785	2	1541.893	3.64	0.024
	Type of Preschool*BO	1919.807	4	479.952	1.13	0.015
	Error	127936.796	302	423.632		
	Total	1301847	311			
III	Intercept	407659.938	1	407659.9	868.45	0.761
	Type of Preschool	11979.947	2	5989.973	12.76	0.085
	BO	2390.996	2	1195.498	2.55	0.018
	Type of Preschool*BO	5144.95	4	1286.238	2.74*	0.039
	Error	128148.677	273	469.409		
	Total	629290	282			
V	Intercept	415494.08	1	415494.1	1003.71	0.705
	Type of Preschool	9985.421	2	4992.711	12.06	0.054
	BO	605.906	2	302.953	0.73	0.003
	Type of Preschool*BO	1227.027	4	306.757	0.74	0.007
	Error	173862.091	420	413.957		
	Total	1026564	429			

Note. * $p < .05$

Table 266 shows that the influence of type of preschooling on vocabulary in English does not vary by BO of: (a) Standard I students [$F(4, 302) = 1.13$, $p > .05$] and (b) Standard V students [$F(4, 420) = 0.74$, $p > .05$]. But, the influence of type of preschooling on vocabulary in English of Standard III students vary significantly by BO [$F(4, 273) = 2.74$, $p < .05$, $\eta^2 = 0.039$], though the interaction is small.

Follow up analysis of variance revealed that there is significant influence of type of preschooling on vocabulary in English of Standard III first child with small effect (Anganwadi: $M = 31.88$, $SD = 20.19$, $N = 40$; Kindergarten: $M = 36.21$, $SD = 16.00$, $N = 24$; Montessori: $M = 59.88$, $SD = 25.61$, $N = 16$) [$F(2, 77) = 11.183$, $p < .05$, $\eta^2 = 0.225$], and later borns with medium effect (Anganwadi: $M = 40.91$, $SD = 23.90$, $N = 66$ and Kindergarten: $M = 37.02$, $SD = 20.53$, $N = 45$, Montessori: $M = 60.30$, $SD = 21.59$, $N = 30$) [$F(2, 138) = 10.758$, $p < .05$, $\eta^2 = 0.135$], but not among single child (Anganwadi: $M = 33.68$, $SD = 21.85$, $N = 22$ and Kindergarten: $M = 41.56$, $SD = 21.14$, $N = 25$, Montessori: $M = 39.93$, $SD = 22.51$, $N = 14$) [$F(2, 58) = 0.819$, $p > .05$]. In Standard III, vocabulary in English is higher among first child and later borns who preschoolled in Montessori than first child and later borns who attended Kindergarten and Anganwadi.

Influence of Type of Preschooling on English Comprehension by BO.

Influence of type of preschooling on English comprehension of Standard I, III and V students by BO were studied using 3×3 ANOVAs. Results are given in Table 267.

Table 267

Results of 3×3 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	353203.477	1	353203.5	765.98	0.717
	Type of Preschool	15062.87	2	7531.435	16.33	0.098
	BO	2081.394	2	1040.697	2.26	0.015
	Type of Preschool* BO	2226.394	4	556.599	1.21	0.016
	Error	139255.674	302	461.112		
	Total	624828	311			
III	Intercept	344668.566	1	344668.6	639.94	0.701
	Type of Preschool	13982.902	2	6991.451	12.98	0.087
	Birth Order	2474.508	2	1237.254	2.30	0.017
	Type of Preschool* BO	5978.067	4	1494.517	2.78*	0.039
	Error	147037.33	273	538.598		
	Total	570400	282			
V	Intercept	544083.16	1	544083.2	1217.04	0.743
	Type of Preschool	8220.757	2	4110.378	9.19	0.042
	BO	899.272	2	449.636	1.01	0.005
	Type of Preschool* BO	1731.536	4	432.884	0.97	0.009
	Error	187762.383	420	447.053		
	Total	1352799	429			

Note. * $p < .05$

Table 267 shows that the influence of type of preschooling on English comprehension does not vary by BO of: (a) Standard I students [$F(4, 302) = 1.21, p > .05$] and (b) Standard V students [$F(4, 420) = 0.97, p > .05$]. But, the influence of type of preschooling on English comprehension of Standard III students vary significantly by BO [$F(4, 273) = 2.78, p < .05, \eta^2 = 0.039$], though the interaction is small.

Follow up analysis of variance revealed that there is significant influence of type of preschooling on English comprehension of Standard III first child (Anganwadi: $M = 28.13, SD = 16.40, N = 40$; Kindergarten: $M = 36.04, SD = 20.64, N = 24$; Montessori: $M = 59.06, SD = 31.74, N = 16$) [$F(2, 77) = 11.914, p < .05, \eta^2 = 0.236$], and later born (Anganwadi: $M = 38.11, SD = 25.82, N = 66$ and Kindergarten: $M = 33.78, SD = 22.44, N = 45$, Montessori: $M = 53.33, SD = 26.50, N = 30$) [$F(2, 138) = 5.876, p < .05, \eta^2 = 0.078$], but not among single child (Anganwadi: $M = 25.00, SD = 25.17, N = 22$ and Kindergarten: $M = 39.00, SD = 17.56, N = 25$, Montessori: $M = 38.21, SD = 19.77, N = 14$) [$F(2, 58) = 2.984, p > .05$]. In Standard III, English comprehension is higher among first child and later borns who preschoolled in Montessori than first child and later borns who preschoolled in Kindergarten and Anganwadi.

Influence of Type of Preschooling on Achievement in Mathematics by BO. Influence of type of preschooling on achievement in Mathematics of Standard I, III and V students by BO were studied using 3×3 ANOVAs. Results are given in Table 268.

Table 268

Results of 3 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	830677.449	1	830677.4	2511.14	0.893
	Type of Preschool	3338.436	2	1669.218	5.05	0.032
	BO	4661.342	2	2330.671	7.05	0.045
	Type of Preschool*BO	3085.394	4	771.349	2.33*	0.03
	Error	99900.546	302	330.797		
	Total	1349683	311			
III	Intercept	561487.461	1	561487.5	1285.49	0.825
	Type of Preschool	8543.716	2	4271.858	9.78	0.067
	BO	3156.451	2	1578.225	3.61	0.026
	Type of Preschool*BO	2901.997	4	725.499	1.66	0.024
	Error	119243.689	273	436.79		
	Total	810682	282			
V	Intercept	462592.649	1	462592.6	1415.76	0.771
	Type of Preschool	1963.501	2	981.751	3.01	0.014
	BO	204.788	2	102.394	0.31	0.001
	Type of Preschool*BO	426.535	4	106.634	0.33	0.003
	Error	137233.224	420	326.746		
	Total	1184977	429			

Note. * $p < .05$

Table 268 shows that the influence of type of preschooling on achievement in Mathematics does not vary by BO of: (a) Standard III students [$F(4, 273) = 1.66, p > .05$] and (b) Standard V students [$F(4, 420) = 0.33, p > .05$]. But, the influence of type of preschooling on achievement in Mathematics of Standard I students vary significantly by BO [$F(4, 302) = 2.33, p < .05, \eta^2 = 0.03$], though the interaction is small.

Follow up analysis of variance revealed that there is significant influence of type of preschooling on achievement in Mathematics of Standard I single child with small effect (Anganwadi: $M = 51.93, SD = 18.23, N = 30$; Kindergarten: $M = 65.26, SD = 20.57, N = 43$; Montessori: $M = 50.60, SD = 24.14, N = 10$) [$F(2, 80) = 4.751, p < .05, \eta^2 = 0.106$] and later born (Anganwadi: $M = 60.26, SD = 17.02, N = 76$ and Kindergarten: $M = 65.33, SD = 19.13, N = 61$, Montessori: $M = 72.10, SD = 15.00, N = 30$) [$F(2, 164) = 5.107, p < .05, \eta^2 = 0.007$], but not among first child (Anganwadi: $M = 61.39, SD = 16.81, N = 18$ and Kindergarten: $M = 66.17, SD = 18.44, N = 30$, Montessori: $M = 72.69, SD = 14.04, N = 13$) [$F(2, 58) = 1.642, p > .05$]. Achievement in Mathematics is higher

among single child who preschooled in Kindergarten than the single child who preschooled in Anganwadi and Montessori in Standard III. Achievement in Mathematics is also higher among later borns who preschooled in Montessori than later borns who preschooled in Kindergarten and Anganwadi in Standard III.

Influence of Type of Preschooling on Socio-Emotional Outcomes of Primary Standard Students by BO

Influence of type of preschooling on socio-emotional outcomes namely personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions of Standard I, III and V students by their BO were studied and the results are given distinctly.

Influence of Type of Preschooling on Personal Independence by BO.

Influence of type of preschooling on personal independence of Standard I, III and V students by BO were studied using 3×3 ANOVAs. Results are given in Table 269.

Table 269

Results of 3×3 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	1411787	1	1411787	6028.87	0	0.964
	Type of Preschool	27.497	2	13.748	0.06	0.943	0.001
	BO	321.317	2	160.659	0.69	0.505	0.006
	Type of Preschool * BO	940.613	4	235.153	1.00	0.406	0.017
	Error	53156.89	227	234.171			
	Total	2004847	236				
III	Intercept	1391929	1	1391929	6811.00	0	0.971
	Type of Preschool	886.385	2	443.192	2.17	0.117	0.021
	BO	107.884	2	53.942	0.26	0.768	0.003
	Type of Preschool * BO	1047.635	4	261.909	1.28	0.278	0.024
	Error	42099.13	206	204.365			
	Total	1869297	215				
V	Intercept	1217431	1	1217431	8483.03	0	0.967
	Type of Preschool	341.64	2	170.82	1.19	0.306	0.008
	BO	131.291	2	65.646	0.46	0.633	0.003
	Type of Preschool * BO	1865.2	4	466.3	3.25*	0.013	0.043
	Error	41475.49	289	143.514			
	Total	2728758	298				

Note. * $p < .05$

Table 269 shows that the influence of type of preschooling on personal independence does not vary by BO of: (a) Standard I students [$F(4, 227) = 1.00, p > .05$] and (b) Standard III students [$F(4, 206) = 1.28, p > .05$]. But, the influence of type of preschooling on personal independence of Standard I students vary significantly by BO [$F(4, 289) = 3.25, p < .05, \eta^2 = 0.043$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on personal independence of Standard V later born (Anganwadi: $M = 96.76, SD = 6.74, N = 93$; Kindergarten: $M = 90.38, SD = 18.40, N = 39$; Montessori: $M = 97.48, SD = 4.27, N = 27$) [$F(2, 156) = 5.658, p < .05, \eta^2 = 0.068$], but not among single child (Anganwadi: $M = 88.62, SD = 22.60, N = 13$ and Kindergarten: $M = 95.09, SD = 7.49, N = 11$, Montessori: $M = 96.00, SD = 4.62, N = 4$) [$F(2, 25) = 0.586, p > .05$] and first child (Anganwadi: $M = 92.95, SD = 16.52, N = 60$, and Kindergarten: $M = 97.76, SD = 3.58, N = 34$, Montessori: $M = 96.88, SD = 6.61, N = 17$) [$F(2, 108) = 1.795, p > .05$]. Personal independence is higher among later borns in Standard V who preschoolled in Montessori than later borns who preschoolled in Kindergarten and Anganwadi.

Influence of Type of Preschooling on Academic Independence by BO.

Influence of type of preschooling on academic independence of Standard I, III and V students by BO were studied using 3×3 ANOVAs. Results are given in Table 270.

Table 270

Results of 3 × 3 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1187693	1	1187693	5049.95	0.957
	Type of Preschool	88.882	2	44.441	0.19	0.002
	BO	60.627	2	30.313	0.13	0.001
	Type of Preschool*BO	711.103	4	177.776	0.76	0.013
	Error	53387.9	227	235.189		
	Total	1710406	236			
III	Intercept	1316601	1	1316601	6360.74	0.969
	Type of Preschool	869.48	2	434.74	2.10	0.02
	BO	393.716	2	196.858	0.95	0.009
	Type of Preschool*BO	394.469	4	98.617	0.48	0.009
	Error	42639.7	206	206.989		
	Total	1783366	215			
V	Intercept	992930.8	1	992930.8	4544.47	0.94
	Type of Preschool	27.846	2	13.923	0.06	0
	BO	1.511	2	0.756	0.00	0
	Type of Preschool*BO	1619.974	4	404.994	1.85	0.025
	Error	63144.18	289	218.492		
	Total	2267476	298			

Table 270 shows that the influence of type of preschooling on academic independence does not vary by BO of: (a) Standard I students [$F(4, 227) = 0.76, p > .05$] (b) Standard III students [$F(4, 206) = 0.48, p > .05$] and (c) Standard V students [$F(4, 289) = 1.85, p > .05$]. Among primary standard students, influence of type of Preschooling on academic independence does not vary by BO.

Influence of Type of Preschooling on Work Habit by BO. Influence of type of preschooling on work habit of Standard I, III and V students by BO were studied using 3 × 3 ANOVAs. Results are given in Table 271.

Table 271

Results of 3 × 3 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	898141.4	1	898141.4	3708.19	0.942
	Type of Preschool	640.162	2	320.081	1.32	0.012
	BO	597.36	2	298.68	1.23	0.011
	Type of Preschool*BO	523.622	4	130.905	0.54	0.009
	Error	54980.52	227	242.205		
	Total	1359898	236			
III	Intercept	801460.4	1	801460.4	3688.17	0.947
	Type of Preschool	1447.114	2	723.557	3.33	0.031
	BO	1135.044	2	567.522	2.61	0.025
	Type of Preschool*BO	665.932	4	166.483	0.77	0.015
	Error	44765	206	217.306		
	Total	1127576	215			
V	Intercept	651303.6	1	651303.6	2782.21	0.906
	Type of Preschool	155.51	2	77.755	0.33	0.002
	BO	55.369	2	27.685	0.12	0.001
	Type of Preschool*BO	947.268	4	236.817	1.01	0.014
	Error	67653.59	289	234.095		
	Total	1485919	298			

Table 271 shows that the influence of type of preschooling on work habit does not vary by BO of: (a) Standard I students [$F(4, 227) = 0.54, p > .05$] (b) Standard III students [$F(4, 206) = 0.77, p > .05$] and (c) Standard V students [$F(4, 289) = 1.01, p > .05$]. Among primary standard students, influence of type of preschooling on work habit does not vary by BO.

Influence of Type of Preschooling on Interpersonal Relationship by BO.

Influence of type of preschooling on interpersonal relationship of Standard I, III and V students by BO were studied using 3 × 3 ANOVAs. Results are given in Table 272.

Table 272

Results of 3 × 3 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1202754	1	1202754	13084.77	0.983
	Type of Preschool	284.765	2	142.383	1.55	0.013
	BO	225.781	2	112.891	1.23	0.011
	Type of Preschool*BO	159.995	4	39.999	0.44	0.008
	Error	20865.88	227	91.92		
	Total	1717042	236			
III	Intercept	1180618	1	1180618	11319.18	0.982
	Type of Preschool	51.507	2	25.753	0.25	0.002
	BO	183.118	2	91.559	0.88	0.008
	Type of Preschool*BO	1271.527	4	317.882	3.05*	0.056
	Error	21486.3	206	104.302		
	Total	1563169	215			
V	Intercept	622524.2	1	622524.2	6230.52	0.956
	Type of Preschool	118.998	2	59.499	0.60	0.004
	BO	16.635	2	8.318	0.08	0.001
	Type of Preschool*BO	188.475	4	47.119	0.47	0.006
	Error	28875.53	289	99.915		
	Total	1379003	298			

Note. * $p < .05$

Table 272 shows that the influence of type of preschooling on interpersonal relationship does not vary by BO of: (a) Standard I students [$F(4, 227) = 0.44, p > .05$] and (b) Standard V students [$F(4, 289) = 0.47, p > .05$]. But, the influence of type of preschooling on personal independence of Standard III students vary significantly by BO [$F(4, 206) = 3.05, p < .05, \eta^2 = 0.056$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on interpersonal relationship of Standard III first child (Anganwadi: $M = 85.00, SD = 10.50, N = 35$; Kindergarten: $M = 90.06, SD = 5.38, N = 16$; Montessori: $M = 80.67, SD = 9.57, N = 12$) [$F(2, 60) = 3.60, p < .05, \eta^2 = 0.107$], but not among single child (Anganwadi: $M = 85.60, SD = 12.56, N = 15$ and Kindergarten: $M = 81.59, SD = 10.66, N = 17$, Montessori: $M = 89.80, SD = 8.72, N = 10$) [$F(2, 39) = 1.80, p > .05$] and later born (Anganwadi: $M = 85.96, SD = 11.57, N = 10$) [$F(2, 39) = 1.80, p > .05$].

=54, and Kindergarten: $M = 82.00$, $SD = 9.74$, $N = 34$, Montessori: $M = 82.45$, $SD = 8.06$, $N = 22$ [$F(2, 107) = 1.83, p > .05$]. Interpersonal relationship higher among first child in Standard III who preschooled in Kindergarten than first child who preschooled in Montessori and Anganwadi.

Influence of Type of Preschooling on Cooperation by BO. Influence of type of preschooling on cooperation of Standard I, III and V students by BO were studied using 3×3 ANOVAs. Results are given in Table 273.

Table 273

Results of 3×3 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	979938	1	979938	4471.06	0.952
	Type of Preschool	887.387	2	443.694	2.02	0.018
	BO	427.844	2	213.922	0.98	0.009
	Type of Preschool * BO	322.026	4	80.507	0.37	0.006
	Error	49752.35	227	219.173		
	Total	1454040	236			
III	Intercept	992883.9	1	992883.9	3985.93	0.951
	Type of Preschool	1327.409	2	663.704	2.66	0.025
	BO	320.455	2	160.227	0.64	0.006
	Type of Preschool * BO	911.223	4	227.806	0.92	0.017
	Error	51314.06	206	249.097		
	Total	1383310	215			
V	Intercept	746910.4	1	746910.4	4406.02	0.938
	Type of Preschool	288.94	2	144.47	0.85	0.006
	BO	11.803	2	5.901	0.04	0
	Type of Preschool * BO	373.463	4	93.366	0.55	0.008
	Error	48991.44	289	169.521		
	Total	1636090	298			

Table 273 shows that the influence of type of preschooling on cooperation does not vary by BO of: (a) Standard I students [$F(4, 227) = 0.37, p > .05$] (b) Standard III students [$F(4, 206) = 0.92, p > .05$] and (c) Standard V students [$F(4, 289) = 0.55, p > .05$]. Among primary standard students, influence of type of preschooling on cooperation does not vary by BO.

Influence of Type of Preschooling on Communication by BO. Influence of type of preschooling on communication of Standard I, III and V students by BO were studied using 3×3 ANOVAs. Results are given in Table 274.

Table 274

Results of 3×3 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1326586	1	1326586	6415.27	0.966
	Type of Preschool	185.568	2	92.784	0.45	0.004
	BO	242.068	2	121.034	0.59	0.005
	Type of Preschool*BO	1024.435	4	256.109	1.24	0.021
	Error	46940.38	227	206.786		
	Total	1882499	236			
III	Intercept	1329422	1	1329422	8552.09	0.976
	Type of Preschool	137.626	2	68.813	0.44	0.004
	BO	217.271	2	108.636	0.70	0.007
	Type of Preschool*BO	1444.189	4	361.047	2.32	0.043
	Error	32022.67	206	155.45		
	Total	1769759	215			
V	Intercept	1011515	1	1011515	4649.23	0.941
	Type of Preschool	312.469	2	156.234	0.72	0.005
	BO	134.288	2	67.144	0.31	0.002
	Type of Preschool*BO	673.694	4	168.423	0.77	0.011
	Error	62876.68	289	217.566		
	Total	2249115	298			

Table 274 shows that the influence of type of preschooling on communication does not vary by BO of: (a) Standard I students [$F(4, 227) = 1.24, p > .05$] (b) Standard III students [$F(4, 206) = 2.32, p > .05$] and (c) Standard V students [$F(4, 289) = 0.77, p > .05$]. Among primary standard students, influence of type of Preschooling on communication does not vary by BO.

Influence of Type of Preschooling on Leadership by BO. Influence of type of preschooling on leadership of Standard I, III and V students by BO were studied using 3×3 ANOVAs. Results are given in Table 275.

Table 275

Results of 3 × 3 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1032703	1	1032703	8649.73	0.974
	Type of Preschool	393.69	2	196.845	1.65	0.014
	BO	269.028	2	134.514	1.13	0.01
	Type of Preschool* BO	657.186	4	164.297	1.38	0.024
	Error	27101.84	227	119.391		
	Total	1460383	236			
III	Intercept	1069874	1	1069874	11974.67	0.983
	Type of Preschool	248.831	2	124.416	1.39	0.013
	BO	641.903	2	320.952	3.59	0.034
	Type of Preschool* BO	769.395	4	192.349	2.15	0.04
	Error	18405.01	206	89.345		
	Total	1399873	215			
V	Intercept	698200.1	1	698200.1	5489.70	0.95
	Type of Preschool	826.236	2	413.118	3.25	0.022
	BO	522.685	2	261.342	2.06	0.014
	Type of Preschool* BO	384.963	4	96.241	0.76	0.01
	Error	36756.08	289	127.184		
	Total	1532044	298			

Table 275 shows that the influence of type of preschooling on leadership does not vary by BO of: (a) Standard I students [$F(4, 227) = 1.38, p > .05$] (b) Standard III students [$F(4, 206) = 2.15, p > .05$] and (c) Standard V students [$F(4, 289) = 0.76, p > .05$]. Among primary standard students, influence of type of Preschooling on leadership does not vary by BO.

Influence of Type of Preschooling on Expressing Emotions by BO.

Influence of type of preschooling on expressing emotions of Standard I, III and V students by BO were studied using 3 × 3 ANOVAs. Results are given in Table 276.

Table 276

Results of 3 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	917404.4	1	917404.4	9294.40	0.976
	Type of Preschool	145.71	2	72.855	0.74	0.006
	BO	101.263	2	50.631	0.51	0.004
	Type of Preschool* BO	59.913	4	14.978	0.15	0.003
	Error	22406.05	227	98.705		
	Total	1291361	236			
III	Intercept	818838.8	1	818838.8	7377.81	0.973
	Type of Preschool	644.681	2	322.341	2.90	0.027
	BO	1988.314	2	994.157	8.96	0.08
	Type of Preschool* BO	504.707	4	126.177	1.14	0.022
	Error	22863.27	206	110.987		
	Total	1109217	215			
V	Intercept	682840.7	1	682840.7	4220.36	0.936
	Type of Preschool	143.71	2	71.855	0.44	0.003
	BO	505.087	2	252.543	1.56	0.011
	Type of Preschool* BO	642.233	4	160.558	0.99	0.014
	Error	46759.31	289	161.797		
	Total	1586857	298			

Table 276 shows that the influence of type of preschooling on expressing emotions does not vary by BO of: (a) Standard I students [$F(4, 227) = 0.15, p > .05$] (b) Standard III students [$F(4, 206) = 1.14, p > .05$] and (c) Standard V students [$F(4, 289) = 0.99, p > .05$]. Among primary standard students, influence of type of preschooling on expressing emotions does not vary by BO.

Influence of Type of preschooling on Controlling Emotions by BO.

Influence of type of preschooling on controlling emotions of Standard I, III and V students by BO were studied using 3 × 3 ANOVAs. Results are given in Table 277.

Table 277

Results of 3 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and BO

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	742378.4	1	742378.4	12263.00	0.982
	Type of Preschool	205.747	2	102.874	1.70	0.015
	BO	98.977	2	49.488	0.82	0.007
	Type of Preschool* BO	123.418	4	30.854	0.51	0.009
	Error	13742.15	227	60.538		
	Total	1036862	236			
III	Intercept	750557.8	1	750557.8	11763.64	0.983
	Type of Preschool	198.124	2	99.062	1.55	0.015
	BO	222.573	2	111.287	1.74	0.017
	Type of Preschool* BO	110.586	4	27.646	0.43	0.008
	Error	13143.45	206	63.803		
	Total	1016368	215			
V	Intercept	694157.7	1	694157.7	6417.12	0.957
	Type of Preschool	588.6	2	294.3	2.72	0.018
	BO	75.864	2	37.932	0.35	0.002
	Type of Preschool* BO	113.695	4	28.424	0.26	0.004
	Error	31261.92	289	108.173		
	Total	1541104	298			

Table 277 shows that the influence of type of preschooling on controlling emotions does not vary by BO of: (a) Standard I students [$F(4, 227) = 0.51, p > .05$] (b) Standard III students [$F(4, 206) = 0.43, p > .05$] and (c) Standard V students [$F(4, 289) = 0.26, p > .05$]. Among primary standard students, influence of type of preschooling on controlling emotions does not vary by BO.

Influence of Type of Preschooling on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Medium of Instruction

Whether influence of type of preschooling on cognitive and socio-emotional outcomes of primary standard students vary by their Medium of Instruction (MoI) was studied using 3 × 2 ANOVAs. Wherever a significant 3 × 2 interaction is revealed, further one way Anova of the dependent variable with type of preschooling

were done for MoI separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Type of Preschooling on Cognitive Outcomes of Primary Standard Students by MoI

Influence of type of preschooling on cognitive outcomes of Standard I, III and V students by their MoI were studied and the results are given distinctly.

Influence of Type of Preschooling on Vocabulary in Malayalam by MoI.

Influence of type of preschooling on vocabulary in Malayalam of Standard I, III and V students by MoI were studied using 3×2 ANOVAs. Results are given in Table 278.

Table 278

Results of 3×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	453768	1	453768	1100.08	0.783
	Type of preschooling	24.344	2	12.172	0.03	0
	MoI	2824.58	1	2824.58	6.85	0.022
	Type of preschooling * MoI	298.765	2	149.383	0.36	0.002
	Error	125808	305	412.485		
	Total	1253896	311			
III	Intercept	465459	1	465459	1328.46	0.828
	Type of preschooling	2230.68	2	1115.34	3.18	0.023
	MoI	2384.98	1	2384.98	6.81	0.024
	Type of preschooling * MoI	1864.69	2	932.344	2.66	0.019
	Error	96703.6	276	350.375		
	Total	683950	282			
V	Intercept	169480	1	169480	538.81	0.56
	Type of preschooling	507.699	2	253.849	0.81	0.004
	MoI	5.06	1	5.06	0.02	0
	Type of preschooling * MoI	1231.67	2	615.835	1.96	0.009
	Error	133053	423	314.547		
	Total	900640	429			

Table 278 shows that the influence of type of preschooling on vocabulary in Malayalam does not vary by MoI of: (a) Standard I students [$F(2, 305) = 0.36, p > .05$]

(b) Standard III students [$F(2, 276) = 2.66, p > .05$] and (c) Standard V students [$F(2, 423) = 1.96, p > .05$]. Among primary standard students, influence of type of preschooling on vocabulary in Malayalam does not vary by MoI.

Influence of Type of Preschooling on Malayalam Comprehension by MoI.

Influence of type of preschooling on Malayalam comprehension of Standard I, III and V students by MoI were studied using 3×2 ANOVAs. Results are given in Table 279.

Table 279

Results of 3×2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	260520	1	260520	496.91	0.00	0.62
	Type of preschooling	1192.23	2	596.114	1.14	0.32	0.007
	MoI	916.07	1	916.07	1.75	0.19	0.006
	Type of preschooling * MoI	2178.81	2	1089.4	2.08	0.13	0.013
	Error	159907	305	524.284			
	Total	748941	311				
III	Intercept	690993	1	690993	1305.67	0.00	0.826
	Type of preschooling	139.397	2	69.699	0.13	0.88	0.001
	MoI	580.23	1	580.23	1.10	0.30	0.004
	Type of preschooling * MoI	111.797	2	55.899	0.11	0.90	0.001
	Error	146066	276	529.225			
	Total	993726	282				
V	Intercept	148756	1	148756	317.25	0.00	0.429
	Type of preschooling	354.113	2	177.056	0.38	0.69	0.002
	MoI	11.222	1	11.222	0.02	0.88	0
	Type of preschooling * MoI	422.508	2	211.254	0.45	0.64	0.002
	Error	198342	423	468.893			
	Total	862469	429				

Table 279 shows that the influence of type of preschooling on Malayalam comprehension does not vary by MoI of: (a) Standard I students [$F(2, 305) = 2.08, p > .05$] (b) Standard III students [$F(2, 276) = 0.11, p > .05$] and (c) Standard V students [$F(2, 423) = 0.45, p > .05$]. Among primary standard students, influence of type of preschooling on Malayalam comprehension does not vary by MoI.

Influence of Type of Preschooling on Vocabulary in English by MoI.

Influence of type of preschooling on vocabulary in English of Standard I, III and V students by MoI were studied using 3×2 ANOVAs. Results are given in Table 280.

Table 280

Results of 3×2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	432804.1	1	432804.1	1174.35	0.794
	Type of preschooling	1373.425	2	686.713	1.86	0.012
	MoI	15680.79	1	15680.79	42.55	0.122
	Type of preschooling * MoI	4091.417	2	2045.708	5.55**	0.035
	Error	112406.7	305	368.547		
	Total	1301847	311			
III	Intercept	414233.7	1	414233.7	889.61	0.763
	Type of preschooling	7362.153	2	3681.077	7.91	0.054
	MoI	4901.794	1	4901.794	10.53	0.037
	Type of preschooling * MoI	3517.003	2	1758.501	3.78*	0.027
	Error	128515.7	276	465.637		
	Total	629290	282			
V	Intercept	185977.5	1	185977.5	453.94	0.518
	Type of preschooling	1150.918	2	575.459	1.41	0.007
	MoI	1176.137	1	1176.137	2.87	0.007
	Type of preschooling * MoI	635.417	2	317.709	0.78	0.004
	Error	173300.4	423	409.694		
	Total	1026564	429			

Note. * $p < .05$, ** $p < .001$

Table 280 shows that the influence of type of preschooling on vocabulary in English does not vary by MoI of Standard V students [$F(2, 423) = 0.78, p > .05$]. However, the influence of preschooling type of vocabulary in English of Standard I students vary significantly by MoI [$F(2, 305) = 5.55, p < .05, \eta^2 = 0.035$] and Standard III students [$F(2, 276) = 3.78, p < .05, \eta^2 = 0.027$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on vocabulary in English of Standard I Malayalam

medium students (Anganwadi: $M = 48.15$, $SD = 21.83$, $N = 72$; Kindergarten: $M = 56.53$, $SD = 22.21$, $N = 66$; Montessori: $M = 37.20$, $SD = 39.90$, $N = 5$) [$F(2, 140) = 3.39$, $p < .05$, $\eta^2 = 0.05$], and English medium students (Anganwadi: $M = 65.13$, $SD = 15.97$, $N = 52$ and Kindergarten: $M = 65.90$, $SD = 17.79$, $N = 68$, Montessori: $M = 77.56$, $SD = 11.24$, $N = 48$) [$F(2, 165) = 10.17$, $p < .05$, $\eta^2 = 0.11$]. Vocabulary in English is higher among Malayalam medium students in Standard I who preschooled in Kindergarten than Malayalam medium students who preschooled in Anganwadi and Montessori. Vocabulary in English is also higher among English medium students in Standard I who preschooled in Montessori than English medium students who preschooled in Anganwadi and Kindergarten.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on vocabulary in English of Standard III English medium students (Anganwadi: $M = 40.85$, $SD = 25.73$, $N = 48$; Kindergarten: $M = 38.16$, $SD = 17.42$, $N = 43$; Montessori: $M = 61.71$, $SD = 22.55$, $N = 42$) [$F(2, 130) = 14.30$, $p < .05$, $\eta^2 = 0.18$], but not among Malayalam medium students (Anganwadi : $M = 34.44$, $SD = 20.44$, $N = 80$ and Kindergarten: $M = 37.90$, $SD = 21.37$, $N = 51$, Montessori: $M = 40.78$, $SD = 21.64$, $N = 18$) [$F(2, 146) = 0.88$]. Vocabulary in English is higher among English medium students in Standard III who attended Montessori than English medium students who attended Anganwadi and Kindergarten.

Influence of Type of Preschooling on English Comprehension by MoI.

Influence of type of preschooling on English comprehension of Standard I, III and V students by MoI were studied using 3×2 ANOVAs. Results are given in Table 281.

Table 281

Results of 3 × 2 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	184959	1	184959	446.68	0.594
	Type of preschooling	1740.93	2	870.466	2.10	0.014
	MoI	11853.3	1	11853.3	28.63	0.086
	Type of preschooling * MoI	1909.6	2	954.799	2.31	0.015
	Error	126292	305	414.073		
	Total	624828	311			
III	Intercept	344335	1	344335	686.19	0.713
	Type of preschooling	4533.33	2	2266.67	4.52	0.032
	MoI	12480.5	1	12480.5	24.87	0.083
	Type of preschooling * MoI	6688.54	2	3344.27	6.66	0.046
	Error	138499	276	501.807		
	Total	570400	282			
V	Intercept	253241	1	253241	566.80	0.573
	Type of preschooling	949.863	2	474.931	1.06	0.005
	MoI	763.074	1	763.074	1.71	0.004
	Type of preschooling * MoI	754.744	2	377.372	0.85	0.004
	Error	188994	423	446.794		
	Total	1352799	429			

Note. ** $p < .001$

Table 281 shows that the influence of type of preschooling on English comprehension does not vary by MoI of: (a) Standard I students [$F(2, 305) = 2.31, p > .05$] and (b) Standard V students [$F(2, 423) = 0.85, p > .05$]. But, the influence of type of preschooling on English comprehension of Standard III students vary significantly by MoI [$F(2, 276) = 6.67, p < .05, \eta^2 = 0.046$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on English comprehension of Standard III English medium students (Anganwadi: $M = 41.35, SD = 29.67, N = 48$; Kindergarten: $M = 36.28, SD = 18.29, N = 43$; Montessori: $M = 60.12, SD = 27.26, N = 42$) [$F(2, 130) = 10.18, p < .05, \eta^2 = 0.14$], but not among Malayalam medium students (Anganwadi: $M = 27.56, SD = 17.47, N = 80$ and Kindergarten: $M = 35.29, SD = 22.68, N = 45$; Montessori: $M = 30.83, SD = 12.75, N = 18$) [$F(2, 146) = 2.59, p > .05$]. English

comprehension is higher among English medium students in Standard III who attended Montessori than who attended Kindergarten and Anganwadi.

Influence of Type of Preschooling on Achievement in Mathematics by MoI. Influence of type of preschooling on achievement in Mathematics of Standard I, III and V students by MoI were studied using 3×2 ANOVAs. Results are given in Table 282.

Table 282

Results of 3×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	509100.6	1	509100.6	1540.32	0.835
	Type of preschooling	2692.429	2	1346.215	4.07	0.026
	MoI	1908.577	1	1908.577	5.78	0.019
	Type of preschooling * MoI	24.076	2	12.038	0.04	0
	Error	100807.6	305	330.517		
	Total	1349683	311			
III	Intercept	589190.6	1	589190.6	1421.79	0.837
	Type of preschooling	6263.514	2	3131.757	7.56	0.052
	MoI	9493.788	1	9493.788	22.91	0.077
	Type of preschooling * MoI	313.121	2	156.561	0.38	0.003
	Error	114374.8	276	414.401		
	Total	810682	282			
V	Intercept	246592.5	1	246592.5	778.74	0.648
	Type of preschooling	1133.559	2	566.78	1.79	0.008
	MoI	786.591	1	786.591	2.48	0.006
	Type of preschooling * MoI	85.408	2	42.704	0.14	0.001
	Error	133946.1	423	316.658		
	Total	1184977	429			

Table 282 shows that the influence of type of preschooling on achievement in Mathematics does not vary by MoI of: (a) Standard I students [$F(2, 305) = 0.04, p > .05$] (b) Standard III students [$F(2, 276) = 0.38, p > .05$] and (c) Standard V students [$F(2, 423) = 0.14, p > .05$]. There is no interaction between type of preschooling and MoI on achievement in Mathematics of primary standard students.

Among primary Standard students, influence of type of preschooling on achievement in Mathematics does not vary by MoI.

Influence of Type of Preschooling on Socio-Emotional Outcomes of Primary Standard Students by MoI

Influence of type of preschooling on socio-emotional outcomes of Standard I, III and V students by their MoI were studied and the results are given distinctly.

Influence of Type of Preschooling on Personal Independence by MoI.

Influence of type of preschooling on Personal Independence of Standard I, III and V students by MoI were studied using 3×2 ANOVAs. Results are given in Table 283.

Table 283

Results of 3×2 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	928817	1	928817	3954.14	0.945
	Type of preschooling	191.258	2	95.629	0.41	0.004
	MoI	279.829	1	279.829	1.19	0.005
	Type of preschooling * MoI	153.67	2	76.835	0.33	0.003
	Error	54026.4	230	234.897		
	Total	2004847	236			
III	Intercept	1356105	1	1356105	6598.96	0.969
	Type of preschooling	620.133	2	310.066	1.51	0.014
	MoI	13.567	1	13.567	0.07	0
	Type of preschooling * MoI	365.517	2	182.759	0.89	0.008
	Error	42950.1	209	205.503		
	Total	1869297	215			
V	Intercept	762411	1	762411	5149.45	0.946
	Type of preschooling	270.23	2	135.115	0.91	0.006
	MoI	0.298	1	0.298	0.00	0
	Type of preschooling * MoI	278.967	2	139.484	0.94	0.006
	Error	43232.6	292	148.057		
	Total	2728758	298			

Table 283 shows that the influence of type of preschooling on personal independence I does not vary by MoI of: (a) Standard I students [$F(2, 230) = 0.33$,

$p > .05$] (b) Standard III students [$F(2, 209) = 0.89, p > .05$] and (c) Standard V students [$F(2, 292) = 0.94, p > .05$]. There is no interaction between type of preschooling and MoI in personal independence of primary standard students. Among primary standard students, influence of type of preschooling on personal independence does not vary by MoI.

Influence of Type of Preschooling on Academic Independence by MoI.

Influence of type of preschooling on academic independence of Standard I, III and V students by MoI were studied using 3×2 ANOVAs. Results are given in Table 284.

Table 284

Results of 3×2 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	787893	1	787893	3407.31	0.937
	Type of preschooling	391.202	2	195.601	0.85	0.007
	MoI	631.123	1	631.123	2.73	0.012
	Type of preschooling * MoI	29.342	2	14.671	0.06	0.001
	Error	53184.3	230	231.236		
	Total	1710406	236			
III	Intercept	1298645	1	1298645	6365.54	0.968
	Type of preschooling	356.525	2	178.263	0.87	0.008
	MoI	264.165	1	264.165	1.30	0.006
	Type of preschooling * MoI	749.027	2	374.514	1.84	0.017
	Error	42638.5	209	204.012		
Total	1783366	215				
V	Intercept	581370	1	581370	2637.83	0.9
	Type of preschooling	676.635	2	338.318	1.54	0.01
	MoI	662.193	1	662.193	3.01	0.01
	Type of preschooling * MoI	508.803	2	254.401	1.15	0.008
	Error	64355.9	292	220.397		
Total	2267476	298				

Table 284 shows that the influence of type of preschooling on academic independence does not vary by MoI of: (a) Standard I students [$F(2, 230) = 0.06, p > .05$] (b) Standard III students [$F(2, 209) = 1.84, p > .05$] and (c) Standard V students [$F(2, 292) = 1.15, p > .05$]. There is no interaction between type of

preschooling and MoI in academic independence of primary standard students. Among primary standard students, influence of type of preschooling on academic independence does not vary by MoI.

Influence of Type of Preschooling on Work Habit by MoI. Influence of type of preschooling on work habit of Standard I, III and V students by MoI were studied using 3×2 ANOVAs. Results are given in Table 285

Table 285

Results of 3×2 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	623086.2	1	623086.2	2547.76	0.917
	Type of preschooling	576.025	2	288.013	1.18	0.01
	MoI	18.039	1	18.039	0.07	0
	Type of preschooling * MoI	99.628	2	49.814	0.20	0.002
	Error	56249.4	230	244.563		
	Total	1359898	236			
III	Intercept	792899.7	1	792899.7	3625.87	0.946
	Type of preschooling	1088.917	2	544.459	2.49	0.023
	MoI	554.728	1	554.728	2.54	0.012
	Type of preschooling * MoI	293.775	2	146.888	0.67	0.006
	Error	45703.84	209	218.679		
	Total	1127576	215			
V	Intercept	382730.4	1	382730.4	1635.94	0.849
	Type of preschooling	211.485	2	105.742	0.45	0.003
	MoI	79.125	1	79.125	0.34	0.001
	Type of preschooling * MoI	314.121	2	157.06	0.67	0.005
	Error	68313.67	292	233.951		
	Total	1485919	298			

Table 285 shows that the influence of type of preschooling on work habit does not vary by MoI of: (a) Standard I students [$F(2, 230) = 0.20, p > .05$] (b) Standard III students [$F(2, 209) = 0.67, p > .05$] and (c) Standard V students [$F(2, 292) = 0.67, p > .05$]. Among primary standard students, influence of type of preschooling on work habit does not vary by MoI.

Influence of Type of Preschooling on Interpersonal Relationship by MoI.

Influence of type of preschooling on interpersonal relationship of Standard I, III and V students by MoI were studied using 3×2 ANOVAs. Results are given in Table 286.

Table 286

Results of 3×2 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	822033	1	822033	8939.20	0.975
	Type of preschooling	57.34	2	28.67	0.31	0.003
	Mol	103.338	1	103.338	1.12	0.005
	Type of preschooling * Mol	16.388	2	8.194	0.09	0.001
	Error	21150.39	230	91.958		
	Total	1717042	236			
III	Intercept	1159946	1	1159946	10885.13	0.981
	Type of preschooling	123.877	2	61.938	0.58	0.006
	Mol	359.053	1	359.053	3.37	0.016
	Type of preschooling * Mol	409.783	2	204.892	1.92	0.018
	Error	22271.54	209	106.562		
	Total	1563169	215			
V	Intercept	365077.2	1	365077.2	3722.42	0.927
	Type of preschooling	203.882	2	101.941	1.04	0.007
	Mol	400.019	1	400.019	4.08	0.014
	Type of preschooling * Mol	167.052	2	83.526	0.85	0.006
	Error	28637.99	292	98.075		
	Total	1379003	298			

Table 286 shows that the influence of type of preschooling on interpersonal relationship does not vary by MoI of: (a) Standard I students [$F(2, 230) = 0.09, p > .05$] (b) Standard III students [$F(2, 209) = 1.92, p > .05$] and (c) Standard V students [$F(2, 292) = 0.85, p > .05$]. Among primary standard students, influence of type of preschooling on interpersonal relationship does not vary by MoI.

Influence of Type of Preschooling on Cooperation by MoI. Influence of type of preschooling on cooperation of Standard I, III and V students by MoI were studied using 3×2 ANOVAs. Results are given in Table 287.

Table 287

Results of 3 × 2 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	685469	1	685469	3156.70	0.932
	Type of preschooling	172.641	2	86.321	0.40	0.003
	Mol	3.756	1	3.756	0.02	0
	Type of preschooling * Mol	394.358	2	197.179	0.91	0.008
	Error	49943.9	230	217.148		
	Total	1454040	236			
III	Intercept	959586	1	959586	3901.19	0.949
	Type of preschooling	1886.27	2	943.136	3.83	0.035
	Mol	519.388	1	519.388	2.11	0.01
	Type of preschooling * Mol	896.942	2	448.471	1.82	0.017
	Error	51408.3	209	245.973		
	Total	1383310	215			
V	Intercept	448253	1	448253	2659.16	0.901
	Type of preschooling	389.265	2	194.632	1.16	0.008
	Mol	43.309	1	43.309	0.26	0.001
	Type of preschooling * Mol	182.594	2	91.297	0.54	0.004
	Error	49222.2	292	168.569		
	Total	1636090	298			

Table 287 shows that the influence of type of preschooling on cooperation does not vary by MoI of: (a) Standard I students [$F(2, 230) = 0.91, p > .05$] (b) Standard III students [$F(2, 209) = 1.82, p > .05$] and (c) Standard V students [$F(2, 292) = 0.54, p > .05$]. There is no interaction between type of preschooling and MoI in cooperation of primary standard students. Among primary standard students, influence of type of preschooling on cooperation does not vary by MoI.

Influence of Type of Preschooling on Communication by MoI. Influence of type of preschooling on communication of Standard I, III and V students by MoI were studied using 3 × 2 ANOVAs. Results are given in Table 288.

Table 288

Results of 3 × 2 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	895958.7	1	895958.7	4326.92	0.95
	Type of preschooling	179.961	2	89.981	0.44	0.004
	MoI	147.19	1	147.19	0.71	0.003
	Type of preschooling * MoI	69.339	2	34.67	0.17	0.001
	Error	47625.18	230	207.066		
	Total	1882499	236			
III	Intercept	1297017	1	1297017	8133.47	0.975
	Type of preschooling	241.475	2	120.737	0.76	0.007
	MoI	81.932	1	81.932	0.51	0.002
	Type of preschooling * MoI	173.162	2	86.581	0.54	0.005
	Error	33328.53	209	159.467		
	Total	1769759	215			
V	Intercept	602738.5	1	602738.5	2776.69	0.905
	Type of preschooling	11.325	2	5.663	0.03	0
	MoI	102.119	1	102.119	0.47	0.002
	Type of preschooling * MoI	225.563	2	112.782	0.52	0.004
	Error	63384.66	292	217.071		
	Total	2249115	298			

Table 288 shows that the influence of type of preschooling on communication does not vary by MoI of: (a) Standard I students [$F(2, 230) = 0.17, p > .05$] (b) Standard III students [$F(2, 209) = 0.54, p > .05$] and (c) Standard V students [$F(2, 292) = 0.52, p > .05$]. Among primary standard students, influence of type of preschooling on communication does not vary by MoI.

Influence of Type of Preschooling on Leadership by MoI. Influence of type of preschooling on leadership of Standard I, III and V students by MoI were studied using 3 × 2 ANOVAs. Results are given in Table 289.

Table 289

Results of 3×2 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	708764	1	708764	6000.44	0.963
	Preschool Types	414.708	2	207.354	1.76	0.015
	MoI	103.47	1	103.47	0.88	0.004
	Preschool Types * MoI	206.492	2	103.246	0.87	0.008
	Error	27167.3	230	118.119		
	Total	1460383	236			
III	Intercept	1035796	1	1035796	11173.41	0.982
	Preschool Types	265.685	2	132.842	1.43	0.014
	MoI	74.156	1	74.156	0.80	0.004
	Preschool Types * MoI	223.073	2	111.536	1.20	0.011
	Error	19374.7	209	92.702		
	Total	1399873	215			
V	Intercept	422054	1	422054	3300.89	0.919
	Preschool Types	197.515	2	98.758	0.77	0.005
	MoI	93.736	1	93.736	0.73	0.003
	Preschool Types * MoI	229.051	2	114.526	0.90	0.006
	Error	37335.3	292	127.861		
	Total	1532044	298			

Table 289 shows that the influence of type of preschooling on leadership does not vary by MoI of: (a) Standard I students [$F(2, 230) = 0.87, p > .05$] (b) Standard III students [$F(2, 209) = 1.20, p > .05$] and (c) Standard V students [$F(2, 292) = 0.90, p > .05$]. Among primary standard students, influence of type of preschooling on leadership does not vary by MoI.

Influence of Type of Preschooling on Expressing Emotions by MoI.

Influence of type of preschooling on expressing emotions of Standard I, III and V students by MoI were studied using 3×2 ANOVAs. Results are given in Table 290.

Table 290

Results of 3 × 2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	609872	1	609872	6266.97	0.965
	Type of preschooling	173.841	2	86.92	0.89	0.008
	MoI	149.319	1	149.319	1.53	0.007
	Type of preschooling * MoI	23.451	2	11.725	0.12	0.001
	Error	22382.5	230	97.315		
	Total	1291361	236			
III	Intercept	803626	1	803626	6833.26	0.97
	Type of preschooling	378.537	2	189.269	1.61	0.015
	MoI	525.718	1	525.718	4.47	0.021
	Type of preschooling * MoI	326.888	2	163.444	1.39	0.013
	Error	24579.4	209	117.605		
	Total	1109217	215			
V	Intercept	424748	1	424748	2595.56	0.899
	Type of preschooling	31.309	2	15.655	0.10	0.001
	MoI	40.44	1	40.44	0.25	0.001
	Type of preschooling * MoI	115.582	2	57.791	0.35	0.002
	Error	47784.1	292	163.644		
	Total	1586857	298			

Table 290 shows that the influence of type of preschooling on expressing emotions does not vary by MoI of: (a) Standard I students [$F(2, 230) = 0.12, p > .05$] (b) Standard III students [$F(2, 209) = 1.39, p > .05$] and (c) Standard V students [$F(2, 292) = 0.35, p > .05$]. Among primary standard students, influence of type of preschooling on expressing emotions does not vary by MoI.

Influence of Type of Preschooling on Controlling Emotions by MoI.

Influence of type of preschooling on controlling emotions of Standard I, III and V students by MoI were studied using 3 × 2 ANOVAs. Results are given in Table 291.

Table 291

Results of 3 × 2 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and MoI

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	504631	1	504631	8365.14	0.973
	Type of preschooling	225.84	2	112.92	1.87	0.016
	MoI	12.311	1	12.311	0.20	0.001
	Type of preschooling * MoI	59.662	2	29.831	0.50	0.004
	Error	13874.9	230	60.325		
	Total	1036862	236			
III	Intercept	743933	1	743933	11621.62	0.982
	Type of preschooling	120.335	2	60.168	0.94	0.009
	MoI	15.106	1	15.106	0.24	0.001
	Type of preschooling * MoI	141.903	2	70.952	1.11	0.01
	Error	13378.7	209	64.013		
	Total	1016368	215			
V	Intercept	415954	1	415954	3911.35	0.931
	Type of preschooling	5.589	2	2.795	0.03	0
	MoI	102.748	1	102.748	0.97	0.003
	Type of preschooling * MoI	395.879	2	197.94	1.86	0.013
	Error	31052.8	292	106.345		
	Total	1541104	298			

Table 291 shows that the influence of type of preschooling on controlling emotions does not vary by MoI of: (a) Standard I students [$F(2, 230) = 0.50, p > .05$] (b) Standard III students [$F(2, 209) = 1.11, p > .05$] and (c) Standard V students [$F(2, 292) = 1.86, p > .05$]. Among primary standard students, influence of type of preschooling on controlling emotions does not vary by MoI.

Influence of Type of Preschooling on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Father's Educational Qualification

Whether influence of type of preschooling on cognitive and socio-emotional outcomes of primary standard students vary by their Father's Educational Qualification (FEQ) was studied using 3 × 3 ANOVAs. Wherever a significant 3 × 3 interaction is revealed, further one way Anova of the dependent variable with type of

preschooling were done for FEQ separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Type of Preschooling on Cognitive Outcomes of Primary Standard Students by FEQ

Influence of type of preschooling on cognitive outcomes of Standard I, III and V students by their FEQ were studied and the results are given distinctly.

Influence of Type of Preschooling on Vocabulary in Malayalam by FEQ. Influence of type of preschooling on vocabulary in Malayalam of Standard I, III and V Students by FEQ were studied using 3×3 ANOVAs. Results are given in Table 292.

Table 292

Results of 3×3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	365833.196	1	365833.2	845.39	0.737
	Type of Preschool	680.167	2	340.084	0.79	0.005
	FEQ	2428.156	2	1214.078	2.81	0.018
	Type of Preschool * FEQ	485.388	4	121.347	0.28	0.004
	Error	130687.554	302	432.74		
	Total		1253896	311		
III	Intercept	446765.847	1	446765.8	1346.32	0.831
	Type of Preschool	4470.56	2	2235.28	6.74	0.047
	FEQ	4284.029	2	2142.015	6.46	0.045
	Type of Preschool * FEQ	3861.049	4	965.262	2.91*	0.041
	Error	90593.043	273	331.843		
	Total		683950	282		
V	Intercept	283269.264	1	283269.3	911.11	0.684
	Type of Preschool	1125.923	2	562.961	1.81	0.009
	FEQ	714.402	2	357.201	1.15	0.005
	Type of Preschool * FEQ	703.451	4	175.863	0.57	0.005
	Error	130580.165	420	310.905		
	Total		900640	429		

Note. * $p < .05$

Table 292 shows that the influence of type of preschooling on vocabulary in Malayalam does not vary by FEQ of: (a) Standard I students [$F(4, 302) = 0.28, p > .05$] and (b) Standard V students [$F(4, 420) = 0.57, p > .05$]. But, the influence of type of preschooling on vocabulary in Malayalam of Standard III students vary significantly by FEQ [$F(4, 273) = 2.91, p < .05, \eta^2 = 0.041$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on vocabulary in Malayalam of Standard III students having above secondary qualification of father (Anganwadi: $M = 60.00, SD = 18.18, N = 19$; Kindergarten: $M = 33.64, SD = 15.02, N = 11$; Montessori: $M = 56.36, SD = 17.74, N = 22$) [$F(2, 49) = 8.772, p < .05, \eta^2 = 0.264$], but not among the students having below secondary qualification of father (Anganwadi: $M = 41.29, SD = 17.05, N = 58$ and Kindergarten: $M = 39.31, SD = 18.82, N = 51$, Montessori: $M = 41.25, SD = 19.12, N = 24$) [$F(2, 130) = 0.185, p > .05$] and the students having secondary qualification of father (Anganwadi: $M = 48.33, SD = 20.51, N = 51$ and Kindergarten: $M = 46.41, SD = 13.33, N = 32$, Montessori: $M = 50.71, SD = 22.43, N = 14$) [$F(2, 94) = 0.270, p > .05$]. Vocabulary in Malayalam is higher among the Standard III students who preschoolled in Anganwadi and having above secondary FEQ than the students who preschoolled in Kindergarten and Montessori and having above secondary FEQ.

Influence of Type of Preschooling on Malayalam Comprehension by FEQ. Influence of type of preschooling on Malayalam comprehension of Standard I, III and V students by FEQ were studied using 3×3 ANOVAs. Results are given in Table 293.

Table 293

Results of 3 × 3 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	201416.964	1	201417	370.20	0.551
	Type of Preschool	536.147	2	268.073	0.49	0.003
	FEQ	1535.244	2	767.622	1.41	0.009
	Type of Preschool * FEQ	229.815	4	57.454	0.11	0.001
	Error	164313.187	302	544.083		
	Total	748941	311			
III	Intercept	625556.214	1	625556.2	1189.80	0.813
	Type of Preschool	617.333	2	308.667	0.59	0.004
	FEQ	600.995	2	300.498	0.57	0.004
	Type of Preschool * FEQ	2244.402	4	561.1	1.07	0.015
	Error	143534.516	273	525.767		
	Total	993726	282			
V	Intercept	234595.786	1	234595.8	509.18	0.548
	Type of Preschool	258.48	2	129.24	0.28	0.001
	FEQ	2295.622	2	1147.811	2.49	0.012
	Type of Preschool * FEQ	1398.476	4	349.619	0.76	0.007
	Error	193509.646	420	460.737		
	Total	862469	429			

Table 293 shows that the influence of type of preschooling on Malayalam comprehension does not vary by FEQ of: (a) Standard I students [$F(4, 302) = 0.11, p > .05$] (b) Standard III students [$F(4, 273) = 1.07, p > .05$] and (c) Standard V students [$F(4, 420) = 0.76, p > .05$]. Among primary standard students, influence of type of preschooling on Malayalam comprehension does not vary by FEQ.

Influence of Type of Preschooling on Vocabulary in English by FEQ.

Influence of type of preschooling on vocabulary in English of Standard I, III and V students by FEQ were studied using 3 × 3 ANOVAs. Results are given in Table 294.

Table 294

Results of 3 × 3 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	385720.63	1	385720.6	931.15	0.755
	Type of Preschool	2146.635	2	1073.318	2.59	0.017
	FEQ	5008.396	2	2504.198	6.05	0.038
	Type of Preschool * FEQ	2351.921	4	587.98	1.42	0.018
	Error	125100.624	302	414.24		
	Total	1301847	311			
III	Intercept	415910.23	1	415910.2	954.13	0.778
	Type of Preschool	13356.827	2	6678.414	15.32	0.101
	FEQ	10381.244	2	5190.622	11.91	0.08
	Type of Preschool * FEQ	6500.207	4	1625.052	3.73**	0.052
	Error	119001.817	273	435.904		
	Total	629290	282			
V	Intercept	341027.768	1	341027.8	868.40	0.674
	Type of Preschool	3118.773	2	1559.387	3.97	0.019
	FEQ	2496.314	2	1248.157	3.18	0.015
	Type of Preschool * FEQ	1169.835	4	292.459	0.75	0.007
	Error	164937.634	420	392.709		
	Total	1026564	429			

Note. ** $p < .01$

Table 294 shows that the influence of type of preschooling on vocabulary in English does not vary by FEQ of: (a) Standard I students [$F(4, 302) = 1.42, p > .05$] and (b) Standard V students [$F(4, 420) = 0.75, p > .05$]. But, the influence of type of preschooling on vocabulary in English of Standard III students vary significantly by FEQ [$F(4, 273) = 3.73, p < .05, \eta^2 = 0.052$], though the interaction is small.

Follow up analysis of variance revealed that there is significant influence of type of preschooling on vocabulary in English of Standard III students having above secondary FEQ with large effect (Anganwadi: $M = 46.42, SD = 29.60, N = 19$; Kindergarten: $M = 38.55, SD = 22.48, N = 11$; Montessori: $M = 71.23, SD = 15.32, N = 22$) [$F(2, 49) = 9.673, p < .05, \eta^2 = 0.283$], and secondary FEQ with medium effect

(Anganwadi: $M = 36.07$, $SD = 23.07$, $N = 51$ and Kindergarten: $M = 41.81$, $SD = 16.34$, $N = 32$, Montessori: $M = 60.86$, $SD = 16.26$, $N = 14$) [$F(2, 94) = 8.274$, $p < .05$, $\eta^2 = 0.150$], but not among below secondary (Anganwadi: $M = 34.38$, $SD = 19.12$, $N = 58$ and Kindergarten: $M = 35.53$, $SD = 20.73$, $N = 51$, Montessori: $M = 37.79$, $SD = 23.40$, $N = 24$) [$F(2, 130) = 0.235$, $p > .05$]. In Standard III, vocabulary in English is higher among students who preschooled in Montessori and having above secondary FEQ and secondary FEQ than the students who preschooled in Kindergarten and Anganwadi.

Influence of Type of Preschooling on English Comprehension by FEQ.

Influence of type of preschooling on English comprehension of Standard I, III and V students by FEQ were studied using 3×3 ANOVAs. Results are given in Table 295.

Table 295

Results of 3×3 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	166912.652	1	166912.7	371.25	0.551
	Type of Preschool	2829.658	2	1414.829	3.15	0.02
	FEQ	4505.774	2	2252.887	5.01	0.032
	Type of Preschool * FEQ	1565.089	4	391.272	0.87	0.011
	Error	135777.966	302	449.596		
	Total	624828	311			
III	Intercept	342808.666	1	342808.7	668.58	0.71
	Type of Preschool	11353.836	2	5676.918	11.07	0.075
	FEQ	6846.577	2	3423.289	6.68	0.047
	Type of Preschool * FEQ	6281.922	4	1570.48	3.06*	0.043
	Error	139979.069	273	512.744		
	Total	570400	282			
V	Intercept	438105.767	1	438105.8	1021.36	0.709
	Type of Preschool	1877.049	2	938.525	2.19	0.01
	FEQ	3672.834	2	1836.417	4.28	0.02
	Type of Preschool * FEQ	1683.853	4	420.963	0.98	0.009
	Error	180155.929	420	428.943		
	Total	1352799	429			

Note. * $p < .05$

Table 295 shows that the influence of type of preschooling on English comprehension does not vary by FEQ of: (a) Standard I students [$F(4, 302) = 0.87, p > .05$] and (b) Standard V students [$F(4, 420) = 0.98, p > .05$]. But, the influence of type of preschooling on English comprehension of Standard III students vary significantly by FEQ [$F(4, 273) = 3.06, p < .05, \eta^2 = 0.043$], though the interaction is small.

Follow up analysis of variance revealed that there is significant influence of type of preschooling on English comprehension of Standard III students having below secondary FEQ with small effect (Anganwadi: $M = 27.33, SD = 18.36, N = 58$; Kindergarten: $M = 35.88, SD = 20.41, N = 51$; Montessori: $M = 37.92, SD = 25.01, N = 24$) [$F(2, 130) = 3.390, p < .05, \eta^2 = 0.050$], and the students having above secondary FEQ with medium effect (Anganwadi: $M = 46.05, SD = 33.02, N = 19$ and Kindergarten: $M = 30.00, SD = 21.68, N = 11$, Montessori: $M = 66.59, SD = 22.75, N = 22$) [$F(2, 49) = 7.418, p < .05, \eta^2 = 0.232$], but not among the students having secondary FEQ (Anganwadi: $M = 33.92, SD = 23.33, N = 51$ and Kindergarten: $M = 37.50, SD = 21.09, N = 32$, Montessori: $M = 50.36, SD = 26.78, N = 14$) [$F(2, 94) = 2.770, p > .05$]. In Standard III, English comprehension is higher among students who preschoolled in Montessori and having below secondary and above secondary FEQ than students who preschoolled in Kindergarten and Anganwadi and having below secondary and above secondary FEQ.

Influence of Type of Preschooling on Achievement in Mathematics by FEQ. Influence of type of preschooling on achievement in Mathematics of Standard I, III and V students by FEQ were studied using 3×3 ANOVAs. Results are given in Table 296.

Table 296

Results of 3 × 3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	408519.224	1	408519.2	1197.69	0.799
	Type of Preschool	3548.623	2	1774.312	5.20	0.033
	FEQ	1364.954	2	682.477	2.00	0.013
	Type of Preschool * FEQ	1182.514	4	295.629	0.87	0.011
	Error	103008.79	302	341.089		
	Total	1349683	311			
III	Intercept	575859.961	1	575860	1327.66	0.829
	Type of Preschool	10531.523	2	5265.762	12.14	0.082
	FEQ	5407.73	2	2703.865	6.23	0.044
	Type of Preschool * FEQ	894.885	4	223.721	0.52	0.008
	Error	118411.317	273	433.741		
	Total	810682	282			
V	Intercept	371642.741	1	371642.7	1157.13	0.734
	Type of Preschool	306.901	2	153.45	0.48	0.002
	FEQ	1475.323	2	737.662	2.30	0.011
	Type of Preschool * FEQ	840.219	4	210.055	0.65	0.006
	Error	134894.156	420	321.177		
	Total	1184977	429			

Table 296 shows that the influence of type of preschooling on achievement in Mathematics does not vary by FEQ of: (a) Standard I students [$F(4, 302) = 0.87, p > .05$] (b) Standard III students [$F(4, 273) = 0.52, p > .05$] and (c) Standard V students [$F(4, 420) = 0.65, p > .05$]. There is no interaction between type of preschooling and FEQ in achievement in Mathematics of primary Standard students. Among primary standard students, influence of type of Preschooling on achievement in Mathematics does not vary by FEQ.

Influence of Type of Preschooling on Socio-Emotional Outcomes of Primary Standard Students by FEQ

Influence of type of preschooling on socio-emotional outcomes of Standard I, III and V students by Their FEQ were studied and the results are given distinctly.

Influence of Type of Preschooling on Personal Independence by FEQ.

Influence of type of preschooling on personal independence of Standard I, III and V students by FEQ were studied using 3×3 ANOVAs. Results are given in Table 297.

Table 297

Results of 3×3 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	805126.4	1	805126.4	3471.49	0.939
	Type of Preschool	117.576	2	58.788	0.25	0.002
	FEQ	86.882	2	43.441	0.19	0.002
	Type of Preschool* FEQ	1463.109	4	365.777	1.58	0.027
	Error	52647.04	227	231.925		
	Total	2004847	236			
III	Intercept	1368705	1	1368705	6758.92	0.97
	Type of Preschool	471.709	2	235.854	1.17	0.011
	FEQ	1189.032	2	594.516	2.94	0.028
	Type of Preschool* FEQ	56.995	4	14.249	0.07	0.001
	Error	41715.7	206	202.503		
	Total	1869297	215			
V	Intercept	1168849	1	1168849	7991.44	0.965
	Type of Preschool	192.976	2	96.488	0.66	0.005
	FEQ	103.149	2	51.574	0.35	0.002
	Type of Preschool* FEQ	1219.925	4	304.981	2.09	0.028
	Error	42269.89	289	146.263		
	Total	2728758	298			

Table 297 shows that the influence of type of preschooling on personal independence does not vary by FEQ of: (a) Standard I students [$F(4, 227) = 1.58, p > .05$] (b) Standard III students [$F(4, 206) = 0.07, p > .05$] and (c) Standard V students [$F(4, 289) = 2.09, p > .05$]. Among primary standard students, influence of type of preschooling on personal independence does not vary by FEQ.

Influence of Type of Preschooling on Academic Independence by FEQ.

Influence of type of preschooling on academic independence of Standard I, III and V students by FEQ were studied using 3×3 ANOVAs. Results are given in Table 298.

Table 298

Results of 3 × 3 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	666735.2	1	666735.2	2885.35	0.927
	Type of Preschool	264.412	2	132.206	0.57	0.005
	FEQ	66.381	2	33.191	0.14	0.001
	Type of Preschool*FEQ	956.79	4	239.197	1.04	0.018
	Error	52454.27	227	231.076		
	Total	1710406	236			
III	Intercept	1282849	1	1282849	6140.62	0.968
	Type of Preschool	969.915	2	484.958	2.32	0.022
	FEQ	13.301	2	6.651	0.03	0
	Type of Preschool*FEQ	350.379	4	87.595	0.42	0.008
	Error	43035.84	206	208.912		
	Total	1783366	215			
V	Intercept	963930.3	1	963930.3	4369.89	0.938
	Type of Preschool	13.576	2	6.788	0.03	0
	FEQ	144.515	2	72.257	0.33	0.002
	Type of Preschool*FEQ	1234.243	4	308.561	1.40	0.019
	Error	63748.93	289	220.585		
	Total	2267476	298			

Table 298 shows that the influence of type of preschooling on academic independence does not vary by FEQ of: (a) Standard I students [$F(4, 227) = 1.04, p > .05$] (b) Standard III students [$F(4, 206) = 0.42, p > .05$] and (c) Standard V students [$F(4, 289) = 1.40, p > .05$]. There is no interaction between type of preschooling and FEQ in academic independence of primary standard students. Among primary standard students, influence of type of Preschooling on academic independence does not vary by FEQ.

Influence of Type of Preschooling on Work Habit by FEQ. Influence of type of preschooling on work habit of Standard I, III and V Students by FEQ were studied using 3 × 3 ANOVAs. Results are given in Table 299.

Table 299

Results of 3 × 3 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	498098.8	1	498098.8	2096.62	0.902
	Type of Preschool	885.635	2	442.817	1.86	0.016
	FEQ	612.876	2	306.438	1.29	0.011
	Type of Preschool* FEQ	2023.908	4	505.977	2.13	0.036
	Error	53928.8	227	237.572		
	Total	1359898	236			
III	Intercept	807821.2	1	807821.2	3634.52	0.946
	Type of Preschool	905.758	2	452.879	2.04	0.019
	FEQ	380.897	2	190.449	0.86	0.008
	Type of Preschool* FEQ	293.383	4	73.346	0.33	0.006
	Error	45786.34	206	222.264		
	Total	1127576	215			
V	Intercept	579012.8	1	579012.8	2545.84	0.898
	Type of Preschool	601.354	2	300.677	1.32	0.009
	FEQ	1457.764	2	728.882	3.21	0.022
	Type of Preschool* FEQ	1468.733	4	367.183	1.61	0.022
	Error	65728.57	289	227.435		
	Total	1485919	298			

Table 299 shows that the influence of type of preschooling on work habit does not vary by FEQ of: (a) Standard I students [$F(4, 227) = 2.13, p > .05$] (b) Standard III students [$F(4, 206) = 0.33, p > .05$] and (c) Standard V students [$F(4, 289) = 1.61, p > .05$]. Among primary standard students, influence of type of Preschooling on work habit does not vary by FEQ.

Influence of Type of Preschooling on Interpersonal Relationship by FEQ.

Influence of type of preschooling on interpersonal relationship of Standard I, III and V students by FEQ were studied using 3 × 3 ANOVAs. Results are given in Table 300.

Table 300

Results of 3 × 3 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	697333.2	1	697333.2	7609.04	0.971
	Type of Preschool	288.753	2	144.377	1.58	0.014
	FEQ	7.236	2	3.618	0.04	0
	Type of Preschool* FEQ	450.953	4	112.738	1.23	0.021
	Error	20803.49	227	91.645		
	Total	1717042	236			
III	Intercept	1139791	1	1139791	10738.40	0.981
	Type of Preschool	92.375	2	46.187	0.44	0.004
	FEQ	444.809	2	222.405	2.10	0.02
	Type of Preschool* FEQ	503.112	4	125.778	1.19	0.022
	Error	21865.18	206	106.142		
	Total	1563169	215			
V	Intercept	594278	1	594278	6058.39	0.954
	Type of Preschool	273.239	2	136.62	1.39	0.01
	FEQ	435.89	2	217.945	2.22	0.015
	Type of Preschool* FEQ	213.262	4	53.316	0.54	0.007
	Error	28348.52	289	98.092		
	Total	1379003	298			

Table 300 shows that the influence of type of preschooling on interpersonal relationship does not vary by FEQ of: (a) Standard I students [$F(4, 227) = 1.23, p > .05$] (b) Standard III students [$F(4, 206) = 1.19, p > .05$] and (c) Standard V students [$F(4, 289) = 0.54, p > .05$]. There is no interaction between type of preschooling and FEQ in interpersonal relationship of primary standard students. Among primary standard students, influence of type of preschooling on interpersonal relationship does not vary by FEQ.

Influence of Type of Preschooling on Cooperation by FEQ. Influence of type of preschooling on Cooperation of Standard I, III and V students by FEQ were studied using 3 × 3 ANOVAs. Results are given in Table 301.

Table 301

Results of 3 × 3 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	571566.4	1	571566.4	2646.87	0.921
	Type of Preschool	172.589	2	86.295	0.40	0.004
	FEQ	420.193	2	210.096	0.97	0.008
	Type of Preschool* FEQ	403.25	4	100.812	0.47	0.008
	Error	49018.46	227	215.94		
	Total	1454040	236			
III	Intercept	985727.5	1	985727.5	3973.09	0.951
	Type of Preschool	1167.186	2	583.593	2.35	0.022
	FEQ	250.603	2	125.302	0.51	0.005
	Type of Preschool* FEQ	752.269	4	188.067	0.76	0.015
	Error	51108.76	206	248.101		
	Total	1383310	215			
V	Intercept	685647.3	1	685647.3	4114.58	0.934
	Type of Preschool	375.026	2	187.513	1.13	0.008
	FEQ	717.663	2	358.832	2.15	0.015
	Type of Preschool* FEQ	710.597	4	177.649	1.07	0.015
	Error	48158.5	289	166.638		
	Total	1636090	298			

Table 301 shows that the influence of type of preschooling on cooperation does not vary by FEQ of: (a) Standard I students [$F(4, 227) = 0.47, p > .05$] (b) Standard III students [$F(4, 206) = 0.76, p > .05$] and (c) Standard V students [$F(4, 289) = 1.07, p > .05$]. Among primary standard students, influence of type of Preschooling on cooperation does not vary by FEQ.

Influence of Type of Preschooling on Communication by FEQ. Influence of type of preschooling on Communication of Standard I, III and V students by FEQ were studied using 3 × 3 ANOVAs. Results are given in Table 302.

Table 302

Results of 3 × 3 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	749486.4	1	749486.4	3627.08	0.941
	Type of Preschool	116.632	2	58.316	0.28	0.002
	FEQ	220.635	2	110.318	0.53	0.005
	Type of Preschool* FEQ	338.176	4	84.544	0.41	0.007
	Error	46906.5	227	206.637		
	Total	1882499	236			
III	Intercept	1297901	1	1297901	8513.35	0.976
	Type of Preschool	431.731	2	215.865	1.42	0.014
	FEQ	274.037	2	137.018	0.90	0.009
	Type of Preschool* FEQ	1599.614	4	399.904	2.62*	0.048
	Error	31405.68	206	152.455		
	Total	1769759	215			
V	Intercept	978149	1	978149	4562.06	0.94
	Type of Preschool	524.387	2	262.193	1.22	0.008
	FEQ	343.198	2	171.599	0.80	0.006
	Type of Preschool* FEQ	910.657	4	227.664	1.06	0.014
	Error	61964.3	289	214.409		
	Total	2249115	298			

Note. * $p < .05$

Table 302 shows that the influence of type of preschooling on communication does not vary by FEQ of: (a) Standard I students [$F(4, 227) = 0.41, p > .05$] and (b) Standard V students [$F(4, 289) = 1.06, p > .05$]. But, the influence of type of preschooling on communication of Standard III students vary significantly by FEQ [$F(4, 206) = 2.62, p < .05, \eta^2 = 0.048$], though the interaction is small.

But follow up analysis of variance revealed that there is no significant effect of type of preschooling on communication of Standard III students with below secondary (Anganwadi: $M = 87.92, SD = 14.12, N = 38$; Kindergarten: $M = 86.36, SD = 15.46, N = 28$; Montessori: $M = 98.22, SD = 3.53, N = 9$) [$F(2, 72) = 2.56, p > .05$], secondary (Anganwadi: $M = 92.56, SD = 11.43, N = 48$ and Kindergarten: $M = 91.41, SD = 9.85, N = 29$, Montessori: $M = 89.69, SD = 9.80, N = 13$) [$F(2, 87) = 0.39, p > .05$,] and above

secondary (Anganwadi: $M = 93.56$, $SD = 9.73$, $N = 18$ and Kindergarten: $M = 85.80$, $SD = 17.56$, $N = 10$, Montessori: $M = 85.18$, $SD = 12.09$, $N = 22$) [$F(2, 47) = 2.44$, $p > .05$] FEQ.

Influence of Type of Preschooling on Leadership by FEQ. Influence of type of preschooling on leadership of Standard I, III and V students by FEQ were studied using 3×3 ANOVAs. Results are given in Table 303.

Table 303

Results of 3×3 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
I	Intercept	599901.1	1	599901.1	5007.93	0.00	0.957
	Type of Preschool	384.275	2	192.137	1.60	0.20	0.014
	FEQ	40.668	2	20.334	0.17	0.84	0.001
	Type of Preschool* FEQ	446.968	4	111.742	0.93	0.45	0.016
	Error	27192.4	227	119.79			
	Total	1460383	236				
III	Intercept	1041554	1	1041554	11546.28	0.00	0.982
	Type of Preschool	434.609	2	217.305	2.41	0.09	0.023
	FEQ	661.474	2	330.737	3.67	0.03	0.034
	Type of Preschool* FEQ	772.219	4	193.055	2.14	0.08	0.04
	Error	18582.63	206	90.207			
	Total	1399873	215				
V	Intercept	687728.4	1	687728.4	5378.92	0.00	0.949
	Type of Preschool	1061.799	2	530.899	4.15	0.02	0.028
	FEQ	229.78	2	114.89	0.90	0.41	0.006
	Type of Preschool* FEQ	780.516	4	195.129	1.53	0.20	0.021
	Error	36950.46	289	127.856			
	Total	1532044	298				

Table 303 shows that the influence of type of preschooling on leadership does not vary by FEQ of: (a) Standard I students [$F(4, 227) = 0.93$, $p > .05$] (b) Standard III students [$F(4, 206) = 2.14$, $p > .05$] and (c) Standard V students [$F(4, 289) = 1.53$, $p > .05$]. Among primary standard students, influence of type of Preschooling on leadership does not vary by FEQ.

Influence of Type of Preschooling on Expressing Emotions by FEQ.

Influence of type of preschooling on expressing emotions of Standard I, III and V students by FEQ were studied using 3×3 ANOVAs. Results are given in Table 304.

Table 304

Results of 3×3 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	500038.8	1	500038.8	5269.41	0.959
	Type of Preschool	415.624	2	207.812	2.19	0.019
	FEQ	561.111	2	280.555	2.96	0.025
	Type of Preschool* FEQ	464.806	4	116.201	1.23	0.021
	Error	21541.08	227	94.895		
	Total	1291361	236			
III	Intercept	816290.6	1	816290.6	7005.24	0.971
	Type of Preschool	472.622	2	236.311	2.03	0.019
	FEQ	1053.177	2	526.589	4.52	0.042
	Type of Preschool* FEQ	144.864	4	36.216	0.31	0.006
	Error	24004.29	206	116.526		
	Total	1109217	215			
V	Intercept	638065.1	1	638065.1	3980.08	0.932
	Type of Preschool	400.985	2	200.493	1.25	0.009
	FEQ	1230.705	2	615.353	3.84	0.026
	Type of Preschool* FEQ	637.876	4	159.469	1.00	0.014
	Error	46330.97	289	160.315		
	Total	1586857	298			

Table 304 shows that the influence of type of preschooling on expressing emotions does not vary by FEQ of: (a) Standard I students [$F(4, 227) = 1.23, p > .05$] (b) Standard III students [$F(4, 206) = 0.31, p > .05$] and (c) Standard V students [$F(4, 289) = 1.00, p > .05$]. Among primary standard students, influence of type of Preschooling on expressing emotions does not vary by FEQ.

Influence of Type of Preschooling on Controlling Emotions by FEQ.

Influence of type of preschooling on controlling emotions of Standard I, III and V students by FEQ were studied using 3×3 ANOVAs. Results are given in Table 305.

Table 305

Results of 3 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and FEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	411579.7	1	411579.7	6728.30	0.967
	Type of Preschool	21.948	2	10.974	0.18	0.002
	FEQ	107.325	2	53.662	0.88	0.008
	Type of Preschool* FEQ	48.822	4	12.205	0.20	0.004
	Error	13885.92	227	61.171		
	Total	1036862	236			
III	Intercept	740236	1	740236	11639.94	0.983
	Type of Preschool	141.133	2	70.567	1.11	0.011
	FEQ	307.63	2	153.815	2.42	0.023
	Type of Preschool* FEQ	49.345	4	12.336	0.19	0.004
	Error	13100.47	206	63.594		
	Total	1016368	215			
V	Intercept	650870.3	1	650870.3	6135.82	0.955
	Type of Preschool	242.451	2	121.226	1.14	0.008
	FEQ	376.86	2	188.43	1.78	0.012
	Type of Preschool* FEQ	473.697	4	118.424	1.12	0.015
	Error	30656.28	289	106.077		
	Total	1541104	298			

Table 305 shows that the influence of type of preschooling on controlling emotions does not vary by FEQ of: (a) Standard I students [$F(4, 227) = 0.20, p > .05$] (b) Standard III students [$F(4, 206) = 0.19, p > .05$] and (c) Standard V students [$F(4, 289) = 1.12, p > .05$]. There is no interaction between type of preschooling and FEQ in controlling emotions of primary standard students. Among primary standard students, influence of type of preschooling on controlling emotions does not vary by FEQ.

Influence of Type of Preschooling on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by Mother's Educational Qualification

Whether influence of type of preschooling on cognitive and socio-emotional outcomes of primary standard students vary by their Mother's Educational Qualification (MEQ) was studied using 3 × 3 ANOVAs. Wherever a significant 3 × 3

interaction is revealed, further one way Anova of the dependent variable with type of preschooling were done for MEQ separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Type of Preschooling on Cognitive Outcomes of Primary Standard Students by MEQ

Influence of type of preschooling on cognitive outcomes of Standard I, III and V students by their MEQ were studied and the results are given distinctly.

Influence of Type of Preschooling on Vocabulary in Malayalam by MEQ. Influence of type of preschooling on vocabulary in Malayalam of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 306.

Table 306

Results of 3×3 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	213858.487	1	213858.5	488.90	0.618
	Type of Preschool	296.448	2	148.224	0.34	0.002
	MEQ	649.728	2	324.864	0.74	0.005
	Type of Preschool* MEQ	831.933	4	207.983	0.48	0.006
	Error	132103.93	302	437.43		
	Total	1253896	311			
III	Intercept	463471.07	1	463471.1	1310.17	0.828
	Type of Preschool	2915.179	2	1457.59	4.12	0.029
	MEQ	3296.331	2	1648.166	4.66	0.033
	Type of Preschool* MEQ	928.541	4	232.135	0.66	0.01
	Error	96573.654	273	353.75		
	Total	683950	282			
V	Intercept	317859.082	1	317859.1	1021.26	0.709
	Type of Preschool	1891.289	2	945.645	3.04	0.014
	MEQ	353.522	2	176.761	0.57	0.003
	Type of Preschool* MEQ	923.798	4	230.95	0.74	0.007
	Error	130722.236	420	311.243		
	Total	900640	429			

Table 306 shows that the influence of type of preschooling on vocabulary in Malayalam does not vary by MEQ of: (a) Standard I students [$F(4, 302) = 0.48, p > .05$] (b) Standard III students [$F(4, 273) = 0.66, p > .05$] and (c) Standard V students [$F(4, 420) = 0.74, p > .05$]. Among primary standard students, influence of type of preschooling on vocabulary in Malayalam does not vary by MEQ.

Influence of Type of Preschooling on Malayalam Comprehension by MEQ. Influence of type of preschooling on Malayalam comprehension of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 307

Table 307

Results of 3×3 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	128362.522	1	128362.5	237.94	0.441
	Type of Preschool	1893.933	2	946.967	1.76	0.011
	MEQ	215.813	2	107.906	0.20	0.001
	Type of Preschool* MEQ	2962.14	4	740.535	1.37	0.018
	Error	162919.458	302	539.468		
	Total	748941	311			
III	Intercept	656972.845	1	656972.8	1264.15	0.822
	Type of Preschool	282.426	2	141.213	0.27	0.002
	MEQ	2415.636	2	1207.818	2.32	0.017
	Type of Preschool* Educational Qualification of Mother	2238.105	4	559.526	1.08	0.016
	Error	141876.94	273	519.696		
	Total	993726	282			
V	Intercept	279828.862	1	279828.9	609.31	0.592
	Type of Preschool	1474.153	2	737.077	1.61	0.008
	MEQ	1822.17	2	911.085	1.98	0.009
	Type of Preschool* Educational Qualification of Mother	1939.27	4	484.818	1.06	0.01
	Error	192887.396	420	459.256		
	Total	862469	429			

Table 307 shows that the influence of type of preschooling on Malayalam comprehension does not vary by MEQ of: (a) Standard I students [$F(4, 302) = 1.37, p > .05$] (b) Standard III students [$F(4, 273) = 1.08, p > .05$] and (c) Standard V students [$F(4, 420) = 1.06, p > .05$]. Among primary standard students, influence of type of preschooling on Malayalam comprehension does not vary by MEQ.

Influence of Type of Preschooling on Vocabulary in English by MEQ.

Influence of type of preschooling on vocabulary in English of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 308.

Table 308

Results of 3×3 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	236205.696	1	236205.7	550.53	0.646
	Type of Preschool	3594.617	2	1797.309	4.19	0.027
	MEQ	618.561	2	309.281	0.72	0.005
	Type of Preschool* MEQ	274.808	4	68.702	0.16	0.002
	Error	129574.589	302	429.055		
	Total	1301847	311			
III	Intercept	416759.094	1	416759.1	946.06	0.776
	Type of Preschool	14682.566	2	7341.283	16.67	0.109
	MEQ	10687.21	2	5343.605	12.13	0.082
	Type of Preschool* MEQ	7333.993	4	1833.498	4.16**	0.057
	Error	120262.586	273	440.522		
	Total	629290	282			
V	Intercept	371816.204	1	371816.2	915.23	0.685
	Type of Preschool	5344.578	2	2672.289	6.58	0.03
	MEQ	1816.152	2	908.076	2.24	0.011
	Type of Preschool* MEQ	434.877	4	108.719	0.27	0.003
	Error	170627.087	420	406.255		
	Total	1026564	429			

Note. ** $p < .01$

Table 308 shows that the influence of type of preschooling on vocabulary in English does not vary by MEQ of: (a) Standard I students [$F(4, 302) = 0.16, p > .05$] and (b) Standard V students [$F(4, 420) = 0.27, p > .05$]. But, the influence of type of preschooling on vocabulary in English of Standard III students vary significantly by MEQ [$F(4, 273) = 4.16, p < .05, \eta^2 = 0.057$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but medium effect of type of preschooling on vocabulary in English of Standard III students having secondary MEQ (Anganwadi: $M=38.51, SD=22.60, N=41$; Kindergarten: $M=32.82, SD=15.87, N=22$; Montessori: $M=66.00, SD=16.63, N=8$) [$F(2, 68) = 8.151, p < .05, \eta^2 = 0.193$], and the students having above secondary MEQ (Anganwadi: $M=37.24, SD=24.98, N=49$ and Kindergarten: $M=47.09, SD=19.88, N=31$, Montessori: $M=66.54, SD=17.93, N=28$) [$F(2, 105) = 15.909, p < .05, \eta^2 = 0.233$], but not among the students having below secondary MEQ (Anganwadi: $M=34.53, SD=19.89, N=38$ and Kindergarten: $M=33.95, SD=19.11, N=41$, Montessori: $M=38.96, SD=23.64, N=24$) [$F(2, 100) = 0.497, p > .05$]. Vocabulary in English is higher among Standard III students who preschoolled in Montessori and having secondary and above secondary MEQ than students who preschoolled in Kindergarten and Anganwadi and having secondary and above secondary MEQ.

Influence of Type of Preschooling on English Comprehension by MEQ.

Influence of type of preschooling on English comprehension of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 309.

Table 309

Results of 3 × 3 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	113295.1	1	113295.1	245.09	0.448
	Type of Preschool	6800.412	2	3400.206	7.36	0.046
	MEQ	124.607	2	62.303	0.14	0.001
	Type of Preschool* MEQ	945.161	4	236.29	0.51	0.007
	Error	139599.943	302	462.251		
	Total	624828	311			
III	Intercept	334742.473	1	334742.5	644.35	0.702
	Type of Preschool	11258.827	2	5629.413	10.84	0.074
	MEQ	6516.199	2	3258.1	6.27	0.044
	Type of Preschool* MEQ	8124.321	4	2031.08	3.91**	0.054
	Error	141824.708	273	519.504		
	Total	570400	282			
V	Intercept	486606.651	1	486606.7	1116.30	0.727
	Type of Preschool	5462.726	2	2731.363	6.27	0.029
	MEQ	2831.741	2	1415.871	3.25	0.015
	Type of Preschool* MEQ	1660.639	4	415.16	0.95	0.009
	Error	183082.958	420	435.912		
	Total	1352799	429			

Note. ** $p < .01$

Table 309 shows that the influence of type of preschooling on English comprehension does not vary by MEQ of: (a) Standard I students [$F(4, 302) = 0.51, p > .05$] and (b) Standard V students [$F(4, 420) = 0.95, p > .05$]. But, the influence of type of preschooling on English comprehension of Standard III students vary significantly by MEQ [$F(4, 273) = 3.91, p < .05, \eta^2 = 0.054$], though the interaction is small.

Follow up analysis of variance revealed that there is significant influence of type of preschooling on English comprehension of Standard III students having below secondary MEQ with small effect (Anganwadi: $M = 25.00, SD = 17.40, N = 38$; Kindergarten: $M = 35.98, SD = 20.74, N = 41$; Montessori: $M = 40.00, SD = 26.25,$

$N=24$)[$F(2, 100) = 4.484, p < .05, \eta^2 = 0.082$], students having secondary MEQ with small effect (Anganwadi: $M=40.24, SD = 26.62, N=41$ and Kindergarten: $M=26.82, SD=16.51, N=22$, Montessori: $M=51.25, SD=30.68, N=8$)[$F(2, 68) = 3.620, p < .05, \eta^2 = 0.096$] and students having above secondary MEQ with medium effect (Anganwadi: $M=32.45, SD=23.74, N=49$ and Kindergarten: $M=41.77, SD=21.59, N=31$, Montessori: $M=61.07, SD=24.24, N=28$)[$F(2, 105) = 13.492, p < .05, \eta^2 = 0.204$]. English comprehension is higher among Standard III students who preschooled in Montessori and having below secondary, secondary and above secondary MEQ than that of who preschooled in Kindergarten and Anganwadi and having below secondary, secondary and above secondary MEQ.

Influence of Type of Preschooling on Achievement in Mathematics by MEQ. Influence of type of preschooling on achievement in Mathematics of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 310.

Table 310

Results of 3×3 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	257810.059	1	257810.1	749.26	0.713
	Type of Preschool	4768.689	2	2384.345	6.93	0.044
	MEQ	25.54	2	12.77	0.04	0
	Type of Preschool* MEQ	242.715	4	60.679	0.18	0.002
	Error	103913.597	302	344.085		
	Total	1349683	311			
III	Intercept	566715.067	1	566715.1	1310.90	0.828
	Type of Preschool	10525.996	2	5262.998	12.17	0.082
	MEQ	4553.911	2	2276.956	5.27	0.037
	Type of Preschool* MEQ	1622.934	4	405.733	0.94	0.014
	Error	118020.735	273	432.31		
	Total	810682	282			
V	Intercept	425822.892	1	425822.9	1315.67	0.758
	Type of Preschool	1090.8	2	545.4	1.69	0.008
	MEQ	919.158	2	459.579	1.42	0.007
	Type of Preschool* MEQ	736.963	4	184.241	0.57	0.005
	Error	135935.162	420	323.655		
	Total	1184977	429			

Table 310 shows that the influence of type of preschooling on achievement in Mathematics does not vary by MEQ of: (a) Standard I students [$F(4, 302) = 0.18, p > .05$] (b) Standard III students [$F(4, 273) = 0.94, p > .05$] and (c) Standard V students [$F(4, 420) = 0.57, p > .05$]. Among primary standard students, influence of type of preschooling on achievement in Mathematics does not vary by MEQ.

Influence of Type of Preschooling on Socio-Emotional Outcomes of Primary Standard Students by MEQ

Influence of type of preschooling on socio-emotional outcomes of Standard I, III and V students by MEQ were studied and the results are given distinctly.

Influence of Type of Preschooling on Personal Independence by MEQ.

Influence of type of preschooling on personal independence of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 311.

Table 311

Results of 3×3 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	450651.7	1	450651.7	1955.69	0.896
	Type of Preschool	636.428	2	318.214	1.38	0.012
	MEQ	362.462	2	181.231	0.79	0.007
	Type of Preschool* MEQ	1384.914	4	346.229	1.50	0.026
	Error	52307.95	227	230.431		
	Total	2004847	236			
III	Intercept	1338187	1	1338187	6587.55	0.97
	Type of Preschool	456.587	2	228.294	1.12	0.011
	MEQ	720.743	2	360.372	1.77	0.017
	Type of Preschool* MEQ	552.885	4	138.221	0.68	0.013
	Error	41846.57	206	203.139		
	Total	1869297	215			
V	Intercept	1240184	1	1240184	8363.10	0.967
	Type of Preschool	391.452	2	195.726	1.32	0.009
	MEQ	200.249	2	100.125	0.68	0.005
	Type of Preschool* MEQ	391.405	4	97.851	0.66	0.009
	Error	42856.48	289	148.292		
	Total	2728758	298			

Table 311 shows that the influence of type of preschooling on personal independence does not vary by MEQ of: (a) Standard I students [$F(4, 227) = 1.50, p > .05$] (b) Standard III students [$F(4, 206) = 0.68, p > .05$] and (c) Standard V students [$F(4, 289) = 0.66, p > .05$]. There is no interaction between type of preschooling and MEQ in independence personal of primary standard students. Among primary standard students, influence of type of preschooling on independence personal does not vary by MEQ.

Influence of Type of Preschooling on Academic Independence by MEQ.

Influence of type of preschooling on academic Independence of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 312.

Table 312

Results of 3×3 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	357856.1	1	357856.1	1558.92	0.873
	Type of Preschool	165.301	2	82.65	0.36	0.003
	MEQ	766.359	2	383.18	1.67	0.014
	Type of Preschool*MEQ	840.296	4	210.074	0.92	0.016
	Error	52108.63	227	229.553		
	Total	1710406	236			
III	Intercept	1271735	1	1271735	6379.69	0.969
	Type of Preschool	590.767	2	295.384	1.48	0.014
	MEQ	957.056	2	478.528	2.40	0.023
	Type of Preschool*MEQ	1207.759	4	301.94	1.52	0.029
	Error	41064.32	206	199.341		
	Total	1783366	215			
V	Intercept	1033101	1	1033101	4667.98	0.942
	Type of Preschool	100.198	2	50.099	0.23	0.002
	MEQ	547.517	2	273.759	1.24	0.008
	Type of Preschool*MEQ	647.557	4	161.889	0.73	0.01
	Error	63960.47	289	221.317		
	Total	2267476	298			

Table 312 shows that the influence of type of preschooling on independence academic does not vary by MEQ of: (a) Standard I students [$F(4, 227) = 0.92, p > .05$] (b) Standard III students [$F(4, 206) = 1.52, p > .05$] and (c) Standard V students [$F(4, 289) = 0.73, p > .05$]. Among primary standard students, influence of type of preschooling on independence academic does not vary by MEQ.

Influence of Type of Preschooling on Work Habit by MEQ. Influence of type of preschooling on work habit of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 313.

Table 313

Results of 3×3 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	286548.6	1	286548.6	1170.63	0.838
	Type of Preschool	552.08	2	276.04	1.13	0.01
	MEQ	408.516	2	204.258	0.83	0.007
	Type of Preschool* MEQ	416.92	4	104.23	0.43	0.007
	Error	55565.32	227	244.781		
	Total	1359898	236			
III	Intercept	780957	1	780957	3689.40	0.947
	Type of Preschool	753.203	2	376.602	1.78	0.017
	MEQ	711.188	2	355.594	1.68	0.016
	Type of Preschool* MEQ	1934.594	4	483.649	2.29	0.042
	Error	43605.27	206	211.676		
	Total	1127576	215			
V	Intercept	630181.3	1	630181.3	2700.56	0.903
	Type of Preschool	456.843	2	228.421	0.98	0.007
	MEQ	511.559	2	255.78	1.10	0.008
	Type of Preschool* MEQ	996.569	4	249.142	1.07	0.015
	Error	67438.77	289	233.352		
	Total	1485919	298			

Table 313 shows that the influence of type of preschooling on work habit does not vary by MEQ of: (a) Standard I students [$F(4, 227) = 0.43, p > .05$] (b) Standard III students [$F(4, 206) = 2.29, p > .05$] and (c) Standard V students [$F(4, 289) = 1.07, p > .05$]. Among primary standard students, influence of type of preschooling on work habit does not vary by MEQ.

Influence of Type of Preschooling on Interpersonal Relationship by MEQ. Influence of type of preschooling on interpersonal relationship of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 314.

Table 314

Results of 3×3 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	399719.6	1	399719.6	4330.97	0.95
	Type of Preschool	373.36	2	186.68	2.02	0.018
	MEQ	20.773	2	10.387	0.11	0.001
	Type of Preschool* MEQ	312.876	4	78.219	0.85	0.015
	Error	20950.57	227	92.293		
	Total	1717042	236			
III	Intercept	1130313	1	1130313	10468.24	0.981
	Type of Preschool	183.95	2	91.975	0.85	0.008
	MEQ	32.346	2	16.173	0.15	0.001
	Type of Preschool* MEQ	591.083	4	147.771	1.37	0.026
	Error	22242.95	206	107.975		
	Total	1563169	215			
V	Intercept	643258.2	1	643258.2	6634.01	0.958
	Type of Preschool	319.821	2	159.911	1.65	0.011
	MEQ	46.021	2	23.01	0.24	0.002
	Type of Preschool* MEQ	1019.529	4	254.882	2.63*	0.035
	Error	28022.51	289	96.964		
	Total	1379003	298			

Note. * $p < .05$

Table 314 shows that the influence of type of preschooling on interpersonal relationship does not vary by MEQ of: (a) Standard I students [$F(4, 227) = 0.85, p > .05$] and (b) Standard III students [$F(4, 206) = 1.37, p > .05$]. But, the influence of type of preschooling on interpersonal relationship of Standard V students vary significantly by MEQ [$F(4, 289) = 2.63, p < .05, \eta^2 = 0.035$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on interpersonal relationship of Standard V secondary

MEQ (Anganwadi: $M = 64.75$, $SD = 11.65$, $N = 79$; Kindergarten: $M = 68.42$, $SD = 9.90$, $N = 33$; Montessori: $M = 72.73$, $SD = 8.60$, $N = 11$) [$F(2, 120) = 3.28$, $p < .05$, $\eta^2 = 0.052$], but among the below secondary MEQ (Anganwadi: $M = 65.85$, $SD = 7.95$, $N = 20$ and Kindergarten: $M = 67.92$, $SD = 6.05$, $N = 12$; Montessori: $M = 72.25$, $SD = 11.18$, $N = 4$) [$F(2, 33) = 1.21$, $p > .05$] and above secondary MEQ (Anganwadi: $M = 69.13$, $SD = 9.00$, $N = 67$ and Kindergarten: $M = 67.85$, $SD = 10.19$, $N = 39$, Montessori: $M = 66.15$, $SD = 8.46$, $N = 33$) [$F(2, 136) = 1.17$, $p > .05$]. In Standard V, interpersonal relationship is higher among students who preschooled in Montessori and having secondary MEQ than the students who preschooled in Kindergarten and Anganwadi and having secondary MEQ.

Influence of Type of Preschooling on Cooperation by MEQ. Influence of type of preschooling on cooperation of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 315.

Table 315

Results of 3×3 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	329892.8	1	329892.8	1523.86	0.87
	Type of Preschool	193.947	2	96.974	0.45	0.004
	MEQ	182.67	2	91.335	0.42	0.004
	Type of Preschool *MEQ	1028.302	4	257.076	1.19	0.02
	Error	49142.05	227	216.485		
	Total	1454040	236			
III	Intercept	949827.7	1	949827.7	3873.96	0.95
	Type of Preschool	1259.68	2	629.84	2.57	0.024
	MEQ	441.451	2	220.726	0.90	0.009
	Type of Preschool *MEQ	1274.325	4	318.581	1.30	0.025
	Error	50507.57	206	245.182		
	Total	1383310	215			
V	Intercept	734230.2	1	734230.2	4353.52	0.938
	Type of Preschool	239.651	2	119.826	0.71	0.005
	MEQ	120.157	2	60.079	0.36	0.002
	Type of Preschool *MEQ	519.03	4	129.757	0.77	0.011
	Error	48740.5	289	168.652		
	Total	1636090	298			

Table 315 shows that the influence of type of preschooling on cooperation does not vary by MEQ of: (a) Standard I students [$F(4, 227) = 0.19, p > .05$] and (b) Standard III students [$F(4, 206) = 1.30, p > .05$] and (c) Standard V students [$F(4, 289) = 0.77, p > .05$]. Among primary standard students, influence of type of preschooling on cooperation does not vary by MEQ.

Influence of Type of Preschooling on Communication by MEQ. Influence of type of preschooling on communication of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 316.

Table 316

Results of 3×3 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	434048.6	1	434048.6	2103.24	0.903
	Type of Preschool	507.494	2	253.747	1.23	0.011
	MEQ	67.953	2	33.977	0.17	0.001
	Type of Preschool* MEQ	1018.545	4	254.636	1.23	0.021
	Error	46846.42	227	206.372		
	Total	1882499	236			
III	Intercept	1267484	1	1267484	7970.70	0.975
	Type of Preschool	239.778	2	119.889	0.75	0.007
	MEQ	52.855	2	26.428	0.17	0.002
	Type of Preschool* MEQ	774.905	4	193.726	1.22	0.023
	Error	32757.68	206	159.018		
	Total	1769759	215			
V	Intercept	1044354	1	1044354	4783.71	0.943
	Type of Preschool	554.784	2	277.392	1.27	0.009
	MEQ	321.796	2	160.898	0.74	0.005
	Type of Preschool* MEQ	378.465	4	94.616	0.43	0.006
	Error	63092.93	289	218.315		
	Total	2249115	298			

Table 316 shows that the influence of type of preschooling on communication does not vary by MEQ of: (a) Standard I students [$F(4, 227) = 1.23, p > .05$] (b) Standard III students [$F(4, 206) = 1.22, p > .05$] and (c) Standard V students [$F(4, 289) = 0.43, p > .05$]. Among primary standard students, influence of type of preschooling on communication does not vary by MEQ.

Influence of Type of Preschooling on Leadership by MEQ. Influence of type of preschooling on leadership of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 317.

Table 317

Results of 3×3 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	333163	1	333163	2797.64	0.925
	Type of Preschool	286.322	2	143.161	1.20	0.01
	MEQ	44.128	2	22.064	0.19	0.002
	Type of Preschool* MEQ	581.924	4	145.481	1.22	0.021
	Error	27032.81	227	119.087		
	Total	1460383	236			
III	Intercept	1022885	1	1022885	11240.07	0.982
	Type of Preschool	216.277	2	108.139	1.19	0.011
	MEQ	291.993	2	145.997	1.60	0.015
	Type of Preschool* MEQ	507.198	4	126.799	1.39	0.026
	Error	18746.72	206	91.003		
	Total	1399873	215			
V	Intercept	726255.2	1	726255.2	5683.35	0.952
	Type of Preschool	684.14	2	342.07	2.68	0.018
	MEQ	417.035	2	208.518	1.63	0.011
	Type of Preschool* MEQ	622.872	4	155.718	1.22	0.017
	Error	36930.3	289	127.786		
	Total	1532044	298			

Table 317 shows that the influence of type of preschooling on leadership does not vary by MEQ of: (a) Standard I students [$F(4, 227) = 1.22, p > .05$] (b) Standard III students [$F(4, 206) = 1.39, p > .05$] and (c) Standard V students [$F(4, 289) = 1.22, p > .05$]. Among primary standard students, influence of type of preschooling on leadership does not vary by MEQ.

Influence of Type of Preschooling on Expressing Emotions by MEQ. Influence of type of preschooling on expressing emotions of Standard I, III and V students by MEQ were studied using 3×3 ANOVAs. Results are given in Table 318.

Table 318

Results of 3 × 3 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	291907.2	1	291907.2	2971.63	0.929
	Type of Preschool	259.907	2	129.954	1.32	0.012
	MEQ	44.941	2	22.471	0.23	0.002
	Type of Preschool * MEQ	187.716	4	46.929	0.48	0.008
	Error	22298.51	227	98.231		
	Total	1291361	236			
III	Intercept	786030.4	1	786030.4	7163.54	0.972
	Type of Preschool	518.578	2	259.289	2.36	0.022
	MEQ	1751.591	2	875.796	7.98	0.072
	Type of Preschool * MEQ	690.606	4	172.651	1.57	0.03
	Error	22603.67	206	109.727		
	Total	1109217	215			
V	Intercept	695739.1	1	695739.1	4260.74	0.936
	Type of Preschool	58.364	2	29.182	0.18	0.001
	MEQ	374.301	2	187.151	1.15	0.008
	Type of Preschool * MEQ	393.804	4	98.451	0.60	0.008
	Error	47190.97	289	163.291		
	Total	1586857	298			

Table 318 shows that the influence of type of preschooling on expressing emotions does not vary by MEQ of: (a) Standard I students [$F(4, 227) = 0.48, p > .05$] (b) Standard III students [$F(4, 206) = 1.57, p > .05$] and (c) Standard V students [$F(4, 289) = 0.60, p > .05$]. Among primary standard students, influence of type of preschooling on expressing emotions does not vary by MEQ.

Influence of Type of Preschooling on Controlling Emotions by MEQ.

Influence of type of preschooling on controlling emotions of Standard I, III and V students by MEQ were studied using 3 × 3 ANOVAs. Results are given in Table 319.

Table 319

Results of 3 × 3 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and MEQ

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	239284.1	1	239284.1	3917.59	0.945
	Type of Preschool	38.314	2	19.157	0.31	0.003
	MEQ	33.394	2	16.697	0.27	0.002
	Type of reschool*MEQ	97.636	4	24.409	0.40	0.007
	Error	13865.02	227	61.079		
	Total	1036862	236			
III	Intercept	727649.6	1	727649.6	11778.94	0.983
	Type of Preschool	67.752	2	33.876	0.55	0.005
	MEQ	233.471	2	116.735	1.89	0.018
	Type of reschool*MEQ	428.728	4	107.182	1.74	0.033
	Error	12725.75	206	61.775		
	Total	1016368	215			
V	Intercept	704929.5	1	704929.5	6583.25	0.958
	Type of Preschool	372.756	2	186.378	1.74	0.012
	MEQ	50.056	2	25.028	0.23	0.002
	Type of Preschool * MEQ	498.565	4	124.641	1.16	0.016
	Error	30945.9	289	107.079		
	Total	1541104	298			

Table 319 shows that the influence of type of preschooling on controlling emotions does not vary by MEQ of: (a) Standard I students [$F(4, 227) = 0.40, p > .05$] (b) Standard III students [$F(4, 206) = 1.74, p > .05$] and (c) Standard V students [$F(4, 289) = 1.16, p > .05$]. Among primary standard students, influence of type of preschooling on controlling emotions does not vary by MEQ.

Influence of Type of Preschooling on Cognitive and Socio-Emotional Outcomes of Primary Standard Students by the Level of Cognitive Engagement Outside the School

Whether influence of type of preschooling on cognitive and socio-emotional outcomes of primary standard students vary by the levels of their Cognitive Engagement (CE) was studied using 3 × 2 ANOVAs. Wherever a significant 3 × 2 interaction is revealed, further one way Anova of the dependent

variable with type of preschooling were done for the two levels of CE separately, as follow up. Results are given under two major heads: cognitive and socio-emotional outcomes.

Influence of Type of Preschooling on Cognitive Outcomes of Primary Standard Students by the Level of CE Outside the School

Influence of type of preschooling on cognitive outcomes of Standard I, III and V students by their CE were studied and the results are given distinctly.

Influence of Type of Preschooling on Vocabulary in Malayalam by the Level of CE Outside the School. Influence of type of preschooling on vocabulary in Malayalam of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 320.

Table 320

Results of 3×2 ANOVAs of Vocabulary in Malayalam of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	714194.357	1	714194.4	1628.57	0.842
	Type of Preschool	411.384	2	205.692	0.47	0.003
	CE	65.405	1	65.405	0.15	0
	Type of Preschool* CE	357.592	2	178.796	0.41	0.003
	Error	133754.956	305	438.541		
	Total	1253896	311			
III	Intercept	522728.939	1	522728.9	1490.48	0.844
	Type of Preschool	2700.068	2	1350.034	3.85	0.027
	CE	2354.821	1	2354.821	6.71	0.024
	Type of Preschool* CE	1347.136	2	673.568	1.92	0.014
	Error	96796.394	276	350.712		
	Total	683950	282			
V	Intercept	78746.032	1	78746.03	250.18	0.372
	Type of Preschool	1646.352	2	823.176	2.62	0.012
	CE	686.068	1	686.068	2.18	0.005
	Type of Preschool* CE	1122.389	2	561.194	1.78	0.008
	Error	133142.782	423	314.758		
	Total	900640	429			

Table 320 shows that the influence of type of preschooling on vocabulary in Malayalam does not vary by the level of CE of: (a) Standard I students [$F(2, 305) = 0.41, p > .05$] (b) Standard III students [$F(2, 276) = 1.92, p > .05$] and (c) Standard V students [$F(2, 423) = 1.78, p > .05$]. Among primary standard students, influence of type of preschooling on vocabulary in Malayalam does not vary by the level of CE.

Influence of Type of Preschooling on Malayalam Comprehension by the Level of CE Outside the School. Influence of type of preschooling on Malayalam comprehension of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 321.

Table 321

Results of 3×2 ANOVAs of Malayalam Comprehension of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	374629.803	1	374629.8	683.93	0.692
	Type of Preschool	1307.184	2	653.592	1.19	0.008
	CE	399.077	1	399.077	0.73	0.002
	Type of Preschool* CE	787.252	2	393.626	0.72	0.005
	Error	167068.187	305	547.765		
	Total	748941	311			
III	Intercept	752468.053	1	752468.1	1442.25	0.839
	Type of Preschool	159.311	2	79.655	0.15	0.001
	CE	1073.386	1	1073.386	2.06	0.007
	Type of Preschool* CE	1700.793	2	850.396	1.63	0.012
	Error	143998.206	276	521.733		
	Total	993726	282			
V	Intercept	67428.757	1	67428.76	144.35	0.254
	Type of Preschool	1133.215	2	566.608	1.21	0.006
	CE	314.832	1	314.832	0.67	0.002
	Type of Preschool* CE	927.647	2	463.823	0.99	0.005
	Error	197589.878	423	467.116		
	Total	862469	429			

Table 321 shows that the influence of type of preschooling on Malayalam comprehension does not vary by the level of CE of: (a) Standard I students [$F(2, 305) = 0.72, p > .05$] (b) Standard III students [$F(2, 276) = 1.63, p > .05$] and (c) Standard V students [$F(2, 423) = 0.99, p > .05$]. Among primary standard students, influence of type of preschooling on Malayalam comprehension does not vary by the level of CE.

Influence of Type of Preschooling on Vocabulary in English by the Level of CE Outside the School. Influence of type of preschooling on vocabulary in English of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 322.

Table 322

Results of 3×2 ANOVAs of Vocabulary in English of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	781798.287	1	781798.3	1838.57	0.858
	Type of Preschool	9265.588	2	4632.794	10.90	0.067
	CE	160.308	1	160.308	0.38	0.001
	Type of Preschool* CE	1263.638	2	631.819	1.49	0.01
	Error	129692.489	305	425.221		
	Total	1301847	311			
III	Intercept	467999.092	1	467999.1	1033.04	0.789
	Type of Preschool	12873.473	2	6436.736	14.21	0.093
	CE	6620.302	1	6620.302	14.61	0.05
	Type of Preschool*CE	6126.114	2	3063.057	6.76**	0.047
	Error	125036.225	276	453.03		
	Total	629290	282			
V	Intercept	76817.861	1	76817.86	186.52	0.306
	Type of Preschool	913.56	2	456.78	1.11	0.005
	CE	64.713	1	64.713	0.16	0
	Type of Preschool* CE	11.022	2	5.511	0.01	0
	Error	174213.529	423	411.852		
	Total	1026564	429			

Note. ** $p < .01$

Table 322 shows that the influence of type of preschooling on vocabulary in English does not vary by CE of: (a) Standard I students [$F(2, 305) = 1.49, p > .05$] and (b) Standard V students [$F(2, 423) = 0.01, p > .05$]. But, the influence of type of Preschooling on vocabulary in English of Standard III students vary significantly by CE [$F(2, 276) = 6.76, p < .05, \eta^2 = 0.047$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but medium effect of type of preschooling on vocabulary in English of Standard III students having high CE (Anganwadi: $M = 39.15, SD = 22.87, N = 54$; Kindergarten: $M = 38.74, SD = 21.53, N = 39$; Montessori: $M = 66.94, SD = 19.34, N = 33$) [$F(2, 123) = 20.437, p < .05, \eta^2 = 0.249$], but not among low CE (Anganwadi : $M = 35.16, SD = 22.55, N = 74$

and Kindergarten: $M = 37.51$, $SD = 18.23$, $N = 55$, Montessori: $M = 41.37$, $SD = 22.06$, $N = 27$) [$F(2, 153) = 0.880$, $p > .05$]. Vocabulary in English is higher among Standard III students having high CE and who preschooled in Montessori than those who preschooled in Kindergarten and Anganwadi.

Influence of Type of Preschooling on English Comprehension by the Level of CE Outside the School. Influence of type of preschooling on English comprehension of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 323.

Table 323

Results of 3×2 ANOVAs of English Comprehension of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	338592.344	1	338592.3	727.46	0.705
	Type of Preschool	13762.262	2	6881.131	14.78	0.088
	CE	171.071	1	171.071	0.37	0.001
	Type of Preschool* CE	538.112	2	269.056	0.58	0.004
	Error	141959.913	305	465.442		
	Total	624828	311			
III	Intercept	397817.586	1	397817.6	776.96	0.738
	Type of Preschool	11501.992	2	5750.996	11.23	0.075
	CE	10637.996	1	10638	20.78	0.07
	Type of Preschool* CE	5783.005	2	2891.502	5.65**	0.039
	Error	141317.03	276	512.018		
	Total	570400	282			
V	Intercept	118412.318	1	118412.3	265.27	0.385
	Type of Preschool	3044.704	2	1522.352	3.41	0.016
	CE	410.807	1	410.807	0.92	0.002
	Type of Preschool* CE	808.965	2	404.483	0.91	0.004
	Error	188819.801	423	446.383		
	Total	1352799	429			

Note. ** $p < .01$

Table 323 shows that the influence of type of preschooling on English comprehension does not vary by CE of: (a) Standard I students [$F(2, 305) = 0.58$, $p > .05$] and (b) Standard V students [$F(2, 423) = 0.91$, $p > .05$]. But, the influence of type of Preschooling on English comprehension of Standard III students vary significantly by CE [$F(2, 276) = 5.65$, $p < .05$, $\eta^2 = 0.039$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but medium effect of type of preschooling on English comprehension of Standard III students having high CE (Anganwadi: $M = 37.50$, $SD = 24.83$, $N = 54$; Kindergarten: $M = 37.56$, $SD = 22.21$, $N = 39$; Montessori: $M = 63.79$, $SD = 24.72$, $N = 33$) [$F(2, 123) = 14.554$, $p < .05$, $\eta^2 = 0.191$], but not among the students having low CE (Anganwadi: $M = 29.26$, $SD = 22.33$, $N = 74$ and Kindergarten: $M = 34.45$, $SD = 19.64$, $N = 55$, Montessori: $M = 36.11$, $SD = 22.46$, $N = 27$) [$F(2, 153) = 1.450$, $p > .05$]. English comprehension is higher among Standard III students having high CE and who preschoolled in Montessori than those who preschoolled in Kindergarten and Anganwadi.

Influence of Type of Preschooling on Achievement in Mathematics by the Level of CE Outside the School. Influence of type of preschooling on achievement in Mathematics of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 324.

Table 324

Results of 3×2 ANOVAs of Achievement in Mathematics of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	784334.841	1	784334.8	2281.05	0.882
	Type of Preschool	4240.267	2	2120.133	6.17	0.039
	CE	298.957	1	298.957	0.87	0.003
	Type of Preschool* CE	151.973	2	75.987	0.22	0.001
	Error	104873.725	305	343.848		
	Total	1349683	311			
III	Intercept	655831.954	1	655832	1512.17	0.846
	Type of Preschool	11511.209	2	5755.605	13.27	0.088
	CE	4338.509	1	4338.509	10.00	0.035
	Type of Preschool* CE	964.408	2	482.204	1.11	0.008
	Error	119701.859	276	433.702		
	Total	810682	282			
V	Intercept	100097.071	1	100097.1	308.08	0.421
	Type of Preschool	1344.94	2	672.47	2.07	0.01
	CE	446.555	1	446.555	1.37	0.003
	Type of Preschool* CE	439.953	2	219.977	0.68	0.003
	Error	137437.467	423	324.911		
	Total	1184977	429			

Table 324 shows that the influence of type of preschooling on achievement in Mathematics does not vary by the level of CE of: (a) Standard I students [$F(2, 305) =$

0.22, $p > .05$] (b) Standard III students [$F(2, 276) = 1.11, p > .05$] and (c) Standard V students [$F(2, 423) = 0.68, p > .05$]. Among primary standard students, influence of type of preschooling on achievement in Mathematics does not vary by the level of CE.

Influence of Type of Preschooling on Socio-Emotional Outcomes of Primary Standard Students by CE Outside the School

Influence of type of preschooling on socio-emotional outcomes of Standard I, III and V students by the level of CE were studied and the results are given distinctly.

Influence of Type of Preschooling on Personal Independence by the Level of CE Outside the School. Influence of type of preschooling on personal independence of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 325.

Table 325

Results of 3×2 ANOVAs of Personal Independence of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1326914	1	1326914	5787.52	0.962
	Type of Preschool	538.771	2	269.385	1.18	0.01
	CE	254.744	1	254.744	1.11	0.005
	Type of Preschool* CE	1507.041	2	753.521	3.29*	0.028
	Error	52732.51	230	229.272		
	Total	2004847	236			
III	Intercept	1460009	1	1460009	7323.55	0.972
	Type of Preschool	488.838	2	244.419	1.23	0.012
	CE	1652.109	1	1652.109	8.29	0.038
	Type of Preschool* CE	157.111	2	78.556	0.39	0.004
	Error	41665.87	209	199.358		
	Total	1869297	215			
V	Intercept	301821.1	1	301821.1	2027.20	0.874
	Type of Preschool	101.554	2	50.777	0.34	0.002
	CE	1.119	1	1.119	0.01	0
	Type of Preschool* CE	56.216	2	28.108	0.19	0.001
	Error	43474.58	292	148.886		
	Total	2728758	298			

Note. * $p < .05$

Table 325 shows that the influence of type of preschooling on personal independence does not vary by CE of: (a) Standard III students [$F(2, 209) = 0.39,$

$p > .05$] and (b) Standard V students [$F(2, 292) = 0.19, p > .05$]. But the influence of type of preschooling on personal independence of Standard I students vary significantly by CE [$F(2, 230) = 3.29, p < .05, \eta^2 = 0.028$], and though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of Preschooling on personal independence of Standard I low (Anganwadi: $M = 88.78, SD = 13.62, N = 41$; Kindergarten: $M = 95.07, SD = 5.88, N = 27$; Montessori: $M = 82.50, SD = 18.51, N = 10$) [$F(2, 75) = 4.33, p < .05, \eta^2 = 0.104$], but not among high (Anganwadi: $M = 91.98, SD = 15.56, N = 64$ and Kindergarten: $M = 89.53, SD = 17.62, N = 51$, Montessori: $M = 92.33, SD = 15.85, N = 43$) [$F(2, 155) = 0.44, p > .05$]. Personal independence is higher among Standard I students having low CE and who preschoolled in Kindergarten than those who preschoolled in Montessori and Anganwadi.

Influence of Type of Preschooling on Academic Independence by the Level of CE Outside the School. Influence of type of preschooling on academic independence of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 326.

Table 326

Results of 3×2 ANOVAs of Academic Independence of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1128543	1	1128543	4828.35	0.955
	Type of Preschool	284.915	2	142.458	0.61	0.005
	CE	127.964	1	127.964	0.55	0.002
	Type of Preschool* CE	323.867	2	161.933	0.69	0.006
	Error	53758.49	230	233.733		
	Total	1710406	236			
III	Intercept	1385409	1	1385409	6729.00	0.97
	Type of Preschool	753.335	2	376.667	1.83	0.017
	CE	6.138	1	6.138	0.03	0
	Type of Preschool* CE	308.815	2	154.407	0.75	0.007
	Error	43030.26	209	205.886		
	Total	1783366	215			
V	Intercept	255795.8	1	255795.8	1156.31	0.798
	Type of Preschool	133.886	2	66.943	0.30	0.002
	CE	176.576	1	176.576	0.80	0.003
	Type of Preschool* CE	442.926	2	221.463	1.00	0.007
	Error	64595.71	292	221.218		
	Total	2267476	298			

Table 326 shows that the influence of type of preschooling on academic independence does not vary by the level of CE of: (a) Standard I students [$F(2, 230) = 0.69, p > .05$] (b) Standard III students [$F(2, 209) = 0.75, p > .05$] and (c) Standard V students [$F(2, 292) = 1.00, p > .05$]. Among primary standard students, influence of type of preschooling on academic independence does not vary by the level of CE.

Influence of Type of Preschooling on Work Habit by the Level of CE Outside the School. Influence of type of preschooling on work habit of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 327.

Table 327

Results of 3×2 ANOVAs of Work Habit of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	866898.7	1	866898.7	3641.32	0.941
	Type of Preschool	1713.914	2	856.957	3.60	0.03
	CE	933.046	1	933.046	3.92	0.017
	Type of Preschool*CE	931.083	2	465.542	1.96	0.017
	Error	54756.71	230	238.073		
	Total	1359898	236			
III	Intercept	865482.6	1	865482.6	3963.20	0.95
	Type of Preschool	969.806	2	484.903	2.22	0.021
	CE	377.123	1	377.123	1.73	0.008
	Type of Preschool*CE	182.722	2	91.361	0.42	0.004
	Error	45641.41	209	218.38		
	Total	1127576	215			
V	Intercept	171490.5	1	171490.5	737.65	0.716
	Type of Preschool	344.52	2	172.26	0.74	0.005
	CE	422.521	1	422.521	1.82	0.006
	Type of Preschool*CE	653.961	2	326.98	1.41	0.01
	Error	67884.62	292	232.482		
	Total	1485919	298			

Table 327 shows that the influence of type of preschooling on work habit does not vary by the level of CE of: (a) Standard I students [$F(2, 230) = 1.96, p > .05$] (b)

Standard III students [$F(2, 209) = 0.42, p > .05$] and (c) Standard V students [$F(2, 292) = 1.41, p > .05$]. Among primary standard students, influence of type of Preschooling on work habit does not vary by the level of CE.

Influence of Type of Preschooling on Interpersonal Relationship Students by the Level of CE Outside the School. Influence of type of preschooling on interpersonal relationship of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 328.

Table 328

Results of 3×2 ANOVAs of Interpersonal Relationship of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1170818	1	1170818	12797.41	0.982
	Type of Preschool	45.463	2	22.731	0.25	0.002
	CE	47.772	1	47.772	0.52	0.002
	Type of Preschool* CE	241.508	2	120.754	1.32	0.011
	Error	21042.41	230	91.489		
	Total	1717042	236			
III	Intercept	1246894	1	1246894	11848.52	0.983
	Type of Preschool	130.515	2	65.257	0.62	0.006
	CE	271.433	1	271.433	2.58	0.012
	Type of Preschool* CE	735.473	2	367.737	3.49*	0.032
	Error	21994.39	209	105.236		
	Total	1563169	215			
V	Intercept	155524.2	1	155524.2	1580.86	0.844
	Type of Preschool	168.876	2	84.438	0.86	0.006
	CE	38.513	1	38.513	0.39	0.001
	Type of Preschool* CE	412.178	2	206.089	2.10	0.014
	Error	28726.84	292	98.38		
	Total	1379003	298			

Note. * $p < .05$

Table 328 shows that the influence of type of preschooling on interpersonal relationship does not vary by CE of: (a) Standard I students [$F(2, 230) = 1.32, p > .05$] and (b) Standard V students [$F(2, 292) = 2.10, p > .05$]. But the influence of type of preschooling on interpersonal relationship of Standard III students vary significantly by CE [$F(2, 209) = 3.49, p < .05, \eta^2 = 0.032$], and though the interaction is small.

But follow up analysis of variance revealed that there is no significant effect of type of preschooling on interpersonal relationship of Standard III students having low CE (Anganwadi: $M = 86.33$, $SD = 12.11$, $N = 58$; Kindergarten: $M = 82.44$, $SD = 11.46$, $N = 32$; Montessori: $M = 89.62$, $SD = 8.15$, $N = 13$) [$F(2, 100) = 2.12$, $p > .05$] and high CE (Anganwadi: $M = 84.65$, $SD = 10.16$, $N = 46$ and Kindergarten: $M = 85.09$, $SD = 7.70$, $N = 35$, Montessori: $M = 81.13$, $SD = 8.40$, $N = 31$) [$F(2, 109) = 1.94$, $p > .05$].

Influence of Type of Preschooling on Cooperation by the Level of CE Outside the School. Influence of type of preschooling on cooperation of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 329.

Table 329

Results of 3×2 ANOVAs of Cooperation of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	942624.3	1	942624.3	4417.536	0.951
	Type of Preschool	1229.829	2	614.914	2.882	0.024
	CE	166.378	1	166.378	0.78	0.003
	Type of Preschool * CE	1305.949	2	652.975	3.06*	0.026
	Error	49077.95	230	213.382		
	Total	1454040	236			
III	Intercept	1049519	1	1049519	4238.322	0.953
	Type of Preschool	1563.91	2	781.955	3.158	0.029
	CE	212.897	1	212.897	0.86	0.004
	Type of Preschool * CE	557.738	2	278.869	1.126	0.011
	Error	51753.85	209	247.626		
	Total	1383310	215			
V	Intercept	191999.8	1	191999.8	1189.399	0.803
	Type of Preschool	725.414	2	362.707	2.247	0.015
	CE	133.418	1	133.418	0.826	0.003
	Type of Preschool * CE	2296.29	2	1148.145	7.113**	0.046
	Error	47136.34	292	161.426		
	Total	1636090	298			

Note. * $p < .05$, ** $p < .01$

Table 329 shows that the influence of type of preschooling on cooperation does not vary by CE of Standard III students [$F(2, 209) = 1.126, p > .05$]. But the influence of type of preschooling on cooperation of Standard I students vary significantly by CE [$F(2, 230) = 3.06, p < .05, \eta^2 = 0.026$], and Standard V students [$F(2, 292) = 7.113, p < .05, \eta^2 = 0.046$], though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on cooperation of Standard I students having low CE (Anganwadi: $M = 80.83, SD = 11.12, N = 41$; Kindergarten: $M = 76.30, SD = 13.72, N = 27$; Montessori: $M = 67.50, SD = 10.93, N = 10$) [$F(2, 75) = 5.131, p < .05, \eta^2 = 0.120$], but not among students having high CE (Anganwadi: $M = 75.83, SD = 14.72, N = 64$ and Kindergarten: $M = 79.45, SD = 15.15, N = 51$, Montessori: $M = 75.40, SD = 17.62, N = 43$) [$F(2, 155) = 1.021, p > .05$]. Cooperation is higher among Standard I students having low CE who preschoolled in Anganwadi than those who preschoolled in Kindergarten and Montessori.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on cooperation of Standard V students having high CE (Anganwadi: $M = 69.53, SD = 12.77, N = 85$; Kindergarten: $M = 77.44, SD = 12.79, N = 45$; Montessori: $M = 76.06, SD = 12.36, N = 47$) [$F(2, 174) = 7.29, p < .05, \eta^2 = 0.077$], but not among students having low CE (Anganwadi: $M = 73.68, SD = 10.89, N = 81$ and Kindergarten: $M = 69.44, SD = 15.99, N = 39$, Montessori: $M = 92.00, SD = 0.00, N = 1$) [$F(2, 118) = 2.638, p > .05$]. Cooperation is higher among Standard V students having high CE who preschoolled in Kindergarten than those who preschoolled in Anganwadi and Montessori.

Influence of Type of Preschooling on Communication by the Level of CE Outside the School. Influence of type of preschooling on communication of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 330.

Table 330

Results of 3 × 2 ANOVAs of Communication of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	1265771	1	1265771	6097.08	0.964
	Type of Preschool	53.477	2	26.739	0.13	0.001
	CE	149.505	1	149.505	0.72	0.003
	Type of Preschool* CE	223.162	2	111.581	0.54	0.005
	Error	47748.65	230	207.603		
	Total	1882499	236			
III	Intercept	1401139	1	1401139	8953.13	0.977
	Type of Preschool	263.316	2	131.658	0.84	0.008
	CE	260.364	1	260.364	1.66	0.008
	Type of Preschool* CE	653.795	2	326.897	2.09	0.02
	Error	32707.89	209	156.497		
	Total	1769759	215			
V	Intercept	255293.7	1	255293.7	1182.08	0.802
	Type of Preschool	269.796	2	134.898	0.63	0.004
	CE	113.759	1	113.759	0.53	0.002
	Type of Preschool* CE	549.183	2	274.592	1.27	0.009
	Error	63063.26	292	215.97		
	Total	2249115	298			

Table 330 shows that the influence of type of preschooling on communication does not vary by the level of CE of: (a) Standard I students [$F(2, 230) = 0.54, p > .05$] (b) Standard III students [$F(2, 209) = 2.09, p > .05$] and (c) Standard V students [$F(2, 292) = 1.27, p > .05$]. There is no interaction between type of preschooling and CE in communication of primary standard students. Among primary standard students, influence of type of preschooling on communication does not vary by the level of CE.

Influence of Type of Preschooling on Leadership by the Level of CE Outside the School. Influence of type of preschooling on leadership of Standard I, III and V students by the level of CE were studied using 3 × 2 ANOVAs. Results are given in Table 331.

Table 331

Results of 3×2 ANOVAs of Leadership of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	991062.7	1	991062.7	8335.11	0.973
	Type of Preschool	141.348	2	70.674	0.59	0.005
	Cognitive Engagement	135.423	1	135.423	1.14	0.005
	Type of Preschool*CE	472.906	2	236.453	1.99	0.017
	Error	27347.5	230	118.902		
	Total	1460383	236			
III	Intercept	1123718	1	1123718	12116.91	0.983
	Type of Preschool	332.709	2	166.355	1.79	0.017
	Cognitive Engagement	125.433	1	125.433	1.35	0.006
	Type of Preschool*CE	256.625	2	128.313	1.38	0.013
	Error	19382.6	209	92.74		
	Total	1399873	215			
V	Intercept	182086.6	1	182086.6	1442.14	0.832
	Type of Preschool	736.357	2	368.179	2.92	0.02
	Cognitive Engagement	132.61	1	132.61	1.05	0.004
	Type of Preschool*CE	598.942	2	299.471	2.37	0.016
	Error	36868.38	292	126.262		
	Total	1532044	298			

Table 331 shows that the influence of type of preschooling on leadership does not vary by the level of CE of: (a) Standard I students [$F(2, 230) = 1.99, p > .05$] (b) Standard III students [$F(2, 209) = 1.38, p > .05$] and (c) Standard V students [$F(2, 292) = 2.37, p > .05$]. Among primary standard students, influence of type of preschooling on leadership does not vary by the level of CE.

Influence of Type of Preschooling on Expressing Emotions by the Level of CE Outside the School. Influence of type of preschooling on expressing emotions of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 332.

Table 332

Results of 3 × 2 ANOVAs of Expressing Emotions of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	863797.5	1	863797.5	8970.10	0.975
	Type of Preschool	374.244	2	187.122	1.94	0.017
	CE	232.562	1	232.562	2.42	0.01
	Type of Preschool* CE	328.509	2	164.255	1.71	0.015
	Error	22148.41	230	96.297		
	Total	1291361	236			
III	Intercept	874664.6	1	874664.6	7447.52	0.973
	Type of Preschool	367.8	2	183.9	1.57	0.015
	CE	611.058	1	611.058	5.20	0.024
	Type of Preschool* CE	26.874	2	13.437	0.11	0.001
	Error	24545.75	209	117.444		
	Total	1109217	215			
V	Intercept	187517	1	187517	1170.58	0.8
	Type of Preschool	487.128	2	243.564	1.52	0.01
	CE	325.782	1	325.782	2.03	0.007
	Type of Preschool* CE	1129.318	2	564.659	3.53*	0.024
	Error	46776.05	292	160.192		
	Total	1586857	298			

Note. * $p < .05$

Table 332 shows that the influence of type of preschooling on expressing emotions does not vary by CE of: (a) Standard I students [$F(2, 230) = 1.71, p > .05$] and (b) Standard III students [$F(2, 209) = 0.11, p > .05$]. But the influence of type of preschooling on expressing emotions of Standard V students vary significantly by CE [$F(2, 292) = 3.53, p < .05, \eta^2 = 0.024$], and though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on expressing emotions of Standard V low (Anganwadi: $M = 72.62, SD = 10.53, N = 81$; Kindergarten: $M = 69.21, SD = 12.14, N$

=39; Montessori: $M = 94.00$, $SD = 0.00$, $N = 1$) [$F(2, 118) = 3.30$, $p < .05$, $\eta^2 = 0.053$], but not among high (Anganwadi: $M = 70.84$, $SD = 13.42$, $N = 85$ and Kindergarten: $M = 74.20$, $SD = 11.39$, $N = 45$, Montessori: $M = 71.91$, $SD = 15.79$, $N = 47$) [$F(2, 174) = 0.898$, $p > .05$]. Expressing emotions is higher among Standard V students having low CE and who preschooled in Montessori than those who preschooled in Anganwadi and Kindergarten.

Influence of Type of Preschooling on Controlling Emotions by the Level of CE Outside the School. Influence of type of preschooling on controlling emotions of Standard I, III and V students by the level of CE were studied using 3×2 ANOVAs. Results are given in Table 333.

Table 333

Results of 3×2 ANOVAs of Controlling Emotions of Primary Standard Students by Their Type of Preschooling and CE

Standard	Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
I	Intercept	706337.5	1	706337.5	11786.69	0.981
	Type of Preschool	69.5	2	34.75	0.58	0.005
	CE	93.878	1	93.878	1.57	0.007
	Type of Preschool* CE	189.124	2	94.562	1.58	0.014
	Error	13783.14	230	59.927		
	Total	1036862	236			
III	Intercept	806482.8	1	806482.8	12564.47	0.984
	Type of Preschool	103.461	2	51.731	0.81	0.008
	CE	105.184	1	105.184	1.64	0.008
	Type of Preschool* CE	79.579	2	39.789	0.62	0.006
	Error	13415.2	209	64.188		
	Total	1016368	215			
V	Intercept	181807.8	1	181807.8	1753.21	0.857
	Type of Preschool	585.745	2	292.872	2.82	0.019
	CE	261.274	1	261.274	2.52	0.009
	Type of Preschool* CE	883.566	2	441.783	4.26*	0.028
	Error	30280.39	292	103.7		
	Total	1541104	298			

Note. * $p < .05$

Table 333 shows that the influence of type of preschooling on controlling emotions does not vary by CE of: (a) Standard I students [$F(2, 230) = 1.58, p > .05$] and (b) Standard III students [$F(2, 209) = 0.62, p > .05$]. But the influence of type of preschooling on personal independence of Standard V students vary significantly by CE [$F(2, 292) = 4.26, p < .05, \eta^2 = 0.028$], and though the interaction is small.

Follow up analysis of variance revealed that there is significant, but small effect of type of preschooling on personal independence of Standard V having low CE (Anganwadi: $M = 72.88, SD = 10.17, N = 81$; Kindergarten: $M = 68.49, SD = 11.69, N = 39$; Montessori: $M = 90.00, SD = 0.00, N = 1$) [$F(2, 118) = 3.72, p < .05, \eta^2 = 0.059$], and having high CE (Anganwadi: $M = 68.49, SD = 9.55, N = 85$ and Kindergarten: $M = 71.27, SD = 10.29, N = 45$, Montessori: $M = 74.70, SD = 9.88, N = 47$) [$F(2, 174) = 6.09, p < .05, \eta^2 = 0.065$]. Controlling emotions is higher among Standard V students having low and high CE and who preschoolled in Montessori than those who preschoolled in Anganwadi and Kindergarten.

Summary of Influence of Type of Preschooling on Cognitive Outcomes

The influence of type of preschooling on cognitive outcomes differ in primary standard students. Type of preschooling has significant influence on vocabulary and comprehension in English and achievement in Mathematics of primary standard students, vocabulary in Malayalam of Standard III students and controlling emotions in Standard I and V.

Malayalam vocabulary in Standard III, students who were preschoolled in Montessori or anganwadi schools were found significantly higher, in comparison to those who preschoolled in Kindergarten. i.e., Vocabulary in Malayalam in Standard III is significantly less among students who preschoolled in Kindergarten than the students who preschoolled in Montessori or Anganwadi. Vocabulary in English and English comprehension of Standard I, III and V is significantly higher in students who preschoolled in Montessori. Also, in Standard I, Vocabulary in English is significantly higher in students who preschoolled in Kindergarten than in students

who preschooled in Anganwadi. In all Standards, achievement in Mathematics is significantly higher in students who preschooled in Montessori. However, in Standard I, achievement in Mathematics did not differ significantly between the students who preschooled in Kindergarten and Montessori, i.e., achievement in Standard I Mathematics of those who preschooled in Anganwadis are found significantly less than those from other two preschool types.

There is no significant influence of preschool type on students' Malayalam comprehension, academic and personal independence, work habit, interpersonal relationship, communication, leadership, cooperation, and expressing emotions, among any primary standard students in general. But in Standard I, personal independence of students with low cognitive engagement beyond school are higher if they were preschooled in Kindergarten, and cooperation of such children were higher if they were preschooled in Anganwadis. In Standard III, interpersonal relationship was found higher for first children who preschooled in Kindergarten. But in Standard V students, if they were preschooled in Montessori system, Malayalam comprehension of single born or later born students; personal independence of later born children, interpersonal relationship of those having mother with secondary schooling, and expressing emotions among those having only low cognitive engagement beyond schools are were higher; cooperation of those with high cognitive engagement beyond school, in Standard V, were found higher among those who were preschooled in Kindergarten.

There is no significant influence of preschool type on students' academic independence, work habit, communication, and leadership among any of the sub groups of primary standard students.

Influence of preschooling type is more pronounced on academic outcomes than on socio emotional outcomes of primary students and is more on English and Math outcomes than on mother tongue outcomes, with favourable outcomes

observed more in those who preschooled in Montessori system, followed by Kindergraten.

Tenability of Hypotheses

Tenability of hypotheses for the present study is given in Table 334.

Table 334

Summary of Tenability of Hypotheses

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
1.I		Preschooling status does not significantly influence cognitive outcomes namely:			
A.		Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Accepted	Not Accepted
D.		English comprehension	Accepted	Accepted	Not Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
1.II		Preschooling status does not significantly influence socio-emotional outcomes namely:			
A.		Personal independence	Accepted	Not Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Not Accepted	Accepted	Accepted
G.		Leadership	Not Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
2.I.i		Preschooling status does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	gender	Vocabulary in Malayalam	Accepted	Accepted	Not Accepted
B.		Malayalam comprehension	Accepted	Accepted	Not Accepted
C.		Vocabulary in English	Accepted	Accepted	Accepted
D.		English comprehension	Accepted	Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
2.II.i		Preschooling status does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	gender	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Accepted	Not Accepted	Accepted
G.		Leadership	Accepted	Not Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
2.I.ii		Preschooling status does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	birth order	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Accepted	Accepted
D.		English comprehension	Accepted	Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
2.II.ii		Preschooling status does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	birth order	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Not Accepted	Accepted	Accepted
D.		Interpersonal relationship	Not Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Not Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Not Accepted
I.		Controlling emotions	Accepted	Accepted	Not Accepted
2.I.iii		Preschooling status does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	medium of instruction	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Accepted	Accepted
D.		English comprehension	Accepted	Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
2.II.iii		Preschooling status does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	medium of instruction	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
F.	medium of instruction	Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Accepted	Accepted
D.		English comprehension	Accepted	Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
2.II.iv		Preschooling status does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	educational qualification of father	Personal independence	Accepted	Accepted	Not Accepted
B.		Academic independence	Accepted	Accepted	Not Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
2.I.v		Preschooling status does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	educational qualification of mother	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Accepted	Accepted
D.		English comprehension	Accepted	Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
2.II.v		Preschooling status does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	educational qualification of mother	Personal independence	Accepted	Accepted	Not Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
2.I.vi		Preschooling status does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	cognitive engagement	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Accepted	Accepted
D.		English comprehension	Accepted	Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
2.II.vi		Preschooling status does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	cognitive engagement	Personal independence	Accepted	Not Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Not Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
E.	cognitive engagement	Cooperation	Accepted	Accepted	Accepted
F.		Communication	Not Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
D.		English comprehension	Not Accepted	Not Accepted	Not Accepted
E.		Achievement in Mathematics	Accepted	Not Accepted	Not Accepted
3.II		Preschool duration does not significantly influence socio-emotional outcomes namely:			
A.		Personal independence	Accepted	Accepted	Not Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
4.I.i		Preschool duration does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	gender	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Not Accepted	Accepted
C.		Vocabulary in English	Accepted	Accepted	Accepted
D.		English comprehension	Accepted	Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
4.II.i		Preschool duration does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	gender	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
4.I.i		Preschool duration does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	birth order	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Accepted	Accepted
D.		English comprehension	Accepted	Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
4.II.ii		Preschool duration does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	birth order	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Not Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
E.	birth order	Cooperation	Accepted	Accepted	Not Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
D.		English comprehension	Accepted	Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Not Accepted
4.II.iii		Preschool duration does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	medium of instruction	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Not Accepted	Accepted	Accepted
F.		Communication	Not Accepted	Accepted	Not Accepted
G.		Leadership	Not Accepted	Accepted	Not Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
4.I.iv		Preschool duration does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	educational qualification of father	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Not Accepted	Accepted	Accepted
D.		English comprehension	Not Accepted	Not Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
4.II.iv		Preschool duration does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	educational qualification of father	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Not Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Not Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Not Accepted
4.I.v		Preschool duration does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	educational qualification of mother	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Not Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Accepted	Accepted
D.		English comprehension	Not Accepted	Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
4.II.v		Preschool duration does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	educational qualification of mother	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
E.		Cooperation	Accepted	Accepted	Not Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
4.I.vi		Preschool duration does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	cognitive engagement	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Accepted	Accepted
D.		English comprehension	Not Accepted	Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
4.II.vi		Preschool duration does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	cognitive engagement	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Not Accepted	Accepted
F.		Communication	Accepted	Accepted	Not Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Not Accepted
5.I		Type of preschooling does not significantly influence cognitive outcomes namely:			
A.		Vocabulary in Malayalam	Accepted	Not Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
C.		Vocabulary in English	Not Accepted	Not Accepted	Not Accepted
D.		English comprehension	Not Accepted	Not Accepted	Not Accepted
E.		Achievement in Mathematics	Not Accepted	Not Accepted	Not Accepted
5.II		Type of preschooling does not significantly influence socio-emotional outcomes namely:			
A.		Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Not Accepted	Accepted	Not Accepted
6.I.i		Type of preschooling does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	gender	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Not Accepted	Accepted
D.		English comprehension	Accepted	Not Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
6.II.i		Type of preschooling does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	gender	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
6.I.ii		Type of preschooling does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	birth order	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Not Accepted
C.		Vocabulary in English	Accepted	Not Accepted	Accepted
D.		English comprehension	Accepted	Not Accepted	Accepted
E.		Achievement in Mathematics	Not Accepted	Accepted	Accepted
6.II.ii		Type of preschooling does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	birth order	Personal independence	Accepted	Accepted	Not Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Not Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
6.I.iii		Type of preschooling does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	medium of instruction	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Not Accepted	Not Accepted	Accepted
D.		English comprehension	Accepted	Not Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
6.II.iii		Type of preschooling does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	medium of instruction	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
6.I.iv		Type of preschooling does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	Father's educational qualification	Vocabulary in Malayalam	Accepted	Not Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Not Accepted	Accepted
D.		English comprehension	Accepted	Not Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
6.II.iv		Type of preschooling does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	educational qualification of father	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
6.I.v		Type of preschooling does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	educational qualification of mother	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Not Accepted	Accepted
D.		English comprehension	Accepted	Not Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
6.II.v		Type of preschooling does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	educational qualification of mother	Personal independence	Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Not Accepted

Hypothesis No.	Moderate Variable	Null Hypotheses	Status of Tenability of Hypotheses		
			Standard I	Standard III	Standard V
E.		Cooperation	Accepted	Accepted	Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Accepted
I.		Controlling emotions	Accepted	Accepted	Accepted
6.I.vi		Type of preschooling does not significantly influence cognitive outcomes of primary standard students after controlling			
A.	cognitive engagement	Vocabulary in Malayalam	Accepted	Accepted	Accepted
B.		Malayalam comprehension	Accepted	Accepted	Accepted
C.		Vocabulary in English	Accepted	Not Accepted	Accepted
D.		English comprehension	Accepted	Not Accepted	Accepted
E.		Achievement in Mathematics	Accepted	Accepted	Accepted
6.II.vi		Type of preschooling does not significantly influence socio-emotional outcomes of primary standard students after controlling			
A.	cognitive engagement	Personal independence	Not Accepted	Accepted	Accepted
B.		Academic independence	Accepted	Accepted	Accepted
C.		Work habits	Accepted	Accepted	Accepted
D.		Interpersonal relationship	Accepted	Accepted	Accepted
E.		Cooperation	Not Accepted	Accepted	Not Accepted
F.		Communication	Accepted	Accepted	Accepted
G.		Leadership	Accepted	Accepted	Accepted
H.		Expressing emotions	Accepted	Accepted	Not Accepted
I.		Controlling emotions	Accepted	Accepted	Not Accepted

Chapter V
SUMMARY AND MAJOR FINDINGS

- *Restatement of the Problem*
- *Variables*
- *Hypotheses*
- *Methodology in Brief*
- *Major Findings*
 - *Phase I*
 - *Phase II*
- *Tenability of the Hypotheses*
- *Discussion of the Findings*
 - *Phase I*
 - *Phase II*
- *Conclusion*

The study examined the current practices of preschools in Kerala and identified the influence of preschool education on cognitive and socio-emotional variables among primary students. This chapter provides an overview of the important steps in the implementation of the study and major findings of the study.

Restatement of the Problem

The study is entitled as ‘Influence of Preschool Education on Cognitive and Socio-Emotional Variables among Primary School Students of Kerala’.

It identifies and compares the current objectives and practices of pre-school education in Anganwadis, Kindergarten, and Montessori schools, prior to investigating whether preschooling- its status, duration, and type, - influences cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics , and socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions of Standard I, III and V students. It further examines whether preschooling - its status, duration and type - influences cognitive and socio-emotional outcomes of Standard I, III and V students irrespective of their socioeconomic and other demographic factors namely gender, birth order, medium of instruction, parental education, and cognitive engagement.

Variables of the Study

The independent, dependent and moderator variables of the study are explicated here under separate heads.

Independent Variable

Independent variable of the study encompasses three independent categorical variables labelled distinctly under preschool education.

Preschool Education

Preschool education is denoted as three independent categorical variables, i.e., preschooling status, preschool duration and type of preschooling. Hence the influence of preschool status, preschool duration and type of preschooling on cognitive and socio-emotional outcomes among primary standard students were studied.

Preschooling Status. There are preschooled and non-preschooled students in primary standards. This is denoted as two levels of preschooling status- pre-schooled and non-preschooled. The influence of preschooling status on cognitive and socio-emotional outcomes among primary standard students were studied.

Preschool Duration. The duration of preschool is categorized as two levels, i.e., up to 2 years (1 or 2 years) and >2 years (3 or 4 years). Therefore, the influence of attending preschools up to 2 years and >2 years attending on cognitive and socio-emotional outcomes among primary standard students was assessed.

Type of Preschooling. Type of preschooling has three levels, corresponding to the three categories of preschools, i.e., Anganwadi, Kindergarten and Montessori schools. Hence the influence of attending Anganwadi, Kindergarten and Montessori schools on cognitive and socio-emotional outcomes among primary standard students were studied.

Dependent Variables

In this study, dependent variables are cognitive and socio-emotional outcomes . There are 14 dependent variables, out of which five are cognitive and nine are socio-emotional.

Cognitive Outcomes

Five cognitive outcomes, vocabulary and reading comprehension in Malayalam and English and achievement in Mathematics , were assessed.

Socio-emotional Outcomes

Socio-emotional outcomes such as personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions were included as dependent variables.

Moderator Variables

The variables viz., gender, birth order, medium of instruction, parental education, and cognitive engagement were studied as moderator variables to check the influence of preschool education on cognitive and socio-emotional outcomes of the primary standard students.

Research Questions

The study was to answer the broad question “Does preschool education influence subsequent educational development of children?” This question is investigated by limiting the scope of educational development into select cognitive and socio-emotional outcomes among students in Standard I, III and V. Hence specific questions being asked by this research are:

1. What are the current objectives and practices of Anganwadis, Kindergarten and Montessori preschools?
2. Does preschooling influence cognitive and socio-emotional outcomes among students in Standard I, III and V?
3. Does preschool duration influence cognitive and socio-emotional outcomes among students in Standard I, III and V?
4. Does type of preschooling influence cognitive and socio-emotional outcomes among students in Standard I, III and V?
5. Does the influence of preschooling status, preschool duration and type of preschooling if any, remain irrespective of factors namely gender, birth order, medium of instruction, parental education, and cognitive engagement?

Objectives of the Study

The major objective of the study is to find out whether preschooling and its duration and type make a difference in cognitive and socio-emotional outcomes in primary standard students of Kozhikode district and if so whether such difference persists till Standard V. The study has set the following objectives:

1. To identify and compare the current objectives and practices of pre-school education in Anganwadis, Kindergarten and Montessori schools.
2. To study whether preschooling status influences Standard I, III and V students':
 - I. cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics.
 - II. socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions.

3. To study whether preschooling status influence Standard I, III and V students':
 - I. cognitive outcomes and II) socio-emotional outcomes irrespective of socioeconomic and other demographic factors namely:
 - i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement
4. To study whether preschool duration influence Standard I, III and V students':
 - I. cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics .
 - II. socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions.
5. To study whether preschool duration influence Standard I, III and V students':
 - I. cognitive outcomes and II) socio-emotional outcomes irrespective of socioeconomic and other demographic factors namely
 - i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement
6. To study whether types of preschooling influence Standard I, III and V students':
 - I. cognitive outcomes namely vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics .
 - II. socio-emotional outcomes namely personal independence, academic independence, work habits, interpersonal relationship, cooperation, communication, leadership, expressing emotions and controlling emotions

7. To study whether types of preschooling influence Standard I, III and V students'
 - I. cognitive outcomes and II) socio-emotional outcomes irrespective of socioeconomic and other demographic factors namely
 - i. Gender
 - ii. Birth order
 - iii. Medium of instruction
 - iv. Educational qualification of father
 - v. Educational qualification of mother
 - vi. Cognitive engagement

Hypotheses of the Study

The study analyses the influence of preschool education on cognitive and socio-emotional outcomes of primary standard students which is examined through the following hypothesis.

1. Preschooling status does not significantly influence
 - I. cognitive outcomes namely: A)Vocabulary in Malayalam B)Malayalam comprehension C)Vocabulary in English D) English comprehension E) Achievement in Mathematics among students in: (a)Standard I (b) Standard III (c) Standard V in primary schools of Kerala.
 - II. socio-emotional outcomes namely: A) Personal independence B)Academic independence C)Work habits D)Interpersonal relationship E)Cooperation F)Communication G)Leadership H)Expressing emotions I)Controlling emotions among students in: (a)Standard I (b) Standard III (c) Standard V in primary schools of Kerala.
2. Preschooling status does not significantly influence
 - I. cognitive outcomes namely: A)Vocabulary in Malayalam B)Malayalam comprehension C)Vocabulary in English D)English comprehension E)Achievement in Mathematics among students in: (a)Standard I (b)Standard III (c) Standard V in primary schools of Kerala after controlling socioeconomic and other demographic factors namely: i) Gender ii) Birth order iii) Medium of instruction iv) Educational qualification of father v) Educational qualification of mother vi) Cognitive engagement

- II. socio-emotional outcomes namely: A) Personal independence B) Academic independence C) Work habits D) Interpersonal relationship E) Cooperation F) Communication G) Leadership H) Expressing emotion I) Controlling emotions among students in: (a) Standard I (b) Standard III (c) Standard V in primary schools of Kerala after controlling socioeconomic and other demographic factors namely: i) Gender ii) Birth order iii) Medium of instruction iv) Educational qualification of father v) Educational qualification of mother vi) Cognitive engagement
3. Preschool duration does not significantly influence
- I. cognitive outcomes namely: A) Vocabulary in Malayalam B) Malayalam comprehension C) Vocabulary in English D) English comprehension E) Achievement in Mathematics among students in: (a) Standard I (b) Standard III (c) Standard V in primary schools of Kerala,
- a. socio-emotional outcomes namely: A) Personal independence B) Academic independence C) Work habits D) Interpersonal relationship E) Cooperation F) Communication G) Leadership H) Expressing emotion I) Controlling emotions among students in: (a) Standard I (b) Standard III (c) Standard V in primary schools of Kerala.
4. Preschool duration does not significantly influence
- I. cognitive outcomes namely: A) Vocabulary in Malayalam B) Malayalam comprehension C) Vocabulary in English D) English comprehension E) Achievement in Mathematics among students in: (a) Standard I (b) Standard III (c) Standard V after controlling socioeconomic and other demographic factors namely: i) Gender ii) Birth order iii) Medium of instruction iv) Educational qualification of father v) Educational qualification of mother vi) Cognitive engagement
- II. socio-emotional outcomes namely: A) Personal independence B) Academic independence C) Work habits D) Interpersonal relationship E) Cooperation F) Communication G) Leadership H) Expressing emotion I) Controlling emotions among students in: (a) Standard I (b) Standard III (c) Standard

V in primary schools of Kerala after controlling socioeconomic and other demographic factors like i) Gender ii) Birth order iii) Medium of instruction iv) Educational qualification of father v) Educational qualification of mother vi) Cognitive engagement

5. Type of preschooling does not significantly influence
 - I. cognitive outcomes namely: A) Vocabulary in Malayalam B) Malayalam comprehension C) Vocabulary in English D) English comprehension E) Achievement in Mathematics among students in: (a) Standard I (b) Standard III (c) Standard V in primary schools of Kerala.
 - II. socio-emotional outcomes namely: A) Personal independence B) Academic independence C) Work habits D) Interpersonal relationship E) Cooperation F) Communication G) Leadership H) Expressing emotion I) Controlling emotions among students in: (a) Standard I (b) Standard III (c) Standard V in primary schools of Kerala.
6. Type of preschooling does not significantly influence
 - I. cognitive outcomes namely: A) Vocabulary in Malayalam B) Malayalam comprehension C) Vocabulary in English D) English comprehension E) Achievement in Mathematics among students in: (a) Standard I (b) Standard III (c) Standard V after controlling socioeconomic and other demographic factors namely: i) Gender ii) Birth order iii) Medium of instruction iv) Educational qualification of father v) Educational qualification of mother vi) Cognitive engagement
 - II. socio-emotional outcomes namely: A) Personal independence B) Academic independence C) Work habits D) Interpersonal relationship E) Cooperation F) Communication G) Leadership H) Expressing emotion I) Controlling emotions among students in: (a) Standard I (b) Standard III (c) Standard in primary schools of Kerala after controlling socioeconomic and other demographic factors like i) Gender ii) Birth order iii) Medium of instruction iv) Educational qualification of father v) Educational qualification of mother vi) Cognitive engagement

Methodology in Brief

Design, samples, tools and statistical techniques of the study are as following.

Design of the Study

This study follows Causal Comparative (expost facto) research design. This design is used to determine the effect of differences that already exist between primary school students having Anganwadi, Kindergarten and Montessori school experience on their cognitive, social and emotional development.

Procedure of the Study

The study has two major phases. The phase I survey identified and compared the current objectives and practices of different types of pre-schools. This was followed by the analysis of the learning outcomes and textbooks in Malayalam, English and Mathematics of standard I – V for development of essential tools for the assessment of cognitive and socio-emotional outcomes of primary school students in phase II.

Phase I: Survey of Objectives and Practices of Anganwadis, Kindergarten and Montessori Schools

The Phase I of the study is to identify and compare the current objectives and practices of different types of pre-schools like Anganwadis, Kindergarten and Montessori using an interview among preschool teachers. The sample of the phase I consists of randomly selected thirty preschool teachers from Anganwadis and Kindergartens and seventeen Montessori school teachers (N=77) in Kerala. To identify the objectives and practices of Anganwadis, Kindergarten and Montessori schools, an interview schedule for preschool teachers was developed. The semi structured interviews were conducted with the preschool teachers in Kerala. Investigator contacted interviewees in person to conduct interview. The information collected was recorded and noted down for interpretation. The interview data were analyzed for their implicit and explicit meaning as is appropriate to the particular question, responses were categorized and categories of responses were frequency counted and percentage analysis were done.

Phase II: Survey on Influence of Preschool Education on Cognitive and Socio-Emotional Variables

The influence of preschool education on cognitive and socio-emotional variables among primary school students, the analysis of the learning outcomes and textbooks in Malayalam, English and Mathematics of standard I – V were done using an ex post facto design.

Sample. The study conducted on the samples of Standard I, III and V students in schools affiliated to Department of Education Government of Kerala and Montessori schools. The sample was drawn by using stratified random sampling with weightage to locality, type of management and medium of instruction of schools. The data collection was limited to Kozhikode district giving due representation to three educational districts: Kozhikode, Vadakara and Thamarassery.

For measuring the cognitive outcomes, the achievement tests were conducted among 347, 333 and 473 students in Standard I, III and V respectively. Socio-emotional development of these children was assessed through a scale administered on their parents. But only 271, 265 and 341 parents in Standard I, III and V responded completely. Hence there are two sub sets of data in this phase, of which the latter one is a subset of the former one.

Tools. To compare the cognitive variables like language (vocabulary and reading comprehension) and mathematical ability among primary school students, the following tools were developed.

1. Test of Achievement in Malayalam for standards I
2. Test of Achievement in Malayalam for standards III
3. Test of Achievement in Malayalam for standards V
4. Test of Achievement in English for standards I
5. Test of Achievement in English for standards III
6. Test of Achievement in English for standards V
7. Test of Achievement in Mathematics for standards I
8. Test of Achievement in Mathematics for standards III
9. Test of Achievement in Mathematics for standards V

For comparing the social-emotional variables namely personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions among primary school students, Scale on Socio-Emotional Development among Primary School Students for Parents was developed. Personal details of the child and demographic details of the family were also obtained from the parents.

Statistical Techniques Used. Independent samples *t*-test, One-way ANOVA, Two-way ANOVA, Effect size (Cohen's *d*), Partial eta squared were used for the analysis of the data in the second phase of the study.

Major Findings of the Study

The findings from Phase I and Phase II are summarised here under.

Phase I- Current objectives and practices of Anganwadis, Kindergarten and Montessori Schools.

1. The objectives of the Anganwadis, Kindergarten and Montessori preschools are the development of physical, cognitive, social, emotional and creative aspects of the child.
2. There exist wide disparities in the teaching-learning materials, teaching-learning practices, assessment, and material and human resources.
3. The strengths and weaknesses in each category of preschool briefed separately under the heads of each preschool in Table 335.

Table 335

A Comparison of Strengths and Weaknesses of Three Types of Pre-schools

	Anganwadi		Kindergarten		Montessori	
	Strength	Weakness	Strength	Weakness	Strength	Weakness
Aspects of Curriculum	<p>Common curriculum and syllabus</p> <p>Curricular objective-All round development</p> <p>4 subjects through 30 themes(plus English)</p> <p>Common but flexible time table</p>	<p>Emphasize on health and nutrition</p>	<p>Teach 5 subjects</p> <p>All-round development</p>	<p>No common curriculum and syllabus</p> <p>Emphasize on cognitive aspects</p> <p>Rigid time table</p> <p>A few teach Hindi and Arabic</p>	<p>Montessori curriculum and syllabus</p> <p>Emphasize on all developmental aspects</p> <p>Practical Life Experience, Sensorial Experience, Language, Mathematics and Cultural experience</p> <p>Flexible time table (Auto learning)</p>	<p>No common curriculum and syllabus</p>
Teaching –Learning Materials	<p>Common activity based work book</p> <p>Common Hand book with age specific guidelines</p>	<p>Inadequate teaching aids.</p> <p>Lack of technological devices</p>	<p>Activity based textbook</p>	<p>No common text book</p> <p>No hand book</p> <p>Inadequate teaching aids</p> <p>Insufficient technological devices</p>	<p>Montessori lab & didactic apparatus</p> <p>Support of Technology</p>	<p>Use different activity based textbook</p> <p>No hand book</p> <p>Inadequate</p> <p>Montessori labs in half of the school</p>

		Anganwadi		Kindergarten		Montessori	
		Strength	Weakness	Strength	Weakness	Strength	Weakness
Teaching – Learning Practices	Curricular	<p>Medium of instruction – Malayalam</p> <p>No Cursive writing practices</p> <p>Practices in note book</p> <p>And slate</p> <p>Most of them do not provide home works</p> <p>Provide food</p>	<p>Inadequate activities for the development of various aspects</p> <p>Not doing the activities in the theme chart and work book properly</p> <p>Practices using available materials are not satisfactory</p>	<p>Activities in the textbooks</p> <p>Moral studies</p> <p>Medium of instruction – English</p>	<p>Inadequate activities for the development of various aspects</p> <p>Not doing the activities in the text appropriately</p> <p>Rigorous practices in note book</p> <p>Practice cursive writing</p> <p>Practices using available materials are not satisfactory</p> <p>Provide homeworks</p>	<p>Vivid activities for the development of different aspects using apparatuses</p> <p>Medium of instruction – English</p> <p>Doing the activities in text</p> <p>Practices using available materials are good</p> <p>Either activity books or sheets for all</p> <p>Moral studies</p>	<p>Rigorous practices in note book</p> <p>Majority provide Cursive writing</p> <p>Gives home works</p>
	Co-curricular	<p>Indoor activities</p> <p>Art</p> <p>Arts festival</p> <p>Observe important days</p>	<p>Less facilities and materials for indoor activities</p> <p>A few has outdoor activities</p> <p>Lack of playground and materials</p> <p>A few practices craft, conduct sports festival and field trips</p>	<p>Outdoor activities</p> <p>Art</p> <p>Arts and sports festival</p> <p>Celebrate important days</p> <p>Field trips</p>	<p>Poor facilities and materials for indoor activities</p> <p>Inadequate materials for outdoor activities</p> <p>A few practices craft</p>	<p>Good facilities and materials for indoor and Outdoor activities</p> <p>Better playground</p> <p>Art, craft, Arts and sports festival</p> <p>Celebrations on all special days and based on themes /contents</p> <p>Field trips</p>	<p>A few have inadequate play ground</p> <p>Half of them have inadequate materials</p>
	Assessment	<p>No examination</p> <p>Provide progress report</p>	<p>A few report the progress appropriately</p>	<p>A few use Observation schedule</p> <p>Provide progress report</p>	<p>Terminal examinations and dictation</p> <p>Report the progress of cognitive aspects only</p>	<p>Activity books/ sheets</p> <p>Observation schedule</p> <p>Provide comprehensive progress report</p>	<p>Dictation and terminal examinations</p>

	Anganwadi		Kindergarten		Montessori	
	Strength	Weakness	Strength	Weakness	Strength	Weakness
Demographic Details	<p>Adequate number of classrooms</p> <p>No. of children is adequate in a class</p> <p>Less number of disabled children</p> <p>No. of teachers adequate</p> <p>Appropriate Teacher pupil ratio</p> <p>Regular in-service programme</p> <p>Adequate number of helping teachers</p> <p>Common Working days (Mon–Sat) and hours (6 hrs.)</p>	<p>Rented building</p> <p>Lack of spacious classrooms</p> <p>No special facilities and training for disabled children</p> <p>Inadequate Qualification of the teachers</p>	<p>Own building</p> <p>Half of them has spacious classrooms</p> <p>Working days Mon–Fri</p>	<p>Lack of spacious classrooms</p> <p>No. of children in a class is more than recommended</p> <p>No. of disabled children is comparatively more</p> <p>Absence of facilities and training for disabled children</p> <p>Inadequate no. of teachers</p> <p>Inappropriate teacher pupil ratio</p> <p>Qualification of the teachers is inadequate</p> <p>Lack of in-service programme</p> <p>Inadequate number of helping teachers</p> <p>No common working hours</p>	<p>Own building</p> <p>Adequate number of classrooms</p> <p>Spacious classrooms</p> <p>No. of disabled children is less.</p> <p>Special training for disabled children</p> <p>Qualification of the teachers is better</p> <p>Frequent in-service programme</p> <p>Adequate number of helping teachers</p> <p>Working days Mon–Fri</p>	<p>No. of children in a class is more</p> <p>No. of teachers inadequate</p> <p>Inappropriate teacher pupil ratio</p> <p>Nearly half of them has more working hours / Comparatively more working hours.</p>

Curricular Practices

Anganwadis.

- Anganwadis have a common curriculum, syllabus, curricular objectives and time table prepared by Integrated Child Development Service. It also provides an activity based work book for children, a hand book with age specific guidelines and an assessment card.
- Malayalam medium of instruction, nutritious foods for children every day, flexible timetable, common working days and working time, devoid of examination system, regular in-service training, etc. make the Anganwadis dissimilar from other preschools.
- Even though teaching English, note book practice and home works are not suggested by ICDS, it is also included to cope with the present needs of society.
- Rented building, inadequate classrooms, lack of sufficient teaching aids including technological devices, inadequate space and materials for indoor and outdoor play, dearth of assessment practices, scarcity of activities for creativity and field trip are the major flaws of the Anganwadi centers.

Very few conduct the activities for the development of cognitive, physical, social and emotional aspects of the child satisfactorily, even though vivid are activities mentioned in the thematic calendar along with the regular guidelines on themes.

Kindergarten.

- Kindergarten follows neither a common curriculum nor a syllabus and continues without a common regulatory framework. The syllabi and practices vary by management and agency.
- Most of them give importance to the development of cognitive aspects only.
- English is the medium of instruction in Kindergarten and use Malayalam occasionally.

- Art, celebration on special days, field trips and arts and sports festivals are the major strengths of this category.
- Only half of them has adequate teaching aids, technological devices and outdoor play and a small number of preschools conduct the activities for various developments effectively. Indoor play, craft, playground and materials, the strength of the student in a class, qualification of teachers and in-service training of teachers are also not satisfactory.
- Textbooks with plenty of contents, rigid timetable, rigorous practices in text book and note book, endless home works, frequent dictation and term wise examination makes this preschool more laborious to children than the other two.

Montessori Schools.

- They have developed own curriculum and syllabus.
- Areas of learning (Practical Life Experience, Sensorial Experience, Language, and Mathematics and Cultural experience), flexible time table, combined classes, the activities based on auto learning, Montessori lab with didactic apparatuses for the development of different aspects of the child, varied technological devices, activity books or sheets, scrap book, different materials for making various creative things, and vivid programmes and field trips based on theme or content, assessment of all activities using various techniques and tools like observation schedule, activity sheets, etc. and progress report with the provision for marking the development of all aspects of the child are the uniqueness of this group of preschool.
- Montessori schools have adequate space and materials for indoor and outdoor activities and celebration on special days than others.
- Terminal examinations, cursive writing, note book practice, home works, use of text book, lack of adequate number of lab with sufficient apparatuses and more working hours are major drawbacks of this system.

Summary of Current objectives and practices of Anganwadis, Kindergarten and Montessori Schools

The objectives of various types of pre-schools are similar in nature, but there exist wide disparities in the practices. Only Anganwadis have a common structure and procedure for preschool education and focus mainly on health and nutrition of the child, but the practices are unsatisfactory. Kindergarten concentrate on cognitive aspects of the child. Montessori schools provide vivid experiences through activities using apparatuses. Though facilities and teaching aids are comparatively less in Anganwadis and Kindergartens than their counter part, teacher pupil ratio and in-service training are fairly good only in Anganwadis. All these draws our attention to the incongruities in the field of preschool education.

Poor quality of education in the foundational stage will result in not only unsatisfactory learning outcomes but also hamper the further development of the child. Even though importance of ECCE being mentioned in the various policies and recommendations, the quality of preschools remains a key challenge to the Government. The absence of a strong institutional mechanism and a regulatory framework across sectors is the major issue in this sector. NEP (2016) has pointed out some deficits of preschool education such as significant proportion of children who complete pre-school education do not have school readiness competencies in cognitive and language domains when they join primary school, the majority of pre-school educators are inadequately trained/prepared. It also proposed the curricula for pre-school education in many cases continue to be a downward extension of the primary education curriculum and recommended different policy initiatives for the development of pre-school education.

The Nobel Prize-winning economist James Heckman has revealed that the rate of economic return on early years' investment is significantly higher than for any other stage in the education system. Hence a makeover is essential in all the aspects of preschool education by syncing the positive characteristics of different types of preschools. For the holistic development of the child, we should restructure the entire preschool education to ensure a common curriculum with age specific syllabus and activities through play way method, appropriate use of technology, adequate infrastructure in accordance with the aspirations and needs of the children, and professionally equipped teachers.

Phase II - Influence of preschool education on cognitive and socio-emotional variables among primary school students.

1.I Preschooling does not significantly influence achievements in Malayalam and Mathematics of primary standard students in general, but does influence that in English, though in standard V only.

- A. There is no significant difference in Vocabulary in Malayalam by the preschooling status of: (a) Standard I students (preschooled: $M = 60.00$, $SD = 20.81$, $N = 311$; non-preschooled: $M = 56.28$, $SD = 23$, $N = 36$) [$t = .93$, $p > .05$]; (b) Standard III students (preschooled: $M = 45.39$, $SD = 19.14$, $N = 282$; non-preschooled: $M = 45.69$, $SD = 17.86$, $N = 51$) [$t = .11$, $p > .05$]; and (c) Standard V students (preschooled: $M = 42.23$, $SD = 17.79$, $N = 429$; non-preschooled: $M = 43.45$, $SD = 18.93$, $N = 44$) [$t = .41$, $p > .05$] *except for favourable outcomes for boys* [$F(1, 246) = 5.69$, $p < .05$, $\eta^2 = 0.020$].
- B. There is no significant difference in Malayalam comprehension by the preschooling status of: (a) Standard I students (preschooled: $M = 43.12$, $SD = 23.46$, $N = 311$; non-preschooled: $M = 39.89$, $SD = 27.14$, $N = 36$) [$t = 0.69$, $p > .05$], *except for favourable outcomes for those with FEQ at below secondary level* [$F(1, 130) = 6.136$, $p < .05$, $\eta^2 = .045$]; (b) Standard III students (preschooled: $M = 54.80$, $SD = 22.86$, $N = 282$; non-preschooled: $M = 58.24$, $SD = 26.81$, $N = 51$) [$t = .86$, $p > .05$]; and (c) Standard V students (preschooled: $M = 39.28$, $SD = 21.65$, $N = 429$; non-preschooled: $M = 41.41$, $SD = 18.85$, $N = 44$) [$t = .70$, $p > .05$] *with the exception of boys* [$F(1, 246) = 5.69$, $p < .05$, $\eta^2 = 0.004$].
- C. (i) There is no significant difference in vocabulary in English by the preschooling status of: (a) Standard I students (preschooled: $M = 61.01$, $SD = 21.56$, $N = 311$; non-preschooled: $M = 54.25$, $SD = 23$, $N = 36$) [$t = 1.68$, $p > .05$]; and (b) Standard III students (preschooled: $M = 41.19$, $SD = 23.17$, $N = 282$; non-preschooled: $M = 41.31$, $SD = 25.76$, $N = 51$) [$t = .03$, $p > .05$].
- (ii) There is significant difference in vocabulary in English of Standard V students by their preschooling status (preschooled: $M = 44.24$, $SD = 20.89$, $N = 429$; non-preschooled: $M = 34.84$, $SD = 19.63$, $N = 44$) [$t = 3.01$, $p < .05$] with small effect size (Cohen's $d = 0.46$).

D. (i) There is no significant difference in English comprehension by the preschooling status of: (a) Standard I students (preschooled: $M = 38.49$, $SD = 23.01$, $N = 311$; non-preschooled: $M = 35.28$, $SD = 22.52$, $N = 36$) [$t = .81$, $p > .05$]; and (b) Standard III students (preschooled: $M = 37.70$, $SD = 24.57$, $N = 282$; non-preschooled: $M = 39.90$, $SD = 24.83$, $N = 51$) [$t = .59$, $p > .05$].

(ii) There is significant difference in English comprehension of Standard V students by their preschooling status (preschooled: $M = 51.81$, $SD = 21.69$, $N = 429$; non-preschooled: $M = 36.59$, $SD = 20.82$, $N = 44$) [$t = 4.60$, $p < .05$] with medium effect (Cohen's $d = 0.72$).

E. There is no significant difference in achievement in Mathematics by the preschooling status of: (a) Standard I students (preschooled: $M = 63.13$, $SD = 18.86$, $N = 311$; non-preschooled: $M = 56.75$, $SD = 20.75$, $N = 36$) [$t = 1.76$, $p > .05$]; (b) Standard III students (preschooled: $M = 48.86$, $SD = 22.12$, $N = 282$; non-preschooled: $M = 47.75$, $SD = 22.18$, $N = 51$) [$t = .33$, $p > .05$]; and (c) Standard V students (preschooled: $M = 49.33$, $SD = 18.15$, $N = 429$; non-preschooled: $M = 47.45$, $SD = 19.27$, $N = 44$) [$t = .62$, $p > .05$].

1.II. Preschooling does not significantly influence academic independence, work habit, cooperation, leadership, expressing emotions and controlling emotions of primary students. But it does influence communication and leadership in standard I and personal independence in standard III (non-preschooled students).

A. (i) There is no significant difference in personal independence by the preschooling status of: (a) Standard I students (preschooled: $M = 90.91$, $SD = 15.21$, $N = 236$; non-preschooled: $M = 86.86$, $SD = 19.38$, $N = 35$) [$t = 1.18$, $p > .05$]; and (b) Standard V students (preschooled: $M = 94.92$, $SD = 12.15$, $N = 298$; non-preschooled: $M = 90.63$, $SD = 21.93$, $N = 43$) [$t = 1.26$, $p > .05$]; *except for favourable outcomes for those with FEQ at secondary level [$F(1, 150) = 11.075$, $p < .05$, $\eta^2 = .069$], and those with MEQ beyond secondary level [$F(1, 148) = 9.855$, $p < .05$, $\eta^2 = .062$]*

(ii) There is significant difference in personal independence of Standard III students (preschooled: $M = 92.14$, $SD = 14.31$, $N = 215$; non-preschooled: $M = 95.80$, $SD = 11.25$, $N = 50$) [$t = 1.96$, $p < .05$] with small effect (Cohen's

$d = 0.28$) *except for favourable outcomes for those with low cognitive engagement out of school* [$F(1, 120) = 5.14, p < .05, \eta^2 = 0.04$].

- B. There is no significant difference in academic independence by the preschooling status of: (a) Standard I students (preschooled: $M = 83.77, SD = 15.19, N = 236$; non-preschooled: $M = 79.29, SD = 15.62, N = 35$) [$t = 1.59, p > .05$]; (b) Standard III students (preschooled: $M = 89.93, SD = 14.40, N = 215$; non-preschooled: $M = 88.20, SD = 13.36, N = 50$) [$t = .81, p > .05$] and (c) Standard V students (preschooled: $M = 85.97, SD = 41.82, N = 298$; non-preschooled: $M = 81.35, SD = 22.43, N = 43$) [$t = 1.31, p > .05$], *except for favourable outcomes for those with FEQ at secondary level* [$F(1, 150) = 13.132, p < .05, \eta^2 = .081$].
- C. There is no significant difference in work habit by the preschooling status of: (a) Standard I students (preschooled: $M = 74.30, SD = 15.60, N = 236$; non-preschooled: $M = 70.14, SD = 12.25, N = 35$) [$t = 1.80, p > .05$], *with the exception of later born children* [$F(1, 156) = 6.82, p < .05, \eta^2 = 0.042$]; (b) Standard III students (preschooled: $M = 70.88, SD = 14.87, N = 215$; non-preschooled: $M = 71.06, SD = 14.93, N = 50$) [$t = 0.08, p > .05$] and (c) Standard V students (preschooled: $M = 68.96, SD = 15.20, N = 298$; non-preschooled: $M = 72.23, SD = 17.28, N = 43$) [$t = 1.18, p > .05$], *high cognitive engagement but in reverse* [$F(1, 196) = 5.939, p < .05, \eta^2 = .029$].
- D. There is no significant difference in interpersonal relationship by the preschooling status of: (a) Standard I students (preschooled: $M = 84.76, SD = 9.55, N = 236$; non-preschooled: $M = 81.74, SD = 13.99, N = 35$) [$t = 1.23, p > .05$], *with the exception of later born children* [$F(1, 156) = 4.33, p < .05, \eta^2 = 0.027$]; (b) Standard III students (preschooled: $M = 84.64, SD = 10.37, N = 215$; non-preschooled: $M = 84.58, SD = 11.18, N = 50$) [$t = 0.03, p > .05$]; and (c) Standard V students (preschooled: $M = 67.30, SD = 9.94, N = 298$; non-preschooled: $M = 69.47, SD = 9.64, N = 43$) [$t = 1.37, p > .05$].
- E. There is no significant difference in cooperation by the preschooling status of: (a) Standard I students (preschooled: $M = 77.10, SD = 14.75, N = 236$; non-preschooled: $M = 76.00, SD = 15.32, N = 35$) [$t = 0.40, p > .05$]; (b) Standard III students (preschooled: $M = 78.64, SD = 15.83, N = 215$; non-preschooled: $M = 77.24, SD = 15.63, N = 50$) [$t = .57, p > .05$]; and (c) Standard V students

(preschooled: $M = 72.95$, $SD = 13.02$, $N = 298$; non-preschooled: $M = 73.05$, $SD = 11.27$, $N = 43$) [$t = .05$, $p > .05$].

- F. (i) There is significant difference in communication by the preschooling status of Standard I students (preschooled: $M = 88.16$, $SD = 14.35$, $N = 236$; non-preschooled: $M = 79.63$, $SD = 21.92$, $N = 35$) [$t = 2.23$, $p < .05$] with small effect (Cohen's $d = 0.46$) especially for those with low cognitive engagement [$F(1, 90) = 6.057$, $p < .05$, $\eta^2 = .063$], later born children [$F(1, 156) = 11.77$, $p < .05$, $\eta^2 = 0.070$], and single children [$F(1, 49) = 4.66$, $p < .05$, $\eta^2 = .087$].
- (ii) There is no significant difference in communication by the preschooling status of: (a) Standard III students (preschooled: $M = 89.86$, $SD = 12.57$, $N = 215$; non-preschooled: $M = 85.68$, $SD = 15.37$, $N = 50$) [$t = 1.79$, $p > .05$] with the exception of boys [$F(1, 246) = 13.05$, $p < .05$, $\eta^2 = .103$] (b) Standard V students (preschooled: $M = 85.63$, $SD = 14.66$, $N = 298$; non-preschooled: $M = 83.30$, $SD = 16.48$, $N = 43$) [$t = .88$, $p > .05$]
- G. (i) There is significant difference in leadership of Standard I students (preschooled: $M = 77.89$, $SD = 11$, $N = 236$; non-preschooled: $M = 71.34$, $SD = 15.97$, $N = 35$) [$t = 2.35$, $p < .05$] with small effect (Cohen's $d = 0.48$).
- (ii) But there is no significant difference in leadership by the preschooling status of: (a) Standard III students (preschooled: $M = 80.12$, $SD = 9.64$, $N = 215$; non-preschooled: $M = 77.70$, $SD = 10.38$, $N = 50$) [$t = 1.50$, $p > .05$], with the exception of boys [$F(1, 246) = 10.79$, $p < .05$, $\eta^2 = .087$]; and (b) Standard V students (preschooled: $M = 70.80$, $SD = 11.36$, $N = 298$; non-preschooled: $M = 68.53$, $SD = 16.25$, $N = 43$) [$t = .88$, $p > .05$].
- H. There is no significant difference in expressing emotions by the preschooling status of: (a) Standard I students (preschooled: $M = 73.32$, $SD = 9.84$, $N = 236$; non-preschooled: $M = 73.11$, $SD = 8.64$, $N = 35$) [$t = .13$, $p > .05$]; (b) Standard III students (preschooled: $M = 70.99$, $SD = 10.96$, $N = 215$; non-preschooled: $M = 71.24$, $SD = 8.77$, $N = 50$) [$t = .17$, $p > .05$]; and (c) Standard V students (preschooled: $M = 71.86$, $SD = 12.70$, $N = 298$; non-preschooled: $M = 73.09$, $SD = 12.26$, $N = 43$) [$t = .61$, $p > .05$], with the exception of single children [$F(1, 28) = 4.97$, $p < .05$, $\eta^2 = 0.15$].

- I. There is no significant difference in controlling emotions by the preschooling status of: (a) Standard I students (preschooled: $M = 65.82$, $SD = 7.82$, $N = 236$; non-preschooled: $M = 63.91$, $SD = 6.15$, $N = 35$) [$t = 1.65$, $p > .05$]; (b) Standard III students (preschooled: $M = 68.29$, $SD = 8.02$, $N = 215$; non-preschooled: $M = 67.70$, $SD = 8.06$, $N = 50$) [$t = .47$, $p > .05$]; and (c) Standard V students (preschooled: $M = 71.15$, $SD = 10.44$, $N = 298$; non-preschooled: $M = 71.93$, $SD = 14.54$, $N = 43$) [$t = .34$, $p > .05$], with the exception of single children [$F(1, 28) = 8.08$, $p < .05$, $\eta^2 = 0.22$].

Summary of the findings of influence of preschooling on cognitive and socio-emotional outcomes is given in Figure 2.

Figure 2

Summary of the Findings of Influence of Preschooling on Cognitive and Socio-emotional Outcomes

DEPENDENT VARIABLES	STANDARD I		STANDARD III		STANDARD V	
	Non preschooled	Preschooled	Non preschooled	Preschooled	Non preschooled	Preschooled
Malayalam Vocabulary	NS		NS		NS	
Malayalam Comprehension	NS		NS		NS	
English Vocabulary	NS		NS		↓ 34.84	↑ 44.24
English Comprehension	NS		NS		↓ 36.59	↑ 51.81
Achievement in Mathematics	NS		NS		0.72	
Personal Independence	NS		↑ 95.8	↓ 92.14	NS	
Academic Independence	NS		0.28		NS	
Work habits	NS		NS		NS	
Interpersonal Relationship	NS		NS		NS	
Cooperation	NS		NS		NS	
Communication	↓ 79.63	↑ 88.16	NS		NS	
Leadership	↓ 71.34	↑ 77.89	NS		NS	
Expressing Emotions	NS		NS		NS	
Controlling Emotions	NS		NS		NS	

- Note: 1) Shaded cells indicate significant influence of preschooling on the dependent variables for that standard in total.
 2) Arrows indicate significant favourable (↑) or unfavourable (↓) influence of preschooling on the dependent variables for the subsample.

- 2.I.i Preschooling does not significantly influence cognitive outcomes namely achievements in English and Mathematics of primary standard students by gender but significantly influences Malayalam of Standard V non-preschooled boys.
- 2.II.i Preschooling does not significantly influence socio-emotional outcomes namely personal independence, academic independence, work habit, interpersonal relationship, cooperation, and controlling emotions of primary standard students by gender, except for communication and leadership of Standard III preschooled boys.
- 2.I.ii There is no significant influence of preschooling on cognitive outcomes / Malayalam, English and Mathematics of primary standard students by birth order.
- 2.II.ii There is no significant influence of preschooling on socio-emotional outcomes of primary standard students by birth order, except work habit and interpersonal relationship of preschooled later born child in Standard I, communication of preschooled later born and single child in Standard I and expressing emotions, and controlling emotions of non-preschooled single child in Standard V.
- 2.I.iii Preschooling does not significantly influence cognitive outcomes namely achievements in Malayalam, English and Mathematics of primary standard students by medium of instructions.
- 2.II.iii Preschooling does not significantly influence socio-emotional outcomes namely personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions of primary standard students by their medium of instructions.
- 2.I.iv There is no significant influence of preschooling on cognitive outcomes of primary standard students by educational qualification of father except Malayalam comprehension of Standard I preschooled students having below secondary educational qualification of father than non-preschooled students having below secondary educational qualification of father.

- 2.II.iv There is no significant influence of preschooling on socio-emotional outcomes of primary standard students by educational qualification of father, except personal independence and academic independence of Standard V preschoolled students having secondary educational qualification of father than non-preschoolled students having secondary educational qualification of father in Standard V.
- 2.I.v Preschooling does not significantly influence cognitive outcomes namely achievements in Malayalam, English and Mathematics of primary standard students by educational qualification of mother.
- 2.II.v Preschooling does not significantly influence socio-emotional outcomes namely academic independence, work habit, cooperation, communication, expressing emotions, and controlling emotions of primary standard students by gender, but does influence personal independence of preschoolled students in Standard V having above secondary educational qualification of mother than non-preschoolled students having above secondary educational qualification of mother.
- 2.I.vi Preschooling does not significantly influence cognitive outcomes namely achievements in Malayalam, English and Mathematics of primary standard students by cognitive engagement.
- 2.II.vi Preschooling does not significantly influence socio-emotional outcomes of primary standard students by their level of cognitive engagement. But, there is significant influence of preschooling status on personal independence of Standard III non-preschoolled students with low cognitive engagement, work habit of Standard V non-preschoolled students with high cognitive engagement and communication of Standard I preschoolled students with low cognitive engagement.

Summary of the findings of influence of preschooling on cognitive and socio-emotional outcomes irrespective of socio-economic and other demographic factors given in Figure 3.

Figure 3

Summary of the Findings of Influence of Preschooling on Cognitive and Socio-Emotional Outcomes Irrespective of Socio-economic and Other Demographic Factors

DEPENDENT VARIABLES	STD I						STD III				STD V															
	BIRTH ORDER			F EQ			CE		GENDER		CE		GENDER			BIRTH ORDER			F EQ			M EQ			CE	
	S	F	LB	BS	S	AS	L	H	F	M	L	H	F	M	S	F	LB	BS	S	AS	BS	S	AS	L	H	
Malayalam Vocabulary																										
Malay. Comprehension				↑																						
English Vocabulary																										
English Comprehension																										
Achievement in Mathematics																										
Personal Independence																										
Academic Independence																										
Work Habit																										
Interpersonal Relationship																										
Cooperation																										
Communication																										
Leadership																										
Expressing Emotions																										
Controlling Emotions																										

Note: 1) Shaded cells indicate significant influence of preschooling on the dependent variable for that standard in total.
 2) Arrows indicate significant favourable (↑) or unfavourable (↓) influence of preschooling for the specific subsamples based on the moderator variable

3.I Preschool duration does not significantly influence cognitive outcomes like achievements in Malayalam of primary standard students, whereas it significantly influences achievements in English of primary standard students and achievements in Mathematics of Standard III and V students with >2 year preschooling.

A. There is no significant difference in vocabulary in Malayalam by the preschool duration of: (a) Standard I students (up to 2 year: $M = 59.34$, $SD = 21.29$, $N = 220$; >2 year: $M = 61.59$, $SD = 19.64$, $N = 91$) [$t = .89$, $p > .05$] (b) Standard III students (up to 2 year: $M = 44.15$, $SD = 18.62$, $N = 211$; >2 year: $M = 49.08$, $SD = 20.29$, $N = 71$) [$t = 1.81$, $p > .05$] (c) Standard V students (up to 2 year: $M = 41.23$, $SD = 17.31$, $N = 302$; >2 year: $M = 44.61$, $SD = 18.74$, $N = 127$) [$t = 1.74$, $p > .05$].

B. There is no significant difference in Malayalam comprehension by the preschool duration of: (a) Standard I students (up to 2 year: $M = 42.12$, $SD = 23.28$, $N = 220$; >2 year: $M = 45.55$, $SD = 23.85$, $N = 91$) [$t = 1.16$, $p > .05$], *except for favourable outcomes for MEQ at secondary level* [$F(1, 77) = 8.85$, $p < .05$, $\eta^2 = 0.10$] (b) Standard III students (up to 2 year: $M = 53.88$, $SD = 22.17$, $N = 211$; >2 year: $M = 57.54$, $SD = 24.77$, $N = 71$) [$t = 1.10$, $p > .05$], *except for favourable outcomes for girls* [$F(1, 142) = 4.458$, $p < .05$, $\eta^2 = .003$] (c) Standard V students (up to 2 year: $M = 38.61$, $SD = 20.69$, $N = 302$; >2 year: $M = 40.88$, $SD = 23.78$, $N = 127$) [$t = 0.94$, $p > .05$].

C. There is significant difference in vocabulary in English by the preschool duration of: (a) Standard I students (up to 2 year: $M = 59.00$, $SD = 21.10$, $N = 220$; >2 year: $M = 65.87$, $SD = 22.01$, $N = 91$) [$t = 2.53$, $p < .05$] (Cohen's $d = 0.32$), *except for favourable outcomes for English medium students* [$F(1, 166) = 7.81$, $p < .05$, $\eta^2 = .005$], *and those with FEQ at above secondary level* [$F(1, 77) = 5.619$, $p < .05$, $\eta^2 = 0.07$]; (b) Standard III students (up to 2 year: $M = 39.09$, $SD = 22.62$, $N = 211$; >2 year: $M = 47.44$, $SD = 23.81$, $N = 71$) [$t = 2.59$, $p < .05$] (Cohen's $d = 0.36$) and (c) Standard V students (up to 2 year: $M = 42.57$, $SD = 20.90$, $N = 302$; >2 year: $M = 48.22$, $SD = 20.42$, $N = 127$) [$t = 2.60$, $p < .05$] (Cohen's $d = 0.27$)

D. There is significant difference in English Comprehension of: (a) Standard I students (up to 2 year: $M = 36.33$, $SD = 22.58$, $N = 220$; >2 year: $M = 43.71$, $SD = 23.32$, $N = 91$) [$t = 2.57$, $p < .05$] (Cohen's $d = 0.32$), *except for favourable outcomes for those with FEQ above secondary level* [$F(1, 77) = 3.932$, $p < .05$, $\eta^2 = 0.05$], *and those with MEQ not less than secondary level* [$F(1, 77) = 6.226$, $p < .05$, $\eta^2 = 0.08$] *or those with high cognitive engagement beyond school* [$F(1, 164) = 10.127$, $p < .05$, $\eta^2 = 0.06$] (b) Standard III students (up to 2 year: $M = 35.24$, $SD = 23.41$, $N = 211$; >2 year: $M = 45.00$, $SD = 26.62$, $N = 71$) [$t = 2.75$, $p < .05$] (Cohen's $d = 0.39$), *except for favourable outcomes for those with FEQ above secondary level* [$F(1, 95) = 13.286$, $p < .05$, $\eta^2 = 0.12$] (c) Standard V students (up to 2 year: $M = 49.76$, $SD = 21.11$, $N = 302$; >2 year: $M = 56.67$, $SD = 22.35$, $N = 127$) [$t = 2.97$, $p < .05$] (Cohen's $d = 0.32$).

E. i. There is no significant difference in achievement in Mathematics by the preschool duration of Standard I students (up to 2 year: $M = 62.16$, $SD = 18.76$, $N = 220$; >2 year: $M = 65.46$, $SD = 19.00$, $N = 91$) [$t = -1.40$, $p > .05$]

ii. There is significant difference in achievement in Mathematics by the preschool duration of: (a) Standard III students (up to 2 year: $M = 47.25$, $SD = 21.62$, $N = 211$; >2 year: $M = 53.63$, $SD = 23.04$, $N = 71$) [$t = -2.05$, $p < .05$] (Cohen's $d = 0.29$) (b) Standard V students (up to 2 year: $M = 47.96$, $SD = 18.48$, $N = 302$; >2 year: $M = 52.59$, $SD = 16.98$, $N = 127$) [$t = -2.51$, $p < .05$] (Cohen's $d = 0.26$), *except for favourable outcomes for English medium students* [$F(1, 270) = 9.69$, $p < .05$, $\eta^2 = 0.04$].

3.II Except personal independence of Standard V students, preschool duration does not significantly influence any socio-emotional variables namely interpersonal relationship, cooperation, communication, leadership, expressing emotions, controlling emotions, academic independence and work habit of primary standard students.

A.i. There is no significant difference in personal independence by the preschool duration of: (a) Standard I students (up to 2 year: $M = 90.67$, $SD = 15.46$, $N = 159$; >2 year: $M = 91.40$, $SD = 14.77$, $N = 77$) [$t = 0.35$, $p > .05$],

except for favourable outcomes for girls [$F(1, 111) = 2.106, p < .05$] (b) Standard III students (up to 2 year: $M = 91.19, SD = 14.93, N = 157$; >2 year: $M = 94.72, SD = 12.23, N = 58$) [$t = -1.77, p > .05$]

ii. There is significant difference in personal independence by the preschool duration of Standard V students (up to 2 year: $M = 94.14, SD = 14.00, N = 201$; >2 year: $M = 96.53, SD = 6.71, N = 97$) [$t = -1.99, p < .05$] with small effect (Cohen's $d = 0.22$).

B. There is no significant difference in academic independence by the preschool duration of Standard I students (up to 2 year: $M = 83.91, SD = 15.27, N = 159$; >2 year: $M = 83.49, SD = 15.14, N = 77$) [$t = 0.20, p > .05$], except for favourable outcomes for those with FEQ above secondary level. But follow up analysis of variance revealed that there is no significant effect of preschool duration on academic independence of: (a) Standard I students having below secondary educational qualification of father (up to 2 years: $M = 82.84, SD = 16.54, N = 43$ and >2 years $M = 71.50, SD = 22.58, N = 8$) [$F(1, 49) = 2.820, p > .05$], secondary educational qualification of father (up to 2 years: $M = 85.43, SD = 12.75, N = 74$ and >2 years $M = 82.53, SD = 15.15, N = 34$) [$F(1, 106) = 1.070, p > .05$] and above secondary educational qualification of father (up to 2 years: $M = 82.31, SD = 17.88, N = 42$ and >2 years $M = 87.17, SD = 11.67, N = 35$) [$F(1, 75) = 1.908, p > .05$]; (b) Standard III students (up to 2 year: $M = 90.50, SD = 14.37, N = 157$; >2 year: $M = 88.40, SD = 14.49, N = 58$) [$t = 0.95, p > .05$], except for favourable outcomes for those with FEQ secondary level [$F(1, 88) = 6.311, p < .05, \eta^2 = 0.07$] (c) Standard V students (up to 2 year: $M = 85.61, SD = 14.97, N = 201$; >2 year: $M = 86.71, SD = 14.53, N = 97$) [$t = -0.61, p > .05$]

C. There is no significant difference in work habit by the preschool duration of: (a) Standard I students (up to 2 year: $M = 74.04, SD = 16.03, N = 159$; >2 year: $M = 74.82, SD = 14.76, N = 77$) [$t = -0.37, p > .05$] (b) Standard III students (up to 2 year: $M = 71.03, SD = 15.37, N = 157$; >2 year: $M = 70.48, SD = 13.52, N = 58$) [$t = 0.25, p > .05$] (c) Standard V students (up to 2 year: $M = 69.53, SD = 14.37, N = 201$; >2 year: $M = 67.78, SD = 16.81, N = 97$) [$t =$

0.88, $p > .05$], *except for favourable outcomes for first born children* [$F(1, 109) = 7.200, p < .05, \eta^2 = .062$].

- D. There is no significant difference in interpersonal relationship by the preschool duration of: (a) Standard I students (up to 2 year: $M = 84.86, SD = 8.95, N = 159$; >2 year: $M = 84.57, SD = 10.76, N = 77$) [$t = 0.20, p > .05$] (b) Standard III students (up to 2 year: $M = 84.09, SD = 10.85, N = 157$; >2 year: $M = 86.12, SD = 8.87, N = 58$) [$t = 1.40, p > .05$] (c) Standard V students (up to 2 year: $M = 67.19, SD = 10.12, N = 201$; >2 year: $M = 67.53, SD = 9.60, N = 97$) [$t = 0.28, p > .05$]
- E. There is no significant difference in cooperation by the preschool duration of: (a) Standard I students (up to 2 year: $M = 77.53, SD = 14.43, N = 159$; >2 year: $M = 76.22, SD = 15.43, N = 77$) [$t = 0.62, p > .05$], *except for favourable outcomes for Malayalam medium student* [$F(1, 94) = 7.14, p < .05, \eta^2 = 0.07$] (b) Standard III students (up to 2 year: $M = 77.55, SD = 16.85, N = 157$; >2 year: $M = 81.59, SD = 12.33, N = 58$) [$t = 1.92, p > .05$], *except for favourable outcomes for those with low cognitive engagement beyond school* [$F(1, 101) = 5.26, p < .05, \eta^2 = 0.05$] (c) Standard V students (up to 2 year: $M = 72.86, SD = 12.01, N = 201$; >2 year: $M = 73.12, SD = 14.98, N = 97$) [$t = 0.15, p > .05$], *except for favourable outcomes for later borns* [$F(1, 157) = 5.908, p < .05, \eta^2 = .04$], *and those with FEQ below secondary level* [$F(1, 90) = 5.70, p < .05, \eta^2 = 0.06$] *or those with MEQ above secondary level* [$F(1, 137) = 4.461, p < .05, \eta^2 = 0.03$], *or those with low cognitive engagement beyond school* [$F(1, 119) = 3.60, p < .05$]. But follow up analysis of variance revealed that there is no significant, effect of preschool duration on cooperation of Standard V students who have low cognitive engagement (up to 2 years: $M = 73.79, SD = 10.95, N = 89$ and >2 years: $M = 68.78, SD = 16.97, N = 32$) [$F(1, 119) = 3.60, p > .05$], and students who have high cognitive engagement (up to 2 years: $M = 72.13, SD = 12.79, N = 112$ and >2 years: $M = 75.26, SD = 13.53, N = 65$) [$F(1, 175) = 2.37, p > .05$].

- F. There is no significant difference in communication by the preschool duration of: (a) Standard I students (up to 2 year: $M = 87.55$, $SD = 15.29$, $N = 159$; >2 year: $M = 89.42$, $SD = 12.18$, $N = 77$) [$t = 1.01$, $p > .05$], *except for favourable outcomes for English medium student* [$F(1, 138) = 5.64$, $p < .05$, $\eta^2 = 0.039$], *and Malayalam medium* [$F(1, 94) = 3.89$, $p < .05$, $\eta^2 = 0.40$] (b) Standard III students (up to 2 year: $M = 89.60$, $SD = 13.03$, $N = 157$; >2 year: $M = 90.55$, $SD = 11.32$, $N = 58$) [$t = .53$, $p > .05$] (c) Standard V students (up to 2 year: $M = 86.01$, $SD = 13.63$, $N = 201$; >2 year: $M = 84.85$, $SD = 16.64$, $N = 97$) [$t = 0.60$, $p > .05$], *communication is less among Malayalam medium student, if they had more preschooling* [$F(1, 119) = 5.59$, $p < .05$, $\eta^2 = 0.05$] *and those with low cognitive engagement* [$F(1, 119) = 5.59$, $p < .05$, $\eta^2 = 0.05$].
- G. There is no significant difference in leadership by the preschool duration of: (a) Standard I students (up to 2 year: $M = 77.11$, $SD = 10.83$, $N = 159$; >2 year: $M = 79.51$, $SD = 11.26$, $N = 77$) [$t = 1.55$, $p > .05$], *except for favourable outcomes for English medium student* [$F(1, 138) = 5.78$, $p < .05$, $\eta^2 = 0.04$] (b) Standard III students (up to 2 year: $M = 80.25$, $SD = 9.48$, $N = 157$; >2 year: $M = 79.74$, $SD = 10.12$, $N = 58$) [$t = 0.34$, $p > .05$] (c) Standard V students (up to 2 year: $M = 70.54$, $SD = 10.18$, $N = 201$; >2 year: $M = 71.33$, $SD = 13.52$, $N = 97$) [$t = 0.51$, $p > .05$], *except for favourable outcomes for English medium student* [$F(1, 192) = 3.90$, $p < .05$, $\eta^2 = 0.020$], *leadership is less among Malayalam medium students in Standard V if they had more preschooling*.
- H. There is no significant difference in expressing emotions by the preschool duration of: (a) Standard I students (up to 2 year: $M = 73.04$, $SD = 9.63$, $N = 159$; >2 year: $M = 73.90$, $SD = 10.30$, $N = 77$) [$t = 0.61$, $p > .05$] (b) Standard III students (up to 2 year: $M = 70.70$, $SD = 10.62$, $N = 157$; >2 year: $M = 71.78$, $SD = 11.88$, $N = 58$) [$t = 0.61$, $p > .05$] (c) Standard V students (up to 2 year: $M = 72.30$, $SD = 11.32$, $N = 201$; >2 year: $M = 70.96$, $SD = 15.19$, $N = 97$) [$t = 0.77$, $p > .05$]

- I. There is no significant difference in controlling emotions by the preschool duration of: (a) Standard I students (up to 2 year: $M = 65.55$, $SD = 7.61$, $N = 159$; >2 year: $M = 66.39$, $SD = 8.28$, $N = 77$) [$t = 0.75$, $p > .05$] (b) Standard III students (up to 2 year: $M = 68.63$, $SD = 8.43$, $N = 157$; >2 year: $M = 67.36$, $SD = 6.75$, $N = 58$) [$t = 1.14$, $p > .05$] (c) Standard V students (up to 2 year: $M = 70.92$, $SD = 9.40$, $N = 201$; >2 year: $M = 71.65$, $SD = 12.35$, $N = 97$) [$t = 0.52$, $p > .05$], *except for favourable outcomes for those with high cognitive engagement beyond school* [$F(1, 175) = 3.647$, $p < .05$, $\eta^2 = 0.02$], and those having FEQ at above secondary level [$F(1, 71) = 4.145$, $p < .05$, $\eta^2 = 0.06$].

Summary of the findings of influence of preschool duration on cognitive and socio-emotional outcomes is given in Figure 4.

Figure 4

Summary of the Findings of Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes

DEPENDENT VARIABLES	STANDARD I		STANDARD III		STANDARD V	
	Up to 2 years	> 2 years	Up to 2 years	> 2 years	Up to 2 years	> 2 years
Malayalam Vocabulary	NS		NS		NS	
Malayalam Comprehension	NS		NS		NS	
English Vocabulary	↓ 59 0.32	↑ 65.87	↓ 39.09 0.36	↑ 47.44	↓ 42.57 0.27	↑ 48.22
English Comprehension	↓ 36.33 0.32	↑ 43.71	↓ 35.24 0.39	↑ 45	↓ 49.76 0.32	↑ 56.67
Achievement in Mathematics	NS		↓ 47.25 0.29	↑ 53.63	↓ 47.96 0.26	↑ 52.59
Personal Independence	NS		NS		↓ 94.14 0.22	↑ 96.53
Academic Independence	NS		NS		NS	
Work Habit	NS		NS		NS	
Interpersonal Relationship	NS		NS		NS	
Cooperation	NS		NS		NS	
Communication	NS		NS		NS	
Leadership	NS		NS		NS	
Expressing Emotions	NS		NS		NS	
Controlling Emotions	NS		NS		NS	

- Note: 1) Shaded cells indicate significant influence of preschool duration on the dependent variable for that standard in total
 2) Arrows indicate significant favourable (↑) or unfavourable (↓) influence of that level of preschool duration on the dependent variable

- 4.I.i Preschool duration does not significantly influence cognitive outcomes: vocabulary in Malayalam and English, English comprehension and Mathematics of primary standard students by gender, except Malayalam comprehension of Standard III girls who have >2 years preschooling than girls who have up to 2 years of preschooling.
- 4.II.i Preschool duration does not significantly influence socio-emotional outcomes: personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions, of primary standard students by gender.
- 4.I.ii Preschool duration does not significantly influence cognitive outcomes: vocabulary in Malayalam, Malayalam comprehension, vocabulary in English, English comprehension and achievement in Mathematics of primary standard students by birth order.
- 4.II.ii Preschool duration does not significantly influence socio-emotional outcomes: personal independence, academic independence, interpersonal relationship, communication, leadership, expressing emotions, and controlling emotions, of primary standard students by birth order except work habit and cooperation. Work habit is higher among Standard V first child who have up to 2 years preschooling than first child who have >2 years preschooling. Cooperation is higher among later borns who have >2 years preschooling than later borns who have up to 2 years preschooling in Standard V.
- 4.I.iii Preschool duration does not significantly influence cognitive outcomes: vocabulary in Malayalam, Malayalam comprehension and English comprehension of primary standard students by medium of instructions. But there is significant influence of preschool duration on vocabulary in English of Standard I English medium students who have >2 years preschooling and achievement in Mathematics of Standard V English medium students who have >2 years preschooling.
- 4.II.iii Preschool duration does not significantly influence socio-emotional outcomes: personal independence, academic independence, work habit,

interpersonal relationship, expressing emotions, and controlling emotions of primary standard students by medium of instructions except some specific groups. Cooperation is higher among Malayalam medium students who have up to 2 years preschooling in Standard I, communication is also higher among English medium students who have >2 years preschooling in Standard I. Communication is also higher among Malayalam medium students who have up to 2 years preschooling in Standard V. Leadership is higher among English medium students who have >2 years preschooling in Standard I. Leadership is also higher among Malayalam medium students who have up to 2 years preschooling in Standard V and English medium students who have >2 years preschooling in Standard V.

- 4.I.iv Preschool duration does not significantly influence cognitive outcomes: vocabulary in Malayalam, Malayalam comprehension and Mathematics of primary standard students by educational qualification of father. But there is significant influence of preschool duration on vocabulary in English and English comprehension of Standard I students having above secondary educational qualification of father and >2 years preschooling. English comprehension is also higher among Standard III students having secondary educational qualification of father and >2 years preschooling than the students having secondary educational qualification of father and up to 2 years preschooling.
- 4.II.iv Preschool duration does not significantly influence socio-emotional outcomes: personal independence, work habit, interpersonal relationship, communication, leadership, expressing emotions, of primary standard students by educational qualification of father except academic independence, cooperation, and controlling emotions.
- 4.I.v Preschool duration does not significantly influence cognitive outcomes: vocabulary in Malayalam, vocabulary in English, and Mathematics of primary standard students by educational qualification of mother. But there is significant influence of preschool duration on Malayalam and English comprehension of Standard I students. Malayalam comprehension is higher

among Standard I students having secondary educational qualification of mother with >2 years preschooling and English comprehension is higher among Standard I students with >2 years preschooling and having secondary and above secondary educational qualification of mother.

- 4.II.v Preschool duration does not significantly influence socio-emotional outcomes namely personal independence, academic independence, work habit, interpersonal relationship, communication, leadership, expressing emotions, and controlling emotions, of primary standard students by educational qualification of mother except cooperation of Standard V students with >2 years preschooling and having above secondary educational qualification of mother than that of students with up to 2 years preschooling and having above secondary educational qualification of mother.
- 4.I.vi Preschool duration does not significantly influence cognitive outcomes: vocabulary in Malayalam, Malayalam comprehension, vocabulary in English and achievement in Mathematics of primary standard students by cognitive engagement. But there is significant influence of preschool duration on English comprehension of Standard I the students who have >2 years preschooling with high cognitive engagement.
- 4.II.vi Preschool duration does not significantly influence socio-emotional outcomes: personal independence, academic independence, work habit, interpersonal relationship, leadership, and expressing emotions, of primary standard students by cognitive engagement, except cooperation of Standard III students who have >2 years preschooling with low cognitive engagement, communication of Standard V students who have up to 2 years preschooling with low cognitive engagement and controlling emotions of Standard V students who have >2 years preschooling with high cognitive engagement.

Summary of the findings of influence of preschool duration on cognitive and socio-emotional outcomes irrespective of socio-economic and other demographic factors are given in Figure 5.

Figure 5

Summary of the Findings of Influence of Preschool Duration on Cognitive and Socio-Emotional Outcomes Irrespective of Socio-economic and Other Demographic Factors

DEPENDENT VARIABLES	STD I									STD III						STD V														
	MI		FEQ			MEQ			CE		GEN		FEQ			CE		MI		BO			FEQ			MEQ			CE	
	M	E	BS	S	AS	BS	S	AS	L	H	F	M	BS	S	AS	L	H	M	E	S	F	LB	BS	S	AS	BS	S	AS	L	H
Malayalam Vocabulary																														
Malayalam Comprehension								↑			↑																			
English Vocabulary		↑						↑																						
English Comprehension		↑						↑	↑		↑				↑															
Mathematics																			↑											
Personal Independence																														
Academic Independence														↓																
Work Habit																														
Interpersonal Relationship																														
Cooperation																														
Communication	↓																													
Leadership		↑																												
Expressing Emotions																														
Controlling Emotions																														

Note: 1) Shaded cells indicate significant influence of preschool duration on the dependent variables for that standard in total
 2) Arrows indicate significant favourable (↑) or unfavourable (↓) influence of preschooling for >2 years for the specific subsample based on the moderator variable

5.I Type of preschooling significantly influences cognitive outcomes namely achievements in English and Mathematics of primary standard students but does not influence achievements in Malayalam of them, with exception of vocabulary in Malayalam of Standard III students.

A. i. There is no significant difference in vocabulary in Malayalam by type of preschooling (Anganwadi, Kindergarten and, Montessori): (a) among Standard I students [$F(2, 308) = 0.20, p > .05$] (b) among Standard V students [$F(2, 426) = 1.79, p > .05$]

ii. There is significant, but small difference in vocabulary in Malayalam by type of preschooling of Standard III students [$F(2, 279) = 3.93, p < .05, \eta^2 = .03$]; vocabulary in Malayalam is significantly less in students who preschooled in Kindergarten ($M = 41.06, SD = 17.08, N = 94$) than those who preschooled in Montessori ($M = 49.00, SD = 20.27, N = 60$) [$t = 2.52, p < .05, \text{Cohen's } d = 0.42$] and, Anganwadi ($M = 46.88, SD = 19.59, N = 128$) [$t = 2.35, p < .05, \text{Cohen's } d = 0.32$]. However, vocabulary in Malayalam does not significantly differ between standard III students who were preschooled in Anganwadi and Montessori [$t = .68, p > .05$], *those with FEQ secondary level preschooled in Anganwadi have high vocabulary in Malayalam* [$F(2, 49) = 8.772, p < .05, \eta^2 = 0.264$].

B. There is no significant difference in Malayalam comprehension by type of preschooling (Anganwadi, Kindergarten and, Montessori): (a) among Standard I students [$F(2, 308) = 1.89, p > .05$] (b) among Standard III students [$F(2, 279) = 0.03, p > .05$] (c) among Standard V students [$F(2, 426) = 1.78, p > .05$], *except for favourable outcomes for Montessori preschooled students who are single children* [$F(2, 68) = 3.540, p < .05, \eta^2 = 0.09$] *and later born* [$F(2, 220) = 3.176, p < .05, \eta^2 = 0.03$].

C. There is significant difference in vocabulary in English by type of preschooling (Anganwadi, Kindergarten and, Montessori):

(a) among Standard I students [$F(2, 308) = 14.88, p < .01, \eta^2 = .088$] with small effect; vocabulary in English in standard I is significantly higher in students who preschooled in Montessori ($M = 73.75, SD$

=19.46, $N = 53$) compared to students who preschooled in Kindergarten ($M = 61.28$, $SD = 20.56$, $N = 134$), with medium effect [$t = 3.89$, $p < .01$, Cohen's $d = 0.62$]; and, those who preschooled in Anganwadi ($M = 55.27$, $SD = 21.25$, $N = 124$), with large effect [$t = 5.63$, $p < .01$, Cohen's $d = 0.91$]. Standard I students who preschooled in Kindergarten have significantly higher Vocabulary in English than those who preschooled in Anganwadi with small effect [$t = 2.31$, $p < .05$, Cohen's $d = 0.29$], *Malayalam medium students who preschooled in Kindergarten* [$F(2, 140) = 3.39$, $p < .05$, $\eta^2 = 0.05$], and *English medium students who preschooled in Montessori* [$F(2, 165) = 10.17$, $p < .05$, $\eta^2 = 0.11$].

- (b) among Standard III students [$F(2, 279) = 16.02$, $p < .01$, $\eta^2 = .103$] with small effect; vocabulary in English in standard III is significantly higher in students who preschooled in Montessori ($M = 55.43$, $SD = 24.12$, $N = 60$), *but not for single children* [$F(2, 58) = 0.819$, $p < .05$] compared to those who preschooled in Kindergarten ($M = 38.02$, $SD = 19.56$, $N = 94$), with medium effect [$t = 4.69$, $p < .01$, Cohen's $d = 0.79$]; and, those who preschooled in Anganwadi ($M = 36.84$, $SD = 22.28$, $N = 128$), with large effect [$t = 5.02$, $p < .01$, Cohen's $d = 0.80$]. However, vocabulary in English of Standard III students who preschooled in Anganwadi and those who preschooled in Kindergarten did not differ significantly [$t = 0.41$, $p > .05$]. Vocabulary in English is higher among *English medium students who preschooled in Montessori* [$F(2, 130) = 14.30$, $p < .05$, $\eta^2 = 0.18$], *those who preschooled in Montessori and having FEQ above secondary level* [$F(2, 49) = 9.673$, $p < .05$, $\eta^2 = 0.283$] or *secondary level* [$F(2, 94) = 8.274$, $p < .05$, $\eta^2 = 0.150$], *among first child* [$F(2, 77) = 11.183$, $p < .05$, $\eta^2 = 0.225$] and *later borns* [$F(2, 138) = 10.758$, $p < .05$, $\eta^2 = 0.135$] who preschooled in Montessori, *girls* [$F(2, 141) = 7.290$, $p < .05$, $\eta^2 = 0.09$] and *Boys* [$F(2, 135) = 17.850$, $p < .05$, $\eta^2 = 0.21$] who preschooled in Montessori, *those who preschooled in Montessori and having MEQ secondary level*

[$F(2, 68) = 8.151, p < .05, \eta^2 = 0.193$] and above secondary level [$F(2, 105) = 15.909, p < .05, \eta^2 = 0.233$], those who preschooled in Montessori with high cognitive engagement [$F(2, 123) = 20.437, p < .05, \eta^2 = 0.249$].

- (c) among Standard V students [$F(2, 426) = 14.24, p < .01, \eta^2 = .063$] with small effect. As observed in Standard III, Vocabulary in English is significantly higher in standard V students preschooled in Montessori ($M=58.90, SD=18.90, N=48$) compared to those who preschooled in Kindergarten ($M=41.85, SD=19.74, N=178$), with large effect [$t = 5.49, p < .01, \text{Cohen's } d=0.88$]; and, those who preschooled in Anganwadi ($M=42.88, SD=21.03, N=203$), with large effect [$t = 5.16, p < .01, \text{Cohen's } d= 0.80$]. However, vocabulary in English of Standard V students who preschooled in Anganwadi and those who preschooled in Kindergarten did not differ significantly [$t = 0.49, p > .05$].

D. There is significant difference in English comprehension by type of preschooling (Anganwadi, Kindergarten and, Montessori):

- (a) among Standard I students [$F(2, 308) = 22.98, p < .01, \eta^2 = .130$] with medium effect; English comprehension in standard I is significantly higher in students who preschooled in Montessori ($M=56.19, SD=20.97, N=53$) compared to students who preschooled in Kindergarten ($M = 37.01, SD = 21.59, N = 134$), with large effect [$t = 5.59, p < .01, \text{Cohen's } d= 0.90$]; and, those who preschooled in Anganwadi ($M=32.52, SD=21.71, N=124$), with large effect [$t = 6.80, p < .01, \text{Cohen's } d= 1.11$]. However, English Comprehension of standard I students who preschooled in Anganwadi and those who preschooled in Kindergarten did not differ significantly [$t = 1.66, p > .05$].
- (b) among Standard III students [$F(2, 279) = 13.20, p < .01, \eta^2 = .086$] with small effect; English comprehension in standard III is significantly higher in students who preschooled in Montessori ($M=51.33, SD=27.32, N=60$) compared to students who preschooled in Kindergarten

($M=35.74$, $SD=20.69$, $N=94$), with medium effect [$t = 3.78$, $p<.01$, Cohen's $d=0.64$]; and, those who preschooled in Anganwadi ($M=32.73$, $SD=23.68$, $N=128$), with medium effect [$t = 4.53$, $p<.01$, Cohen's $d=0.73$]. However, English Comprehension of standard III students who preschooled in Anganwadi and Kindergarten did not differ significantly [$t = 1.00$, $p>.05$]. *English comprehension is higher among English medium students who preschooled in Montessori schools* [$F(2, 130) = 10.18$, $p<.05$, $\eta^2 = 0.14$], and having FEQ at below secondary level [$F(2, 130) = 3.390$, $p<.05$, $\eta^2 = 0.05$] and above secondary level [$F(2, 49) = 7.418$, $p<.05$, $\eta^2 = 0.232$], and having MEQ at below secondary level [$F(2, 100) = 4.484$, $p<.05$, $\eta^2 = 0.082$], secondary level [$F(2, 68) = 3.620$, $p<.05$, $\eta^2 = 0.096$] and above secondary level [$F(2, 105) = 13.492$, $p<.05$, $\eta^2 = 0.204$]. *English Comprehension is higher among Standard III girls* [$F(2, 141) = 9.678$, $p<.05$, $\eta^2 = 0.12$] and boys [$F(2, 135) = 10.619$, $p<.05$, $\eta^2 = 0.14$], among first children [$F(2, 77) = 11.914$, $p<.05$, $\eta^2 = 0.236$] and later born children [$F(2, 138) = 5.876$, $p<.05$, $\eta^2 = 0.078$] and also among the students having high cognitive engagement [$F(2, 123) = 14.554$, $p<.05$, $\eta^2 = 0.191$] and who preschooled in Montessori than Kindergarten and Anganwadi.

(c) among Standard V students [$F(2, 426) = 12.98$, $p<.01$, $\eta^2 = .057$] with small effect; as observed in Standard I and III, English Comprehension in standard V is significantly higher in students who preschooled in Montessori ($M=66.44$, $SD=19.07$, $N=48$) compared to students who preschooled in Kindergarten ($M=50.04$, $SD=22.27$, $N=178$), with medium effect [$t = 5.09$, $p<.01$, Cohen's $d=0.79$]; and, those who preschooled in Anganwadi ($M=49.89$, $SD=20.51$, $N=203$), with large effect [$t = 5.33$, $p<.01$, Cohen's $d=0.84$]. However, English comprehension of standard V students who preschooled in Anganwadi and Kindergarten did not differ significantly [$t = 0.07$, $p>.05$].

E. There is significant difference in achievement in Mathematics by type of preschooling (Anganwadi, Kindergarten and, Montessori):

- (a) among Standard I students [$F(2, 308) = 7.11, p < .05, \eta^2 = .044$] with small effect; achievement in Mathematics in standard I is significantly less in students who preschooled in Anganwadi ($M=58.41, SD=17.55, N=124$) than in students who preschooled in Montessori ($M=68.19, SD=18.58, N=53$) with medium effect [$t = 3.26, p < .05, \text{Cohen's } d = 0.54$] and in students who preschooled in Kindergarten ($M=65.49, SD=19.31, N=134$) with small effect [$t = 3.09, p < .05, \text{Cohen's } d = 0.38$]. However, Mathematics of standard I students who preschooled in Kindergarten and Montessori did not differ significantly [$t = 0.88, p > .05$].
- (b) among Standard III students [$F(2, 279) = 14.89, p < .01, \eta^2 = .096$] with small effect; achievement in Mathematics of Standard III is significantly higher in students who preschooled in Montessori ($M=62.00, SD=21.50, N=60$) compared to students who preschooled in Kindergarten ($M=46.09, SD=21.75, N=94$), with medium effect [$t = 4.46, p < .01, \text{Cohen's } d = 0.74$]; and, those who preschooled in Anganwadi ($M=44.73, SD=20.43, N=128$), with large effect [$t = 5.21, p < .01, \text{Cohen's } d = 0.82$]. However, Mathematics of standard III students who preschooled in Anganwadi and those who preschooled in Kindergarten did not differ significantly [$t = 0.47, p > .05$].
- (c) among Standard V students [$F(2, 426) = 4.68, p < .05, \eta^2 = .021$] with small effect; as observed in Standard I and III, achievement in Mathematics of Standard V is significantly higher in Standard V students who preschooled in Montessori ($M= 56.75, SD=15.01, N=48$) compared to students who preschooled in Kindergarten ($M=48.80, SD=18.41, N=178$) with small effect [$t = 3.10, p < .05, \text{Cohen's } d = 0.47$]; and, those who preschooled in Anganwadi ($M=48.04, SD=18.27, N=203$) with medium effect [$t = 3.46, p < .05, \text{Cohen's } d = 0.52$]. However, achievement in Mathematics of standard V students who preschooled in Anganwadi and Kindergarten did not differ significantly [$t = 0.40, p > .05$].

5.II Type of preschooling significantly influences controlling emotions of Standard I and V students, but does not significantly influence any other socio-emotional variables namely personal independence, academic independence, work habit,

interpersonal relationship, cooperation, communication, leadership and expressing emotions of primary standard students.

- A. There is no significant difference in personal independence by type of preschooling (Anganwadi, Kindergarten and, Montessori): (a) among Standard I students [$F(2, 233) = .08, p > .05$] (b) among Standard III students [$F(2, 212) = 1.21, p > .05$] (c) among Standard V students [$F(2, 295) = 1.07, p > .05$], *except for favourable outcomes in personal independence for later borns preschoolled in Montessori schools* [$F(2, 156) = 5.658, p < .05, \eta^2 = 0.068$].
- B. There is no significant difference in academic independence by type of preschooling (Anganwadi, Kindergarten and, Montessori): (a) among Standard I students [$F(2, 233) = .32, p > .05$] (b) among Standard III students [$F(2, 212) = 2.29, p > .05$] (c) among Standard V students [$F(2, 295) = .33, p > .05$]
- C. There is no significant difference in work habit by type of preschooling (Anganwadi, Kindergarten and, Montessori): (a) among Standard I students [$F(2, 233) = 1.72, p > .05$] (b) among Standard III students [$F(2, 212) = 2.17, p > .05$] (c) among Standard V students [$F(2, 295) = 0.06, p > .05$]
- D. There is no significant difference in interpersonal relationship by type of preschooling (Anganwadi, Kindergarten and, Montessori): (a) among Standard I students [$F(2, 233) = 0.90, p > .05$] (b) among Standard III students [$F(2, 212) = 0.85, p > .05$], *except for favourable outcomes for first born learners from Kindergarten* [$F(2, 60) = 3.60, p < .05, \eta^2 = 0.107$]. (c) among Standard V students [$F(2, 295) = 0.80, p > .05$], *students who preschoolled in Montessori having MEQ at secondary level* [$F(2, 120) = 3.28, p < .05, \eta^2 = 0.052$].
- E. There is no significant difference in cooperation by type of preschooling (Anganwadi, Kindergarten and, Montessori): (a) among Standard I students [$F(2, 233) = 1.65, p > .05$], *low cognitive engagement who preschoolled in Anganwadi* [$F(2, 75) = 5.131, p < .05, \eta^2 = 0.120$] (b) among Standard III

students [$F(2, 212) = 2.42, p > .05$] (c) among Standard V students [$F(2, 295) = 2.82, p > .05$], having high cognitive engagement who preschooled in Kindergarten [$F(2, 174) = 7.29, p < .05, \eta^2 = 0.077$]

- F. There is no significant difference in communication by type of preschooling (Anganwadi, Kindergarten and, Montessori): (a) among Standard I students [$F(2, 233) = 0.71, p > .05$] (b) among Standard III students [$F(2, 212) = 0.93, p > .05$], *except for favorable outcomes for FEQ* [$F(4, 206) = 2.62, p > .05$] But follow up analysis of variance revealed that there is no significant effect of type of preschooling on communication of Standard III students with below secondary (Anganwadi: $M = 87.92, SD = 14.12, N = 38$; Kindergarten: $M = 86.36, SD = 15.46, N = 28$; Montessori: $M = 98.22, SD = 3.53, N = 9$) [$F(2, 72) = 2.56, p > .05$], secondary (Anganwadi: $M = 92.56, SD = 11.43, N = 48$ and Kindergarten: $M = 91.41, SD = 9.85, N = 29$, Montessori: $M = 89.69, SD = 9.80, N = 13$) [$F(2, 87) = 0.39, p > .05$] and above secondary (Anganwadi: $M = 93.56, SD = 9.73, N = 18$ and Kindergarten: $M = 85.80, SD = 17.56, N = 10$, Montessori: $M = 85.18, SD = 12.09, N = 22$) [$F(2, 47) = 2.44, p < .05$] educational qualification of father. (c) among Standard V students [$F(2, 295) = 0.46, p > .05$].
- G. There is no significant difference in leadership by type of preschooling (Anganwadi, Kindergarten and, Montessori): (a) among Standard I students [$F(2, 233) = 1.99, p > .05$] (b) among Standard III students [$F(2, 212) = 1.08, p > .05$] (c) among Standard V students [$F(2, 295) = 2.16, p > .05$].
- H. There is no significant difference in expressing emotions by type of preschooling (Anganwadi, Kindergarten and, Montessori): (a) among Standard I students [$F(2, 233) = .94, p > .05$] (b) among Standard III students [$F(2, 212) = 2.06, p > .05$] (c) among Standard V students [$F(2, 295) = .05, p > .05$], low cognitive engagement who preschooled in Montessori [$F(2, 118) = 3.30, p < .05, \eta^2 = 0.053$].

I. There is significant, but small difference in controlling emotions by type of preschooling (Anganwadi, Kindergarten and, Montessori):

(a) among Standard I students [$F(2, 233) = 3.05, p < .05, \eta^2 = .025$] with small effect; controlling emotions in standard I is significantly higher in students who preschoolled in Montessori ($M=68.13, SD=7.77, N=53$) than in students who preschoolled in Kindergarten ($M=65.04, SD=8.50, N=78$), with small effect [$t = 2.15, p < .05, \text{Cohen's } d=0.38$] and, in students who preschoolled in Anganwadi ($M=65.24, SD=7.15, N=105$), with small effect [$t = 2.27, p < .05, \text{Cohen's } d= 0.39$]. But there is no significant difference in controlling emotions of standard I students who preschoolled in Anganwadi and Kindergarten [$t = 0.17, p > .05$].

(b) among Standard V students [$F(2, 295) = 4.12, p < .05, \eta^2 = .027$] with small effect; controlling emotions in standard V is significantly higher in students who preschoolled in Montessori ($M=75.02, SD=10.02, N=48$) than in students who preschoolled in Kindergarten ($M=69.98, SD=10.98, N=84$) with small effect [$t = 2.69, p < .05, \text{Cohen's } d=0.48$] and, in students who preschoolled in Anganwadi ($M=70.63, SD=10.07, N=166$) with small effect [$t = 2.67, p < .05, \text{Cohen's } d= 0.44$]. But there is no significant difference in controlling emotions of standard V students who preschoolled in Anganwadi (and Kindergarten [$t = 0.46, p > .05$], low cognitive engagement who preschoolled in Montessori [$F(2, 118) = 3.72, p < .05, \eta^2 = 0.059$].

(c) There is no significant difference in controlling emotions by type of preschooling (Anganwadi, Kindergarten and, Montessori) of Standard III students [$F(2, 212) = 1.63, p > .05$].

Summary of the findings of influence of preschool type on cognitive and socio-emotional outcomes is given in Figure 6.

Figure 6

Summary of the Findings of Influence of Preschool Type on Cognitive and Socio-Emotional Outcomes

DEPENDENT VARIABLES	STANDARD I			STANDARD III			STANDARD V		
	AW & KG	KG & MONT	AW & MONT	AW & KG	KG & MONT	AW & MONT	AW & KG	KG & MONT	AW & MONT
Malayalam Vocabulary	NS			AW ↑46.88 0.32	KG ↓41.06 0.42	MONTE ↑49 NS	NS		
Malayalam Comprehension	NS			NS			NS		
English Vocabulary	AW ↓55.27 0.29	KG ↓61.28 0.62	MONTE ↑73.75 0.91	AW ↓36.84 NS	KG ↓38.02 0.79	MONTE ↑55.43 0.8	AW ↓42.88 NS	KG ↓41.85 0.88	MONTE ↑58.9 0.8
English Comprehension	AW ↓32.52 NS	KG ↓37.01 0.9	MONTE ↑56.19 1.11	AW ↓32.73 NS	KG ↓35.74 0.64	MONTE ↑51.33 0.73	AW ↓49.89 NS	KG ↓50.04 0.79	MONTE ↑66.44 0.84
Achievement in Mathematics	AW ↓58.41 0.38	KG ↑65.49 NS	MONTE ↑68.19 0.54	AW ↓44.73 NS	KG ↓46.09 0.74	MONTE ↑62 0.82	AW ↓48.04 NS	KG ↓48.8 0.47	MONTE ↑56.75 0.52
Personal Independence	NS			NS			NS		
Academic Independence	NS			NS			NS		
Work Habit	NS			NS			NS		
Interpersonal Relationship	NS			NS			NS		
Cooperation	NS			NS			NS		
Communication	NS			NS			NS		
Leadership	NS			NS			NS		
Expressing Emotions	NS			NS			NS		
Controlling Emotions	AW ↓65.24 NS	KG ↓65.04 0.38	MONTE ↑68.13 0.39	NS			AW ↓70.63 NS	KG ↓69.98 0.48	MONTE ↑75.02 0.44



Note 1) Shaded cells indicate significant influence on the dependent variable favouring one or more type of preschooling indicated by the letter combinations.

2) Arrows indicate significant favourable (↑) or unfavourable (↓) influence of preschool type indicated by abbreviations adjacent to it on the dependent variable.

6.I.i Type of preschooling does not significantly influence cognitive outcomes: vocabulary in Malayalam, Malayalam comprehension and achievement in Mathematics of primary standard students by gender except vocabulary in English and English comprehension of Standard III boys and girls who preschoolled in Montessori than Kindergarten and Anganwadi.

6.II.i Type of preschooling does not significantly influence socio-emotional outcomes namely personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions, of primary standard students by gender.

- 6.I.ii Type of preschooling significantly influence cognitive outcomes except vocabulary in Malayalam of primary standard students by birth order. Malayalam comprehension is higher among single child and later borns who preschooled in Montessori than the single child and later borns who preschooled in Kindergarten and Anganwadi in Standard V. In Standard III, vocabulary in English and English comprehension is higher among first child and later borns who preschooled in Montessori than the first child and later borns who preschooled in Kindergarten and Anganwadi. Achievement in Mathematics is higher among single child who preschooled in Kindergarten than the single child who preschooled in Anganwadi and Montessori in Standard I. Achievement in Mathematics is also higher among later borns who preschooled in Montessori than later borns who preschooled in Kindergarten and Anganwadi in Standard I.
- 6.II.ii Type of preschooling does not significantly influence socio-emotional outcomes namely academic independence, work habit, cooperation, communication, leadership, expressing emotions, and controlling emotions, of primary standard students by birth order except personal independence of later borns who preschooled in Montessori than later borns who preschooled in Kindergarten and Anganwadi in Standard V and interpersonal relationship of first child who preschooled in Kindergarten than first child who preschooled in Montessori and Anganwadi in Standard III.
- 6.I.iii Type of preschooling does not significantly influence cognitive outcomes: vocabulary in Malayalam, Malayalam comprehension and Mathematics of primary standard students by medium of instructions. But there is significant influence of type of preschooling on vocabulary in English of Standard I and III and English comprehension of Standard III students.
- 6.II.iii Type of preschooling does not significantly influence socio-emotional outcomes: personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions, of primary standard students by medium of instructions.

- 6.I.iv Type of preschooling does not significantly influence cognitive outcomes namely Malayalam comprehension and Mathematics of primary standard students by educational qualification of father. But in Standard III, there is significant influence of type of preschooling on vocabulary in Malayalam of students who preschooled in Anganwadi and having above secondary educational qualification of father than the students who preschooled in Kindergarten and Montessori and having above secondary educational qualification of father, vocabulary in English of students who preschooled in Montessori and having above secondary educational qualification of father and secondary educational qualification of father than the students who preschooled in Kindergarten and Anganwadi and having above secondary educational qualification of father and secondary educational qualification of father, and English comprehension of students who preschooled in Montessori and having below secondary, and above secondary educational qualification of father than students who preschooled in Kindergarten and Anganwadi and having below secondary and above secondary educational qualification of father.
- 6.II.iv Type of preschooling does not significantly influence any socio-emotional outcomes: personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions, of primary standard students by educational qualification of father.
- 6.I.v Type of preschooling does not significantly influence cognitive outcomes: vocabulary in Malayalam, Malayalam comprehension and achievement in Mathematics of primary standard students by educational qualification of mother. But there is significant influence of type of preschooling among Standard III students who preschooled in Montessori and having secondary and above secondary educational qualification of mother than students who preschooled in Kindergarten and Anganwadi and having secondary and above secondary educational qualification of mother.

6.II.v Type of preschooling does not significantly influence socio-emotional outcomes: personal independence, academic independence, work habit, interpersonal relationship, cooperation, communication, leadership, expressing emotions, and controlling emotions, of primary standard students by educational qualification of mother except interpersonal relationship among students who preschooled in Montessori and having secondary educational qualification of mother than the students who preschooled in Kindergarten and Anganwadi and having secondary educational qualification of mother.

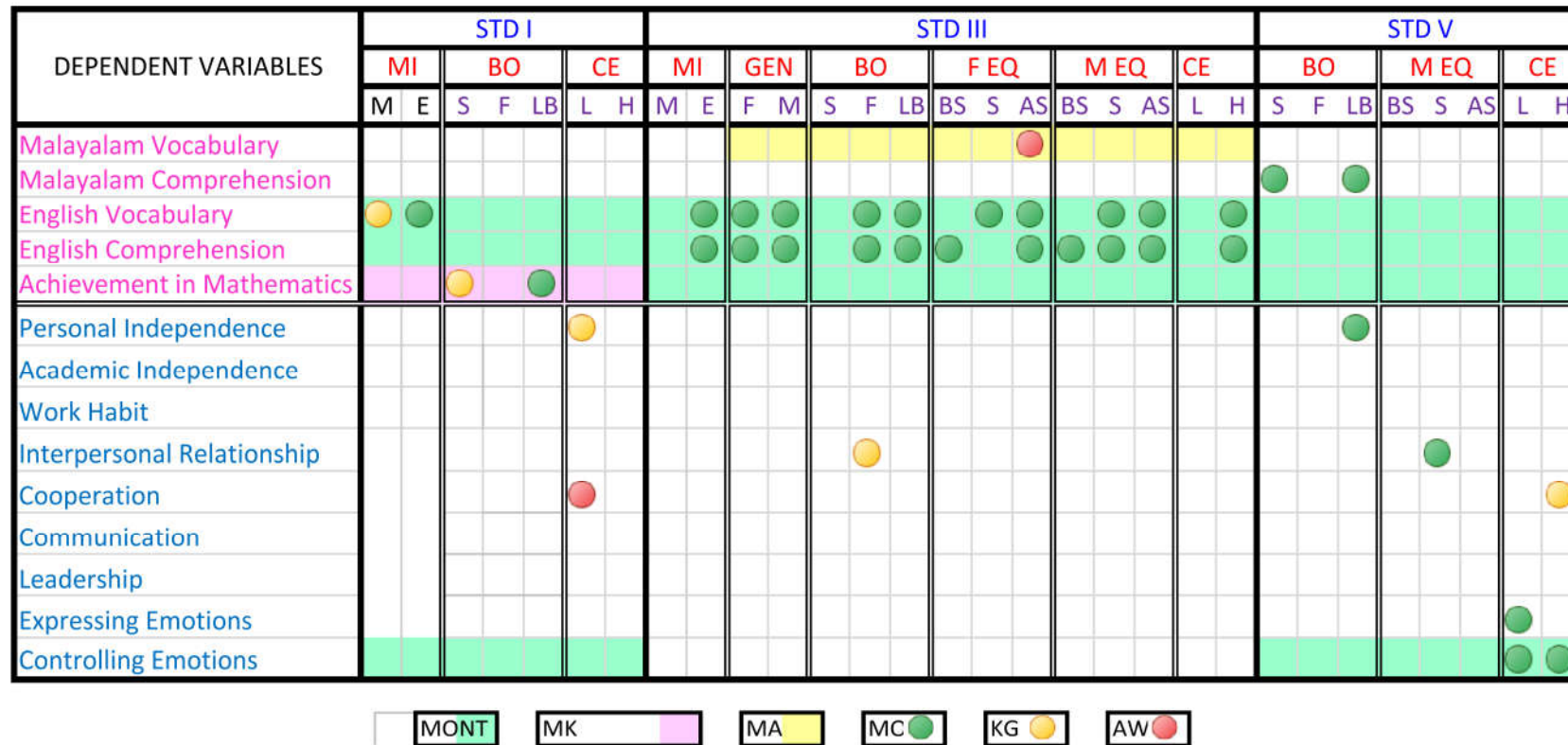
6.I.vi Type of preschooling does not significantly influence cognitive outcomes: vocabulary in Malayalam, Malayalam comprehension and achievement in Mathematics of primary standard students by the level of cognitive engagement. But there is significant influence of type of preschooling on vocabulary in English and English comprehension of Standard III students having high cognitive engagement and who preschooled in Montessori than those who preschooled in Kindergarten and Anganwadi.

6.II.vi Type of preschooling does not significantly influence socio-emotional outcomes namely academic independence, work habit, interpersonal relationship, communication, leadership of primary standard students by the level of cognitive engagement except personal independence, cooperation, expressing emotions, and controlling emotions. Personal independence is higher among Standard I students having low cognitive engagement and who preschooled in Kindergarten, cooperation is higher among Standard I students having low cognitive engagement who preschooled in Anganwadi and cooperation is also higher among Standard V students having high cognitive engagement and who preschooled in Kindergarten.

Summary of the findings of influence of preschool type on cognitive and socio-emotional outcomes irrespective of socio-economic and other demographic factors is given in Figure 7

Figure 7

Summary of the Findings of Influence of Preschool Type on Cognitive and Socio-Emotional Outcomes Irrespective of Socio-economic and Other Demographic Factors



Note: 1) Shaded cells indicate significant favourable influence on the dependent variable after one or more type of preschooling as indicated by the letter combined for the standard in total
 2) Shaded circles indicate favourable influence of the preschooling type indicated by the colour code in the Note 1, on the dependent variable, for the specific subsample based on the moderator variable

Discussion of Findings

The Objectives of Various types of pre-schools are similar in nature, but there exist wide disparities in practices

The findings of various aspects of Anganwadis, Kindergarten and Montessoripreschools show that the objectives of the three types of pre-schools are the development of physical, cognitive, social, emotional and creative aspects of the child. But there are wide differences in teaching-learning materials, teaching-learning practices, assessment, human and material resources of these preschools.

Anganwadis have a common structure and procedure for preschool education, but the practices are unsatisfactory.

Integrated Child Development Service provides a common preschool curriculum, syllabus, curricular objectives and time table to Anganwadis. Along with the activity based work book for children, a hand book with age specific guidelines and an assessment card also supplies. But very few Anganwadis conduct the activities for the development of cognitive, physical, social, emotional and creative aspects of the child satisfactorily, even though vivid activities mentioned in the thematic calendar along with the regular guidelines on themes. Anganwadis focus mainly on health and nutrition of the child. Though, ICDS is aiming all-round development of the child, it could not achieve it yet and failed to implement thematic calendar due to lack of facilities and adequate supply of materials.

Kindergarten follows neither a common curriculum nor a syllabus and continues without a common regulatory framework.

Kindergarten does not have a common curriculum. The syllabi and practices vary by management and agency. Though all-round development of the child is their curricular objective, their focus is on cognitive aspect only. It has some strengths in area of arts, sports, field trips and celebrations. But majority of the Kindergarten follow textbooks with plenty of contents, rigid timetable, rigorous practices in text book and note book, endless home works, frequent dictation and term-wise examination which make this preschool more laborious to children than the other two. A lot of transformation is needed in curriculum and practices of Kindergarten.

Montessori schools have developed own curriculum and syllabus, follow a unique practice

Montessori schools follow own curriculum and syllabus. It is unique especially in areas of learning, teaching-learning materials, teaching-learning practices, assessment, material and human resources and student diversity to some extent while comparing to other categories of preschools. Montessori preschools provide vivid experiences through activities using apparatuses in Montessori lab and outside. But it has some flaws such as text book and note book practice, examination system, lack of adequate number of lab with sufficient apparatuses and more working hours. Some Montessori preschools do not give equal importance to the development of different aspects of the child. Among three types of preschools, Montessori follows the curricular activities fairly.

The importance of play during the early years is not considered well

It has proved that play is an important tool not only for the development of physical aspect but also for the social, emotional and cognitive aspects. But majority of the preschools does not give importance to play in its depth and their concern is more on academic development of the child.

The quality of preschool education remains a key challenge to the Government

The study analysed three major categories of preschools in Kerala, though many international types of preschools are emerging. From the findings of the phase I it is clear that preschool education does not have a common structure and regulation in Kerala and it has incongruities in many aspects. Even though there are a lot of policies and recommendations for ECCE, still it remains unchanged. Hence the quality of preschools remains a key challenge to the Government.

The influence of preschool education on cognitive and socio-emotional outcomes among primary students is complex in multiple respects

As the study deals with three independent categorical variables: preschooling status, preschool duration and type of preschooling, and fourteen dependent variables- cognitive outcomes: and socio-emotional outcomes: among three levels of

primary students: Standard I, Standard III and Standard V, the findings are complex in multiple respects. Though some of the results are in linear way, some of them are deviating.

Preschooling type and duration, than whether preschooled or not, influences cognitive and socio-emotional outcomes in primary schools

In general, preschooling influences English outcomes of Standard V students and communication and leadership of Standard I students. Whereas preschool duration influences English outcomes of primary students, Mathematics outcomes of Standard III and V students and personal independence of Standard V students and preschooling type influences English and Mathematics outcomes of primary students, and controlling emotions of Standard III and V students. The findings are more favouring to preschooling in subgroups too. Duncan et al. (2007) found that a few hours per day of preschool at ages three and four with a curriculum that promotes social competency, planning, and organization can significantly and beneficially affect life outcomes .

The influence of preschool education is higher in cognitive outcomes than socio-emotional outcomes among primary students.

While analyzing the findings, it is obvious that the influence of preschooling status, preschool duration and type of preschooling are higher / more in cognitive outcomes than socio-emotional outcomes . While most of the cognitive outcomes influence all students in primary school, only some of the socio-emotional outcomes influence either first or later primary classes. It is in tune with the findings of Anderson (2003) that more than 70% of the effects reported were in the cognitive domain and of the meta-analysis of the various studies on early childhood, Camilli, Vargas, Ryan and Barnett (2010) were consistent that the largest effect sizes were observed for cognitive outcomes. Jamir (2015) states that positive gains in cognitive development inferred from the achievement levels in language skills, numerical skills and general knowledge. Duncan et al. (2007) emphasized the strongest predictors of later achievement are school-entry math, reading and attention skills. A meta-analysis of the results shows that early math skills have the greatest predictive power, followed by reading and then attention skills.

Preschooling also favours communication and leadership of Standard I students, preschool duration influences personal independence of Standard V students and preschooling type influences empathy of Standard V students and controlling emotions of Standard III and V students. This goes along with the observation that preschool education has positive effects on aspects of social behaviour, social competence and non-cognitive behavior of children (Goswamee, 1994; Anderson et al., 2017; Jamir, 2015; & Berlinski, 2006). Berlinski, Galiani and Gertler (2006) state that preschool education positively affects student's self-control in the third grade by measuring behaviors such as attention, effort, class participation, and discipline.

The study shows better outcomes among some specific groups of preschooled students

The preschooled students in higher grades having higher parental educational education shows better personal and academic independence. Work habit and interpersonal relationship is higher among preschooled later born child in Standard I. Jamir (2015) found that irrespective of gender of the children, an exposure to pre-school programmes positively contributed to both categories of children.

The study reiterates that generally, longer preschooling shows better results.

In cognitive outcomes, longer preschooling influences English and Mathematics outcomes in general and Malayalam comprehension of girls in Standard III, and Standard I students having higher educational qualification of mother, English outcomes of students having higher educational qualification of parents in Standard I and III, and students having high cognitive engagement in Standard I.

The results in socio-emotional outcomes shows that in general, students having more than 2 years preschooling shows better personal independence in Standard V. Moreover, longer preschooling positively influences the outcomes of specific groups such as cooperation of later born in Standard V, the students having low cognitive engagement in Standard III and the students having higher educational qualification of mother in Standard V, communication of English medium students in Standard I and leadership of English medium students in Standard I and V and controlling emotions of students having high cognitive engagement and the students having high educational qualification of father.

Though preschooling does not influence achievement in Mathematics and cooperation, there is difference in these outcomes of the students having longer preschooling, especially in the later stages. But there is no difference in empathy either by preschooling or by duration of preschooling. Berlinski, Galiani and Gertler (2006) pointed out that one year of preprimary school increases average third grade test scores.

Montessori preschooled students have better cognitive outcomes than other two preschools. Among them, Kindergarten being better than Anganwadi.

The students who preschooled in Montessori and Kindergarten shows better socio-emotional outcomes than Anganwadi. Montessori preschooling influences Malayalam vocabulary, English vocabulary and comprehension, Mathematics , controlling emotions in general. In subgroups Montessori preschooling influences, Malayalam comprehension of later born and single child and personal independence of later born in Standard V, interpersonal relationship of students having higher educational qualification of mother and expressing emotions of students having low cognitive engagement in Standard V.

Kindergarten influences English vocabulary, Mathematics and empathy in general but in subgroups, personal independence of students having low cognitive engagement in Standard I, interpersonal relationship of first child in Standard III and cooperation of the students having high cognitive engagement in Standard V. But Malayalam vocabulary in general and cooperation of students having low cognitive engagement in Standard I are higher among the students who preschooled in Anganwadi.

Some of the findings in various studies echo the previous findings. In a study Campell (2002) states that a high-quality childcare program has a lasting impact on the academic performance of children especially those from poverty backgrounds. Comparing the estimated long-term effects between model programs and large-scale programs, Barnett (1995) stressed that the model programs provided higher quality services than many of the large-scale public programs and pointed out that today's public programs will not produce the desired benefits because they are lower in

quality in many aspects such as larger classes, fewer staff members, less educated staff, poorer supervision than the model programs. The study also suggested that in cross-study and within-study comparisons, Head Start programmes have been less effective than better-funded public school programs.

Jamir (2015) stated that pre-school education, if planned well and executed effectively, may act as a leveler of differences existing prior to the school entry of children. Hence it can be concluded that effects depend on program quality, and cross-study comparisons indicate that effects are larger for well-designed, intensive ECCE interventions than for ordinary child care.

Preschool duration and preschooling type influences cognitive and socioemotional outcomes of primary students in all subgroups

Preschool duration and preschooling type influences cognitive and socioemotional outcomes of primary students by their subgroups such as gender, birth order medium of instruction, parental education and cognitive engagement. But preschooling influences cognitive and socioemotional outcomes of primary students by their all subgroups except medium of instruction. In preschool duration, students having more than 2 years preschooling favour more outcomes in all subgroups and among preschooling type, Montessori preschool favours cognitive and socioemotional outcomes of primary students in all subgroups.

The finding is in congruence with the observation of Barnett (1995) that states, ECCE programs can produce long-term cognitive and academic benefits for disadvantaged children and found larger effects on achievement test scores for low-income girls than boys. The study by Jamir (2015) also reported that the benefit is more for children from the middle and lower strata of society. Goodman and Sianesi (2005) found that there is an improvement in maths test scores at 16 for later borns attending pre-school, but not for first/only borns. Duncan and Magnuson (2013) said that many early childhood education programs appear to boost cognitive ability and early school achievement in the short run. Heckman et al. (2013) found that a few years after the program ended, the effect of treatment on IQ essentially disappeared for males but statistically significant small positive effect remained for females. Duncan

et al. (2007) revealed that patterns of association were similar for boys and girls and for children from high and low socioeconomic backgrounds.

Immediate and lasting effect vary in preschooling status, preschool duration and type of preschooling

The findings of the study disclose that influence of preschooling on cognitive outcomes is apparent during the later stage whereas socio-emotional outcomes have immediate and later effects. But in preschool duration and type of preschooling cognitive and socio-emotional outcomes are seen in immediate and later stages. Goodman and Sianesi (2005) found that pre-compulsory education yields large improvements in cognitive tests at age 7, driven in particular by a better performance in maths and reading, which though diminished in size, remained significant throughout the schooling years, up to age 16. Children from families with severe difficulties benefit significantly more in terms of maths and reading tests at age 7 than other children. The probability of obtaining qualifications and being employed at 33 is increased among the adults who attended pre-compulsory schooling. Investigators found evidence of a marginally significant 3-4% wage gain at 33 for preschool education.

Barnett highlighted Preschool programmes have lasting positive effects on young children's cognitive and socio-emotional development. Barnett and Stewen, pioneers in ECCE, affirm that Early childhood programs can produce large short-term benefits for children on intelligence quotient and sizable long-term effects on school achievement, grade retention and placement in special education. In another study, Shala (2013) shows that there is a greater association between social-emotional development and academic achievement in elementary school, especially during the first three years and it has clearly specified that there were no significant correlations between social-emotional development and academic success in the fourth grade. Duncan and Magnuson (2013) highlighted that cognitive impacts largely disappear within a few years and also asserted that short and longer-run impacts on "non-cognitive" outcomes are mixed and it is uncertain that what skills, behaviors, or developmental processes are particularly important in producing these longer-run impacts.

Some of the Findings are Inconsistent

Among the plethora of studies on preschool education, some studies highlight negative results too. Mohan (1990) says that there were no significant differences in development between children of daycare and those not attending daycare. Anderson (2003) reported a negative effect in academic achievement for students enrolled in early childhood development programs. Barnett (1995) also mentioned that the effects of preschooling declined over time and were negligible several years after. But he also pointed out that long-term effects may be smaller than initial effects, but they are not insubstantial. While analyzing the studies, Barnett (2011) mentioned that in some studies there is no positive effects found on any teacher-reported measure of socio-emotional development or behavior. At the same time, Barnett (2011) claimed that studies show earlier is better to start education.

This study also shows some inconsistent results. Malayalam vocabulary and comprehension are higher among non-preschooled boys and also control and expression of emotions are higher among non-preschooled single child. The study points out that some cognitive and socioemotional outcomes are higher among the students having up to 2 years preschooling than the students having more 2 years preschooling. Shorter preschooling influences/longer preschooling negatively influences work habit of first child, cooperation of Malayalam medium students, communication of the students having low cognitive engagement, academic independence of the students having secondary educational qualification of father and communication and leadership of Malayalam medium students especially in later stages.

The results in the second phase is the reflection of the some of the results in the first phase.

The cognitive outcomes are more pronounced than socio-emotional outcomes which reflects the curricular practices of preschools

In Phase II, the findings favouring to preschools are more in cognitive aspects than socioemotional aspects in all types of preschools. It shows the inadequacy of the focus of all preschools other than cognitive aspect. It also reaffirms the first findings of the Phase I that though the objectives of all preschools are same, the practices are different and not satisfactory.

Montessori preschools are better for cognitive outcomes which echoes the uniqueness in their practices. But there is no much difference in the socio-emotional outcomes as their curricular practices would otherwise suggest

Montessori preschools shows better outcomes in cognitive aspects such as English, Mathematic and Malayalam which echoes the uniqueness in their practices: activity based, individual attention, auto learning, etc. But there is no much difference in the socio-emotional outcomes as their curricular practices indicate. But Montessori preschools only shows better outcomes in controlling emotions in general and personal independence, interpersonal relationship and expressing emotions in subgroups, though they have much differences in curriculum and practice.

The students who preschooled in Anganwadi shows least cognitive and socio-emotional outcomes which point out the inadequacy of implementing the thematic calendar

One of the results in the phase II is that Montessori and Kindergarten have better outcomes in cognitive and socio-emotional aspect than Anganwadi. It points out the results in the phase I that a few Anganwadis follow thematic calendar strictly, though thematic calendar specifies the activities for the development of all aspects of child.

Montessori preschools shows immediate and later effects on cognitive and socio-emotional outcomes in tune with their curricular practices

The cognitive and socio-emotional outcomes of Montessori preschooled students lead our thoughts to the impact of their practice which is exceptional from other types of preschools in many respect. It shows the influence of activity based preschooling and its adequacy in the present scenario.

Longer preschooling produces better outcomes which leads the attention to the 3 years of preschooling of Anganwadi and Montessori

One of the significant outcomes of the study is longer preschooling produces better outcomes. It highlights the significance of duration of preschooling, especially in Anganwadi and Montessori.

Limitations Identified in Various Phases of This Study

Even though the study has found that preschooling influences cognitive and socio-emotional outcomes of primary standard students, it has some limitations also, which are given hereunder so as to make the interpretations and conclusions from here optimally.

- The sample in phase 2 ex-post facto was limited to the Kozhikode district only due to time and practical considerations.
- Due to Citizenship Amendment Act that was hotly discussed in media and the accompanying social reaction that prevailed during 2019, in the data collection phase of this study, a fraction of parents was not willing to reveal the personal data regarding their children, an essential part of the study, along with the scale on socio-emotional development of the child. Hence the analysis sample on socio-emotional development (271, 265 and 341 students in Standard I, III and V respectively) is a subset of that used on cognitive outcomes (347, 333 and 473 students in Standard I, III and V respectively). Data were collected using offline as well as online modes.
- Though the study is intended for primary standard students, the sample is confined to Standard I, III, and V and did not include Standard VII students due to practical difficulty.
- Since the number of Montessori students in Kozhikode district was less, even after sampling from the schools in the adjacent Malappuram district, the sample of the students who preschoolled in Montessori [N= 53 (Standard I), 60 (Standard III) & 48 (Standard V)] were comparatively less than those from Kindergarten [N= 134 (Standard I), 94 (Standard III) & 178 (Standard V)] and Anganwadi [N= 124 (Standard I), 128 (Standard III) & 203 (Standard V)]
- As the state of Kerala has high educational access, the share of non-preschooled primary students was much less (Standard I = 36, Standard III= 51 & Standard V= 44) than those who were preschoolled (Standard I = 311, Standard III= 282 & Standard V= 429).

- Split half Reliability index of a few sub measures for standard 1 students namely cooperation = 0.50, communication = 0.54 and work habits = 0.41 are relatively low though they manifest good indices of Cronbach alpha. Hence the result of these components can be interpreted with caution.
- The influence of preschool education on cognitive and socio-emotional outcomes of primary school students were studied well after 1, 3 or 5 years as the case may be after the preschooling. This might cause considerable interactions with many other relevant contextual factors that impact these outcomes. However, relevant factors namely, Gender, Birth Order, Medium of Instruction, Father's Educational Qualifications, Mother's Educational Qualifications and Cognitive Engagement which might influence these contextual factors were controlled by building them into the study design as moderator variables.

Conclusion

Though different types of preschools are emerging in India recently, especially so in Kerala, the major types of preschools are Anganwadi, Kindergarten and Montessori. It is found that each one is different in their approaches and methods and there is a wide gap between theory and practice of preschools despite the importance of ECCE being mentioned in plethora of policies and recommendations.

This study observed that Anganwadis could not implement the curriculum due to many reasons such as the lack of resources and facilities whereas Kindergarten does not have a common curriculum and a syllabus and continues without a common regulatory framework. Though Montessori preschools prepared own curriculum and follow activity oriented approach and experiential learning using didactic apparatuses, it has some drawbacks such as following terminal examinations, note book and text book practices, home works and lack of adequate number of lab with sufficient apparatuses. In the case of facilities and resources, most of the preschools particularly Anganwadis are inadequate and poor. Regarding the success of a programmes conducted, among 348 ECE centers, Kurian (2001) classified 79.02 percent as "poor"; 41.78 percent as "good"; and 9.20 percent were

classified as "excellent". There is no much change in this field after a couple of decades.

The influence of preschool education on cognitive and socio-emotional outcomes has established in this study even though the expected outcomes are very few in the latter. The aim of preschool education is all-round development of the child, but majority of the preschools focusing only on the cognitive development of the child. It is imperative to develop all other aspects too, predominantly social and emotional aspects because it is vital in one's life. Mondy et al. (2021) suggested that early childhood educators should place Social-Emotional Learning (SEL) skills along with literacy and numeracy skills as an important part of a balanced early childhood curriculum

The study also shows longer preschooling produces more outcomes than shorter preschooling and immediate and later effect of preschooling on some of the school outcomes. Among the three types of preschools, Montessori preschool students have better cognitive outcomes than other two preschools. Among them, Kindergarten shows better than Anganwadi. Montessori preschools are doing the curricular activities to a certain extent when compared to its counterparts, But it is not affordable even to middle-class parents. From the above points, it is clear that we cannot rely on any one of the preschools completely on accomplishing their curricular objectives. Bakken et al. (2017) reiterated that quality preschool children show higher academic performance, more appropriate behaviors, better social interactions and emotional maturity from 1st through the 4th grades than their peers and concluded that, at least for five years, there is considerable evidence that a high-quality preschool education creates improved life outcomes.

NEP (2016) has pointed out that significant proportion of children who complete pre-schooling lack school readiness competencies in cognitive and language domains, the majority of pre-school educators are inadequately trained and the curricula for pre-school education in many cases continue to be a downward extension of the primary curriculum. Poor quality of education resulting in unsatisfactory learning outcomes is a matter of great concern. Ensuring a quality

education for all is the prime concern of policymakers throughout the world. It has been reaffirmed in many studies that investing in universal pre-primary education could be an important part to attain this goal (Berlinski et al., 2006).

All these lead our attention to the quality of preschools remains a key challenge to the Government, especially in the absence of a strong institutional mechanism and a regulatory framework across sectors. Hence it is imperative that all the aspects of curriculum and pedagogy of preschool education should be reoriented and revamped based on innovative researches to attain the aim of National Education Policy (2020) which states that every child in the age range of 3-6 years has access to free, safe, high quality, developmentally appropriate care and education by 2025.

REFERENCES

- Aboud, F.E., & Hossain, K. (2011). The impact of preprimary school on primary school achievement in Bangladesh. *Early Childhood Research Quarterly*, 26 (2011), 237–246. <https://doi.org/10.1016/j.ecresq.2010.07.001>.
- Adela, M., Mihaelab, S., Elena-Adrianac, T., & Monica, E. (2011). Evaluation of a program for developing socio-emotional competencies in preschool children. *Procedia - Social and Behavioral Sciences*, 30(2011), 2161 – 2164. <https://doi.org/10.1016/j.sbspro.2011.10.419>.
- Almazeedi, H.A. (2019). The impact of kindergarten on children's socio-emotional development. *International Journal of Education, Learning and Development*, 7(5), 59-70.
- Anderson, L.M., Shinn, C., Fullilove, M.T., Scrimshaw, S.C., Fielding, J.E., Normand, J., Carandekulis, V.G., & The Task Force on Community Preventive Services. (2003). The effectiveness of early childhood development programs: A systematic review. *American Journal of Preventive Medicine, Elsevier*, 24 (3), 32- 46. [https://doi.org/10.1016/S0749-3797\(02\)00655-4](https://doi.org/10.1016/S0749-3797(02)00655-4).
- Ashiabi, G.S. (2000). Promoting the emotional development of preschoolers. *Early Childhood Education Journal*, 28 (2), 79-84. <https://doi.org/10.1023/A:1009543203089>.
- Baji, M.I. (2021). Opinions of school personnel on the influence of early childhood education on the development of primary pupils in Paikoro local government area of Niger State, Nigeria. *Al-Hikmah Journal of Arts & Social Sciences Education*, 3(1), 230-236.
- Baker, M. J., Gruber, K., & Milligan. (2005). Universal childcare, maternal labor supply and family well-being. *NBER Working Paper # 11832*, Cambridge MA.
- Bakken, L., Brown, N., & Downing, B. (2017). Early childhood education: The long-term benefits. *Journal of Research in Childhood Education*, 31(2), 255-269. <https://doi.org/10.1080/02568543.2016.1273285>.
- Balabantaray, A. (2002). *Effect of integrated child development services programme on the development of rural pre-school children* [Doctoral dissertation, Department of Psychology, Utkal University].
- Balleyguier, G., & Melhuish, E.C. (1996). The relationship between infant daycare and socio-emotional development with French children aged 3-4 years. *European Journal of Psychology of Education*, 11(2), 193-199.
- Barnett, W. S. (2008). *Preschool education and its lasting effects: Research and policy implications*. Boulder and Tempe: Education and the Public Interest Center & Education Policy Research Unit. http://epicpolicy.org/publication/preschool_education.
- Barnett, W.S. (1995). Long-term effects of early childhood programs on cognitive and school outcomes. *The Future of Children*, 5(3), 25-50.
- Barnett, W.S. (2011). Effectiveness of early educational intervention. *Science*, 333, 975- 978. <https://doi.org/10.1126/science.1204534>.
- Berlinski, S., Galiani, S., & Gertler, P. (2006). *The effect of pre-primary education on primary school performance*. William Davidson Institute Working Paper Number 838.
- Bettelheim, R., & Takanishi, R. (1976). *Early schooling in Asia*. MC Graw Hill Book Company.
- Bevli, U.K. (1974). *Language development of Indian children: Developmental norms of Indian Children age 2 ½ to 5 years: A cross-sectional study*. National Council of Educational Research and Training.
- Biedinger, N. (2010). The influence of education and home environment on the cognitive outcomes of preschool children in Germany. *Child Development Research*, 2011, 1-10. <https://doi.org/10.1155/2011/916303>.

- Binet, A., & Simon, T. (1916). *The development of intelligence in children* (E.S. Kit, Trans.). Williams and Wilkins.
- Bloom, B.S. (1964). *Stability and change in human characteristics*. John Wiley and Sons, Inc.
- Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory*. Routledge.
- Bozgun, K., & Akın-Kösterelioglu, M. (2020). Variables affecting social-emotional development, academic grit and subjective well-being of fourth-grade primary school students. *Educational Research and Reviews*, 15(7), 417-425. <https://doi.org/10.5897/ERR2020.4025>.
- Bronfenbrenner, U. (1974). *Is early intervention effective?* Department of Health, Education and Welfare.
- Bronfenbrenner, U. (1979). *Ecology of human development: Experiments by nature and design*. Harvard University Press.
- Bruner, J. S. (1971). The cognitive consequences of early sensory deprivation. In Solomen, P. et al., (Eds.), *Sensory deprivation*. Harvard University Press, Cambridge, pp. 195-207.
- Camilli, G., Vargas, V., Ryan, S., & Barnett, W.S. (2010). Meta-analysis of the effects of early education interventions on cognitive and social development. *Teachers College Record*, 112(3), 579–620. <https://doi.org/10.1177/016146811011200303>.
- Campbell, F.A., Ramey, C.T., Pungello, E., Sparling, J., & Johnson, M.S. (2002). Early childhood education: Young adult outcomes from the abecedarian project. *Applied Developmental Science*, 6(1), 42-57.
- Cohen, L.E. & Waite-Stupiansky, S. (2017). *Theories of early childhood education: Developmental, behaviourist and critical*. Routledge, Taylor & Francis Group.
- Craig, G. J. (1979). *Child development*. Prentice Hall Inc, pp. 68, 87.
- Cueto, S., Leon, J., Miranda, A., Crookston, B.T., & Behrman, J.R. (2016). Does pre-school improve cognitive abilities among children with early-life stunting? A longitudinal study for Peru. *International Journal of Educational Research*, 11(4), 102-114. <https://doi.org/10.1016/J.Ijer.2015.09.011>.
- Das, N.S. (1995). *Role of home environmental variables in cognitive competence of urban, slum, and tribal preschool children* [Doctoral dissertation, Centre of Advanced Study in Psychology, Utkal University, Bhubaneswar].
- Das, S. (2018). *Impact of ICDS scheme on the cognitive development of preschool children* [Doctoral dissertation, Department of Education, Ashutosh Mukhopadhyay School of Educational Sciences, Assam University, Assam].
- D'cruz, A.A. (2012). *Cultural influences in sociodramatic play themes of preschool children in relation to gender, intelligence and language development* [Doctoral dissertation, School of Pedagogical Sciences, Kannur University].
- Dickinson, D.K., & McCabe, A. (2001). Bringing it all together: Multiple origin, skills, and environmental supports of early literacy. *Learning Disabilities Research & Practice*, 16(4), 186-202.
- Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters: Assessing personal qualities other than cognitive ability for educational purposes. *Educational Researcher*, 44(4), 237–251. <https://doi.org/10.3102/0013189X15584327>
- Duncan, G.J., Dowsett, C.J., Claessens, A., Magnuson K., Hustonb, A.C., Klebanov, P., Paganie, L., Feinstein, L., Engela, M., Gunng, J.B., Sexton, H., Duckworth, K., & Japel, C. (2007). School readiness and later achievement. *Developmental Psychology*, 43(6), 1428 –1446. <https://doi.org/10.1037/0012-1649.43.6.1428>.

- Duncan., & Magnuson. (2013). Investing in preschool programs. *Journal of Economic Perspectives*, 27(2), 109–132. <http://dx.doi.org/10.1257/jep.27.2.109>.
- Durlak, Joseph A., Roger, W., Allison, D., Rebecca, T., & Kriston Schellinger(2011). The impact of enhancing students’ social and emotional learning: A meta-analysis of school-based universal programs. *Child Development*, 82(1), 405–32.
- Early, D.M., Maxwell, K.L., & Burchinal, M. (2007). Teachers’ education, classroom quality, and young children’s academic skills: Results from seven studies of preschool programs. *Child Development*, 78(2), 558 – 580.
- Entwisle, D.R. (1995). The role of schools in sustaining early childhood program benefits. *The Future of Children: Long-Term Outcomes of Early Childhood Programs*, 5(3), 133-144.
- Eson, M. E. (1972). *Psychological foundation of education*. Holt Rinehart and Winston, Inc.
- Essa, E.L. (2011). *Introduction to early childhood education* (6th ed.), Annotated Student’s Edition. US: Wadsworth Cengage Learning.
- Gafoor K.A., & Sanam, K. (2020). The current practices of Al-Fitrah Islamic preschools in Kerala: An analysis. *Research and Reflections on Education*, 18 (03A).
- Gagne, C., Harvey, B., & Serbin, L.A. (2015). Contextual specificity in the relationship between maternal autonomy support and children’s socio-emotional development: A longitudinal study from preschool to preadolescence. *Journal Youth Adolescence*, 44, 1528–1541. <https://doi.org/10.1007/s10964-014-0247-z>.
- Gandotra, A., Kotyuk, E., Bizonic, R., Khan, I., Petánszki, M., Cserjesi, R., Kiss, L., & Paulina, L. (2022). An exploratory study of the relationship between motor skills and indicators of cognitive and socio-emotional development in preschoolers. *European Journal of Developmental Psychology*, 1-18. <https://doi.org/10.1080/17405629.2022.2028617>.
- Gessel, A. (1971). *The first five years of life: A guide to the study of pre-school child*. Bristol: Methuen & Co. Ltd.
- Gomerly, W.T., Newmark, K., Welti, K., & Adelstein, S. (2011). Social-emotional effects of early childhood education programs in Tulsa. *Child Development*, 82(6), 2095-2109.
- Goodman, A., & Sianesi, B. (2005). Early education and children’s outcomes: How long do the impacts last? *Institute for Fiscal Studies*. 1-25. <https://doi.org/10.1111/j.1475-5890.2005.00022>
- Goswamee, G. (1994). *The impact of preschool education on the social development of children between the age group of three and six years* [Doctoral Dissertation, Department of Education, Gauhati University].
- Government of Kerala. (2014-15). *Anganapoomazha*. Social Justice Department.
- Government of Kerala. (2014-15). *Thematic Calendar*. Integrated Child Development Services.
- Guilford, J.P. (1973). *Fundamental statistics in psychology and education*. McGrawHill Kogakusha Ltd., 396-397.
- Gupta, M.S. (2009). *Early childhood care and education*. PHI Learning Private Limited.
- Gutman, L.S., & Samerof, A.J. (2003). Academic growth curve trajectories from 1st grade to 12th grade: Effects of multiple social risk factors and preschool child factors. *Developmental Psychology*, 39(4), 777–790. <https://doi.org/10.1037/0012-1649.39.4.777>.
- Heckman, J., Pinto, R., & Savelyev, P. (2013). Understanding the mechanisms through which an influential early childhood program boosted adult outcomes. *American Economic Review*, 103(6), 2052-2086.

- Hilgard, E. R. (1975). *Introduction to psychology*. Oxford and IBH Publishing Co. 601.
- Hong, S.B., Shaffer, L., & Han, J. (2017). Reggio emilia inspired learning groups: Relationships, communication, cognition and play. *Early Childhood Education Journal*, 45, 629–639. <https://doi.org/10.1007/s10643-016-0811-0>.
- Hurlock, E.B. (1978). *Child development* (6th ed.). McGraw-Hill Series in Psychology, Tokyo.
- Ibarraran, P., Ripani L., Taboada B., Villa, J., & García, B. (2012). *Life Skills, employability and training for disadvantaged youth: Evidence from a randomized evaluation design*. IZA Discussion Papers from Institute of Labor Economics (IZA).
- Idris, H. (2022). The effectiveness of learning patterns in preschool using augmented reality applications. *International Journal of Science and Research (IJSR)*, 11(4), 1160 – 1162. https://www.ijsr.net/get_abstract.php?paper_id=sr 22419210121.
- Jamir, T. (1999). *A study of the educational programmes at the pre-primary stage and their influence on cognitive, social and emotional developments of children in Dimapur, Nagaland*. [Doctoral dissertation, North Eastern Hill University Umshing, Mawkynroh, Shillong].
- Joseph, J.E. (2015). *A critical study on the efficacy of integrated child development service scheme with concern to growth progressions in early childhood* [Doctoral dissertation, Department of Allied Sciences, Shri Jagdishprasad Jhabarmal Tibrewala University, Vidyanagari, Jhunjunu, Rajasthan].
- Kalakoti, S.R. (2022). Importance of childhood education in India problems and prospects. *International Journal of Multidisciplinary Educational Research*, 11,1(5), 102-106.
- Kaul, S. (1991). *Assessment of impact of nonformal preschool education of integrated child development services on children's specific abilities* [Doctoral dissertation, Department of Human Development and Family Studies Faculty of Home Science, M. S. University of Baroda, Baroda].
- Kautz, T., Heckman, J.J., Ron, D., Baster, W., & Borghans, L. (2014). *Fostering and measuring skills: Improving cognitive and non-cognitive skills to promote lifetime success*. NBER Working Paper 20749, National Bureau of Economic Research, Cambridge, MA.
- Kellaghan, T., & Greaney, B.J. (1973). A factorial study of the characteristics of preschool disadvantaged children. *The Irish Journal of Education*, 7(2), 53-65.
- Konantambigi, R.M. (1990). *Cognitive and social development of preschool children in home and daycare environments* [Doctoral dissertation, Tata Institute of Social Sciences, Bombay].
- Krishnamurthy, N., & Venugopal, K. (2018). Nurturing thinking routines Anganwadi children: Perspectives of 21st century. *International Educational Scientific Research Journal*, 4(6), 19-23.
- Lalhlimpuii. (2017). *Development of interventional packages for fostering cognitive development of preschool children* [Doctoral dissertation, Department of Education, School of Education and Humanities, Mizoram University, Aizawl].
- Laura, M., & Puerta, S. (2016). *Taking stock of programs to develop socioemotional skills: A systematic review of program evidence*. World Bank Publications. <https://doi.org/10.1596/978-1-4648-0872-2>.
- Lee, V.E., Gunn, J.B., Schnur, E., & Liaw, F.R. (1989). Are head start effects sustained? A longitudinal follow up comparison of disadvantaged children attending head start, no preschool, and other preschool programs. *Eric*, 1-27.
- Li-Grining, C.P., & Radulescu, M. (2022). Self-regulation and academic achievement from early to middle childhood among children in low income neighborhoods. *Early Education and Development*, 1(16). <https://doi.org/10.1080/104092 89.2022.2106768>.

- Lodh, R. (1999). *Language content and form of the preschool children in a pictorially stimulated condition* [Doctoral dissertation, University of Calcutta].
- Loeb, S., Bridges, M., Bassok, D., Fuller, B., & Rumberger, R. (2005). How much is too much? The influence of preschool centers on children's social and cognitive development. *NBER Working Paper* (No. 11812, JEL No. I2, I3).
- Losel, F., & Beelmann, A. (2003). Effects of child skills training in preventing antisocial behavior: A systematic review of randomized evaluations. *Annals of the American Academy of Political and Social Science*, 587 (1), 84–109.
- Macours, K., Schady, N., & Vakis, R. (2012). Cash transfers, behavioral changes, and cognitive development in early childhood: Evidence from a randomized experiment. *American Economic Journal: Applied Economics*, 4, 247-273. <http://dx.doi.org/10.1257/app.4.2.247>.
- Maiseh, H. (1972). *Encyclopedia of psychology*. Hender and Hender.
- Mangal, S.K., & Mangal, S. (2019). *Childhood and growing*. PHI Learning Private Limited.
- Mani, M. (2002). *The impact of ICDS with regard to the intellectual, social and physical development of pre-schoolers* [Doctoral dissertation, Department of Home Science, Mahatma Gandhi University].
- Mbugua, T., & Barbara, M. (2018). Early childhood education, care, and development: Perspectives from around the globe. *Global Education Review*, 5(2), 1-7.
- Mccabe, P.C., & Altamura, M. (2011). Empirically valid strategies to improve social and emotional competence of preschool children. *Psychology in the Schools*, 48(5), Wiley Periodicals, Inc. <https://doi.org/10.1002/pits.20570>.
- McConnell, R. E. (1977). The origin of mental tests. *Education*, 50, 464.
- Melhuish, E., Barnes, J., Gardiner, J., Siraj, I., Sammons, P., Sylva, K., & Taggart, B. (2019). A study of the long-term influence of early childhood education and care (ECEC) on the risk for developing special educational needs (SEN). *Exceptionality Education International*, 29(3). <https://doi.org/10.5206/ei.v29i3.9385>.
- Melhuish, E.C., & Phan, M.B. (2008). Effects of the home learning environment and preschool center experience upon literacy and numeracy development in early primary school. *Journal of Social Issues*, 64(1), 95-114.
- Meyers, M.K., Rosenbaum, D., Ruhm, C., & Waldfogel, J. (2004). Inequality in early childhood education and care: What do we know? In M.K. Neckerman (Ed.), (2004). *Social Inequality*, 223-270.
- MHRD. (2016). *National Education Policy-2016*, Government of India.
- MHRD. (2020). *National Education Policy-2020*, Government of India.
- Mohanty, A.K., & Mohanty, M. (1985). Intellectual and linguistic abilities of children in an early education programme. *Psychological Studies*, 30 (2), 92-96.
- Munsiger, H. (1971). *Fundamentals of Child Development*. Holt, Rinehart and Winston, Inc.
- Muralidharan, R. (1970). *Developmental norms of Indian children 2 to 5 years*. NCERT.
- Muralidharan, R., & Banerji, U. (1974). Effect of preschool education on the language and intellectual development of underprivileged children. *Journal of Education and Psychology*, 32 (1), 10-15.
- Muralidharan, R., & Banerji, U. (1975). Effect of pre-school education on the school readiness of underprivileged children. *International Journal of Early Childhood*, 7 (2), 188 - 191.

- Musthafa, M.N. (2007). *A critical study of pre-primary teacher education in Kerala* [Doctoral dissertation, Department of Education University of Calicut].
- Narula, P.K. (1982). *Play preference of nursery school boys and girls as related to their cognitive development, socio economic status, reactions to frustration and patterns of social behaviour* [Unpublished doctoral thesis]. Rajasthan University.
- National Institute of Public Co-operation and Child Development. (1978). *Working mother and early childhood education*. MWCD, Government of India.
- National Institute of Public Co-operation and Child Development. (1980). *Pre-school education in the ICDS: An impact study*. MWCD, Government of India.
- National Institute of Public Co-operation and Child Development. (1986). *Indpeth study on community participation in Kanjhawala ICDS Block: A report*. MWCD, Government of India.
- Pandey, H. (1988). *Impact of the preschool education component in integrated child development services programme on the cognitive development of children* [Doctoral dissertation, Bharathiar University, Coimbatore].
- Pankajam, G. (1994). *Pre-school education - philosophy and practice*. Ambala: The Indian Publications.
- Partani, S. (2011). *Developing multiple intelligences training module for preschool teachers and its effect on multiple intelligences of preschool children (3-4 years)* [Doctoral dissertation, Department of Human Development Department of Post Graduate Studies and Research in Home Science, S.N.D.T Women's University, Juhu, Mumbai].
- Patel, S.S. (1982). *An investigation into the role of general ability of pre-primary school children in relation to reading readiness* [Doctoral dissertation, Sardar Patel University, Vallabh Vidyanaga].
- Paul, R., & Singh, A. (2020). Does early childhood adversities affect physical, cognitive and language development in Indian children? Evidence from a panel study. *SSM Population Health*, 12(2020), 1-10. <https://doi.org/10.1016/j.ssmph.2020.10069>.
- Payton, J., Weissberg, R.P., Durlak, J.A., Dymnicki, A.B., Taylor, R.D., Schellinger, K.B., & Pachan, M. (2008). *The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews- Technical report*. Collaborative for Academic, Social, and Emotional Learning, Chicago.
- Peck, L.R., & Bell, S.H. (2014). *The role of program quality in determining head start's impact on child development: OPRE Report* (No. #2014-10). Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.
- Pianta, R. C., & Harbers, K. L. (1996). Observing mother and child behavior in a problem solving situation at school entry: Relations with academic achievement. *Journal of School Psychology*, 34, 307-322. [http://dx.doi.org/10.1016/0022-4405\(96\)00017-9](http://dx.doi.org/10.1016/0022-4405(96)00017-9)
- Prince, D.L. (2001). Longitudinal effects of kindergarten. *Journal of Research in Childhood Education*, 16(6), 12-18.
- Rao. S.R. (1980). *A study of the effects of preschool education on primary and secondary education* [Doctoral dissertation, Department of Education, Sri. Venkateswara University].
- Raver, C.C. (2002). Emotions matter: Making the case for the role of young children's emotional development for early school readiness. *Social Policy Report- Giving Child and Youth Development Knowledge Away*, 16 (3).
- Reynold, A.J., Temple, J.A., Robertson, D.L., & Mann E.A. (2001). Long term effects of an early childhood intervention on educational achievement and juvenile arrest- A 15 year follow-up of low-income children in public schools. *JAMA*, 285(18), 2339-2346.

- Ruhm, C. (2004). Parental employment and child cognitive development. *Journal of Human Resources*, 39, 155-192.
- Rutter, M. (1995). Clinical implications of attachment concepts: Retrospect and prospect, *Journal of Child Psychology & Psychiatry*, 36,549-71.
- Santrock, J. W. (1984). *Life-span development*. Wm. C. Brown Company Publishers, IOWA, p. 20.
- SCERT. (2014). *A Common Programme of Activities for all Pre-Primary schools in Kerala*. SCERT,Government of Kerala.
- SCERT. (2014). *Kerala Preschool Curriculum*.SCERT,Government of Kerala.
- SCERT. (2017). *Kalippaattam Preschool Activity Book – Teacher’s handbook*. SCERT,Government of Kerala.
- SCERT.(2002). *Kerala Preschool Curriculum*. SCERT,Government of Kerala.
- Schaimberg, L.M., & Smith, K.U. (1981). *Human development*. McMillan Publishing Co., Inc..
- See, S. G., Monfardini, C., & Del-Boca, D. (2022). *Early childcare duration and students' later outcomes in Europe*. *Cesifo*. https://www.cesifo.org/docdl/cesifo1_wp9866.
- Seema, T.N. (2001). *Performance of anganwadi centers in Kerala: An evaluation experiment to develop a model centre with community participation* (Discussion Paper No. 28). Kerala research programme on local level development studies, Tiruvananthapuram.
- Sehgal, S. P. (1972). *Preschool teacher education: A creative approach*. IAPE
- Shabnam, N. (2001). *A comparative study of the impact of pre-school education on motor, cognitive, language and socio-emotional development of underprivileged children enrolled in CASP-PLAN and ICDS pre-schools of Delhi* [Doctoral Thesis] Department of Adult and Continuing Education and Extension. <http://hdl.handle.net/10603/170036>.
- Shala, M. (2013). The impact of preschool social-emotional development on academic success of elementary school students. *Psychology*, 4(11), 787-791. <http://dx.doi.org/10.4236/psych.2013.411112>.
- Sharma, A. (2020). *A study of factors conducive to the development of children studying in preprimary schools* [Doctoral dissertation, University of Kota].
- Sheppard, C., & Willoughby, R.H. (1975). *Child behaviour-learning and development*. Rand McNally Publishing Company.
- Singh, G. (1997). *Long term effects of ICDS programme on Indian children*. MLN Medical College, Department of Preventive and Social Medicine.
- Singh, K.K., Gopal, A.K., & Murthy, N.R. (1978). *Balawadis in India - An evaluative study*. NIPCCD.
- Singh, R., & Mukherjee, P. (2019). Effect of preschool education on cognitive achievement and subjective wellbeing at age 12: Evidence from India. *Compare: A Journal of Comparative and International Education*, 49(5), 723-741. <https://doi.org/10.1080/03057925.2018.1453349>.
- Sriprakash, A., Maithreyi, R., Kumar,A., Sinha, P., & Prabha, K. (2020). Normative development in rural India: ‘school readiness’ and early childhood care and education. *Comparative Education*, 56(3), 331-348, <https://doi.org/10.1080/03050068.2020.1725350>.
- The Concise Oxford Dictionary*. (1985). Oxford University Press, Delhi, p. 181.
- Thurstone, L. M. (1946). Theories of intelligence. *Psychological Manual*, 62, 101-102.
- UN. (2015). *The Millennium Development Goals Report 2015*. United Nations.

- UNESCO. (2022). *UNESCO's world conference on early childhood care and education taking place in Tashkent, Uzbekistan on 14-16 November 2022*. <https://www.unesco.org/en/education/early-childhood#:~:text=The%20period%20from%20birth%20to,just%20preparation%20for%20primary%20school>.
- Vernon, P. E. (1969). Environmental handicaps and intellectual development. *British Journal of Educational Psychology*, 35, 1-22.
- Vikram, K., & Chindarkar, N. (2020). Bridging the gaps in cognitive achievement in India: The crucial role of the integrated child development services in early childhood. *World Development*, 127, 1-15. <https://doi.org/10.1016/j.world dev.2019.104697>.
- Wechsler, D. (1975). Intelligence defined and undefined. *American Psychologist*, 30, 135 - 139.
- Wong, V. C., Cook, T. D., Barnett, W. S., & Jung, K. (2008). An effectiveness-based evaluation of five state pre-kindergarten programs. *Journal of Policy Analysis and Management*, 27, 122–154. <https://doi.org/10.1002/pam.2031>
- Zaveri, S.D. (2002). *To study the long term educational and behavioural effects of early childhood education in children from low income groups* [Doctoral dissertation, Department of Social Work Faculty of Mental, Moral and Social Science University of Pune].
- Zheng, C., Yu, Y., Hou, H., & Juncen, Lu. (2022). Teachers' perceived impact of COVID-19 on early child development in urban China: Evidence from a national survey study. *Early Child Development and Care*, 1(16). <https://doi.org/10.1080/03004430.2022.2110087>.

APPENDICES

Appendix A1

UNIVERSITY OF CALICUT DEPARTMENT OF EDUCATION

Interview Schedule for Preschool Teachers

Dr. K. Abdul Gafoor
Professor

Kadeeja Sanam K.P.
Research Scholar

Section - A

1. Personal Data

- a) Name(optional):
b) Gender:
c) Qualification:

SSLC	Pre.Degree/ plus two	Degree	P.G	B.Ed.	PPTTC	Others

- d) Name the teacher training institution you studied : -----
e) Type of institution: **Govt./ Aided/ Unaided**
f) Experience in preschool(years): -----

2. Institutional Data

- a) Name (optional):
b) District : -----
c) Type of Institution: **Govt / Aided / Unaided**
d) Locality : **Rural /Urban**
e) Building : **Own/Rented**
f) Category : **Anganwadi / Kindergarten / Montessori / Others.....**
g) Number of students (write in the column):

Anganwadi	Kindergarten		Montessori	Any other
	LKG	UKG		

- h) Number of classrooms :-----
i) Number of teachers :-----
j) Qualification of teachers :

No	SSLC	Pre-degree/ plus two	Degree	P.G	B.Ed.	PPTTC	Others
1							
2							
3							
4							
5							

k) Number of helping teachers :-----

l) Qualification of helping teachers:

- 1.
- 2.
- 3.
- 4.

m) Working days :-----

n) Working hours:-----

SECTION - B

3. Do you have a curriculum for preschool?**Yes / No**

a) Is it **own/ adopted / adapted?**

b) What are the curricular objectives of your preschool?

4. Do you consider various developmental aspects of the child equally?**Yes/ No**

a) If not, please mention the aspects which you give priority?

5. Do you follow a specific syllabus for preschool?**Yes / No**

a) Is it **own/ adopted / adapted?**

b) Major activities for the following areas / subjects

Subjects/ Areas	Activities
Malayalam	
English	
Mathematics	
Environmental studies	
General Awareness	
Others	

6. Do you have specific textbooks in preschool?**Yes / No**

a) If yes, mention the source/publication.-----

7. Do you have teacher's hand book?**Yes / No**

a) Name & publisher of the handbook:-----

8. Do you provide activity books to teach different areas/ subjects?**Yes / No**

a) Mention the activity books in the following areas/ subjects

Subjects / Areas	Activity Books
Malayalam	
English	
Mathematics	
Environmental studies	
General Awareness	
Art and craft	
Others	

9. Do you give notebook practice? **Yes / No**

a) If yes, specify the frequency

Subjects	Frequency			
	Daily	Alternate days	weekly	Others
Malayalam				
English				
Mathematics				
Environmental studies				
General Awareness				
Others				

10. Have you prepared a timetable for your preschool? **Yes / No**

a) Number of periods against the subjects each day

Subjects	Days					
	Mon	Tue	Wed	Thurs	Fri	Sat
Malayalam						
English						
Mathematics						
Environmental studies						
General Awareness						
Art and craft						
PT						
Others.....						

11. What are the teaching aids using to teach different subjects in your preschool?

Subjects	Teaching / Learning aids
Malayalam	
English	
Mathematics	
Environmental studies	
General Awareness	
Others	

12. Do you use technology to teach different subjects? **Yes / No**

a) If yes, Name the technological devices.

- 1.
- 2.
- 3.
- 4.
- 5.

13. Indoor and outdoor activities providing in your preschool?

a) Indoor activities

b) Outdoor activities

c) Frequency of indoor and outdoor activities

Frequency	Indoor activities	Outdoor activities
Daily		
Alternate days		
Weekly		
Others		

14. The activities that you provide for the following.

a) Language development

b) Physical development

c) Social development

d) Emotional development

e) Good habits and manners

f) Health and hygiene

15. Do you give home works to children? **Yes / No**

a) If yes, how often? **Daily/alternate days/weekly/others** (.....)

b) Type of home works given.

16. Do you provide activities for students to develop their creativity? **Yes / No**

Mention the activities

17. The items you included in the arts and sports festivals?

a) Arts festival

b) Sports festival

c) How many items a student can participate? -----

d) What are the criteria for the selection of students for arts and sports festivals?

18. Which are the special days you celebrate in your school?

19. How do you identify the students who lag in their studies?

a) Do you give any additional activities to children who lag in their studies? **Yes / No**
If yes, mention the activities and frequency

20. How many differently abled children are there in your school? -----

a. Mention the type of disability(specify number)

b. What are the facilities you provided for differently abled children?

c. Did you get any training to deal with differently abled children?**Yes / No**

d. Do you implement special learning activities for differently abled children?**Yes/No**

If yes, please mention it.

e. Do you have special educators in your institution?**Yes / No**

f. Number of special educator: -----

g. Have you felt the necessity of a special educator in your institution?**Yes/No**

21. Do you have migrant children in your preschool? **Yes / No**
- a) If yes, how many children are there? -----
- b) Specify the state.-----
- c) Do you feel any difficulty in teaching them? **Yes / No**
 If 'Yes', specify

22. How often you assess the progress of children? Daily/Weekly/Monthly/yearly
- a) Do you assess all the developmental aspects of the child? **Yes / No**
- b) How do you assess the following aspects? (Methods, Techniques and Tools)

Cognitive	
Social	
Emotional	
Physical	
Others	

23. Do you get in-service training? **Yes / No**
- a) Is the programme beneficial for you? **Yes / No**
- b) What is the frequency of in-service training?
Monthly/ quarterly / half yearly / yearly / others specify
- c) What skills and techniques you learned in in-service programme?

- d) What are the additional in-service programme you needed to enhance the quality of your teaching?

24. The strengths and weaknesses of your preschool in the following areas.

Areas	Strengths	Weaknesses
Curriculum		
Syllabus		
Textbook		
Teaching-learning material		
Method of teaching and activities		
Extra-curricular activities		
Assessment		
In-service training		
Infrastructure		
Others		

Appendix B1

UNIVERSITY OF CALICUT DEPARTMENT OF EDUCATION

Blueprint of Test of Achievement in Malayalam for Standard I

Draft

Objectives Content	Objectives						Total number of items
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	
Vocabulary							
Letters		1, 2, 3, 4	5, 6, 7, 8			9, 10, 11	11
Words	17, 18	14, 15, 16	22, 23, 24, 25, 26, 29, 30, 31, 32			12, 13	16
Comprehension							
Sentences				27, 28, 19, 20, 21	40		6
Picture		36, 37			38, 39		4
Riddles				33, 34, 35			3
Poems/ Passages		41, 42, 43, 44, 45, 46, 47, 48			49		9
Total	2	17	13	8	4	5	49

Note: Numbers in italics denotes item numbers in the draft test.

Final

Objectives Sub test/ Content	Objectives						Total number of items
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	
Vocabulary							
Letters		1,2,3,4	5, 6, 8			9, 10, 11	10
Words	17, 18	14,15,16	23,24, 25,26, 29,30			12,13	13
Comprehension							
Sentences				27,28, 19,20,21	40		6
Picture		36,37			38, 39		4
Riddles				33, 34			2
Poems/ Passages		41, 42, 43, 44, 45, 46			49		7
Total	2	15	9	7	4	5	42



a) ദാഹം

b) ദയ

c) ദീപം



a) ഋഷി

b) ഋഷഭം

c) ഋണം

VI. ശരിയായ പദത്തിന് വട്ടം വരയ്ക്കുക

17. a) ധനം b) ദനം

18. a) ഭരണി b) ബരണി

VII. ഉചിതമായ വാക്കുകൾ തമ്മിൽ വരച്ച് യോജിപ്പിക്കുക.

19. പാഠം a) കൊളുത്തി

20. പട്ടം b) വായിച്ചു

21. വിളക്ക് c) പറത്തി

VIII. ചിത്രത്തിനു പകരം പദം എഴുതുക

22.  _____

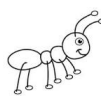
23.  _____

24.  _____

25.  _____

26.  _____

IX. ഉചിതമായ വാക്കുകൾ തിരഞ്ഞെടുത്ത് എഴുതുക

27. വലിയ ആന , _____ ഉറുമ്പ് 

a) നീളമുള്ള

b) തടിച്ച

c) ചെറിയ

28. ചൂടുള്ള ചായ , _____ ഐസ്ക്രീം. 

a) കയ്പുള്ള

b) തണുത്ത

c) എരിവുള്ള

X. മാതൃകപോലെ എഴുതുക

പുസ് - പൂക്കൾ

29. പഴം - -----

30. കുട്ടി - -----

XI. മാതൃകപോലെ എഴുതുക

അച്ഛൻ - അമ്മ

31. മകൾ - -----

32. ചേട്ടൻ - -----

XII. ഉത്തരം കണ്ടെത്തുക

33. മുറ്റത്തെ ചെപ്പിനടപ്പില്ല

- a) പാത്രം b) കിണർ c) കുളം

34. മുളുണ്ടു മുരിക്കല്ല

പാലുണ്ടു പശുവല്ല

- a) റോസ് b) റബർ c) ചക്ക

35. അടി പാറ

നടു വടി

തല കാട്

- a) ചേന b) തെങ്ങ് c) പന

XIII. ചിത്രം നോക്കി ശരിയായ ഉത്തരത്തിനു വട്ടമിടുക



36. ഞാൻ ഒരു -----

- a) കാക്ക b) പുച്ച c) എലി

37. ഞാൻ ----- കളിക്കുന്നു

- a) പന്ത് b) ഗോലി c) പാവ

38. എനിക്ക് ----- ഇഷ്ടമാണ്

- a) മിഠായി b) ഊൺ c) മീൻ

39. ഞാൻ -----യെ പിടിക്കുന്നു

- a) നായ b) എലി c) പുലി

XIV. ശരിയായ വാക്യത്തിന് വട്ടമിടുക

40. a) രാമു പോയി സ്കൂളിൽ

b) രാമു സ്കൂളിൽ പോയി

c) പോയി സ്കൂളിൽ രാമു

XV. താഴെ കൊടുത്തിരിക്കുന്ന വരികൾ വായിച്ച് ചോദ്യങ്ങളുടെ ഉത്തരങ്ങൾ കണ്ടെത്തി അടയാളപ്പെടുത്തുക

A. ഉണ്ണി വന്നു

ഉറങ്ങു കഴിച്ചു

ഉമ്മ തന്നു

ഉണ്ണി ചിരിച്ചു

41. ആരാണു് വന്നതു്?

- a) ഉണ്ണി b) അമ്മ c) അച്ഛൻ

42. ഉണ്ണി എന്താണു് കഴിച്ചതു്?

- a) മിഠായി b) ഉറണു് c) ദോശ

43. ആരാണു് ചിരിച്ചതു്?

- a) അച്ഛൻ b) അമ്മ c) ഉണ്ണി

44. ഉണ്ണി എന്താണു് തന്നതു്?

- a) മിഠായി b) ഉറണു് c) ഉമ്മ

B. കാവിൽ നാലു് മാവു്

മാവു് നിറയെ പൂവു്

പൂവു് നിറയെ തേനു്

തേനു് കുടിക്കാൻ വണ്ടു്.

45. കാവിൽ എത്ര മാവുകൾ ഉണ്ടു്?

- a) രണ്ടു് b) മൂന്നു് c) നാലു്

46. പൂവു് നിറയെ എന്താണുള്ളതു്?

- a) തേനു് b) മധുരം c) ഉറുമു്

47. എവിടെയാണു് നിറയെ പൂക്കൾ ഉള്ളതു്?

- a) തേനിൽ b) മാവിൽ c) കാവിൽ

48. തേനു് കുടിക്കാൻ ആരാണു് വന്നതു്?

- a) കുട്ടി b) വണ്ടു് c) പൂമ്പാറ്റ

49. തേനിനു് നല്ല-----ആണു്

- a) കയ്പു് b) എരിവു് c) മധുരം

Appendix B3

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

**Data and Results of Item Analysis of
Test of Achievement in Malayalam for Standard I**

Item No. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)	Item No. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)
1	0.50	0.75	1	26	0.84	0.50	24
2	0.54	0.73	2	27	0.58	0.53	25
3	0.52	0.74	3	28	0.62	0.53	26
4	0.36	0.82	4	29	0.82	0.49	27
5	0.48	0.48	5	30	0.82	0.45	28
6	0.60	0.44	6	31	0.38	0.21	Rejected
7	0.32	0.20	Rejected	32	0.44	0.22	Rejected
8	0.56	0.36	7	33	0.32	0.38	29
9	0.54	0.55	8	34	0.40	0.32	30
10	0.74	0.55	9	35	0.36	0.22	Rejected
11	0.56	0.44	10	36	0.70	0.59	31
12	0.68	0.44	11	37	0.54	0.35	32
13	0.52	0.32	12	38	0.56	0.42	33
14	0.54	0.69	13	39	0.62	0.33	34
15	0.72	0.58	14	40	0.58	0.35	35
16	0.52	0.48	15	41	0.48	0.26	36
17	0.54	0.53	16	42	0.54	0.31	37
18	0.64	0.54	17	43	0.62	0.45	38
19	0.62	0.53	18	44	0.30	0.33	39
20	0.74	0.49	19	45	0.48	0.30	40
21	0.60	0.52	20	46	0.46	0.25	41
22	0.32	0.20	Rejected	47	0.42	0.23	Rejected
23	0.80	0.56	21	48	0.44	0.24	Rejected
24	0.46	0.27	22	49	0.56	0.32	42
25	0.84	0.46	23				

Appendix B4

**UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION**

**Test of Achievement in Malayalam for Standard I
(Final)**

Dr. K. Abdul Gafoor
Professor

Kadeeja Sanam K.P.
Research Scholar

പേര് :

ക്ലാസ്സ് :

താഴെ തന്നിരിക്കുന്ന നിർദ്ദേശങ്ങൾ വായിച്ച് ഉചിതമായ രീതിയിൽ ഉത്തരം എഴുതുക

I. അക്ഷരങ്ങളും ചിത്രങ്ങളും തമ്മിൽ യോജിപ്പിക്കുക

1. അ



2. ഉ



3. എ



4. ഇ



II. ശരിയായ അക്ഷരം ചേർത്ത് പൂരിപ്പിക്കുക

5. വ (a. ന b. ര c. മ)

6. ര (a. മ b. യ c. ട)

7. പ..... രം (a. ന്വ b. ബ c. ഭ)

III. കള്ളിയിൽ കൊടുത്ത അക്ഷരങ്ങൾ മാത്രം ഉപയോഗിച്ച് വാക്കുകൾ ഉണ്ടാക്കുക.

ല	ന	വ	ത	പ
---	---	---	---	---

8. -----

9. -----

10. -----

IV. മാതൃക പോലെ എഴുതുക

പന - മന

11. മട - -----

12. കര - -----

V. ചിത്രത്തിന്റെ പേര് കണ്ടെത്തി വട്ടം വരയ്ക്കുക

13.



a) ഞണ്ട്

b) വണ്ട്

c) ചെണ്ട

14.



a) ദാഹം

b) ദയ

c) ദീപം

15.



a) ളഷി

b) ളഷഭം

c) ളണം

VI. ശരിയായ പദത്തിന് വട്ടം വരയ്ക്കുക

16. a) ധനം b) ദനം

17. a) ഭരണി b) ബരണി

VII. ഉചിതമായ വാക്കുകൾ തമ്മിൽ വരച്ച് യോജിപ്പിക്കുക.

18. പാറം a) കൊളുത്തി

19. പട്ടം b) വായിച്ചു

20. വിളക്ക് c) പറത്തി

VIII. ചിത്രത്തിനു പകരം പദം എഴുതുക

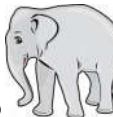

21.  _____



22.  _____

23.  _____

24.  _____

IX. ഉചിതമായ വാക്കുകൾ തിരഞ്ഞെടുത്ത് എഴുതുക

25. വലിയ ആന , _____ ഉറുമ്പ് 
 a) നീളമുള്ള b) തടിച്ച c) ചെറിയ

26. ചൂടുള്ള ചായ , _____ ഐസ്ക്രീം 
 a) കയ്പുള്ള b) തണുത്ത c) എരിവുള്ള

X. മാതൃകപോലെ എഴുതുക

പൂവ് - പൂക്കൾ
 27. പഴം - _____
 28. കുട്ടി - _____

XI. ഉത്തരം കണ്ടെത്തുക

29. മുറ്റത്തെ ചെപ്പിനടപ്പില്ല
 a) പാത്രം b) കിണർ c) കുളം

30. മുളളുണ്ട് മുരിക്കല്ല
 പാലുണ്ട് പശുവല്ല
 a) റോസ് b) റബർ c) ചക്ക

XII. ചിത്രം നോക്കി ശരിയായ ഉത്തരത്തിനു വട്ടമിടുക



- 31. ഞാൻ ഒരു -----
 a) കാക്ക b) പുച്ച c) എലി
- 32. ഞാൻ ----- കളിക്കുന്നു
 a) പന്ത് b) ഗോലി c) പാവ
- 33. എനിക്ക് ----- ഇഷ്ടമാണ്
 a) മിഠായി b) ഉൗൺ c) മീൻ
- 34. ഞാൻ -----യെ പിടിക്കുന്നു
 a) നായ b) എലി c) പുലി

XIII. ശരിയായ വാക്യത്തിന് വട്ടമിടുക

- 35. a) രാമു പോയി സ്കൂളിൽ
 b) രാമു സ്കൂളിൽ പോയി
 c) പോയി സ്കൂളിൽ രാമു

XIV. താഴെ കൊടുത്തിരിക്കുന്ന വരികൾ വായിച്ച് ചോദ്യങ്ങളുടെ ഉത്തരങ്ങൾ കണ്ടെത്തി അടയാളപ്പെടുത്തുക

**A. ഉണ്ണി വന്നു
 ഉൗണു കഴിച്ചു
 ഉമ്മ തന്നു
 ഉണ്ണി ചിരിച്ചു**

- 36. ആരാണു് വന്നത്?
 a) ഉണ്ണി b) അമ്മ c) അച്ഛൻ
- 37. ഉണ്ണി എന്താണു് കഴിച്ചത്?
 a) മിഠായി b) ഉൗൺ c) ദോശ
- 38. ആരാണു് ചിരിച്ചത്?
 a) അച്ഛൻ b) അമ്മ c) ഉണ്ണി
- 39. ഉണ്ണി എന്താണു് തന്നത്?
 a) മിഠായി b) ഉൗൺ c) ഉമ്മ

**B. കാവിൽ നാല് മാവ്
 മാവ് നിറയെ പൂവ്
 പൂവ് നിറയെ തേന്
 തേൻ കുടിക്കാൻ വണ്ട്.**

- 40. കാവിൽ എത്ര മാവുകൾ ഉണ്ട്?
 a) രണ്ട് b) മൂന്ന് c) നാല്
- 41. പൂവ് നിറയെ എന്താണുള്ളത്?
 a) തേൻ b) മധുരം c) ഉറുമ്പ്
- 42. തേനിന് നല്ല-----ആണു്
 a) കയ്പ് b) എരിവ് c) മധുരം

Appendix B5

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Scoring Key for Test of Achievement in Malayalam for Standard I (Final)

Item No.	Answer	Item No.	Answer
1	C	22	വീണ
2	D	23	ചിരവ
3	A	24	കൂട
4	B	25	C
5	B	26	B
6	A	27	പഴങ്ങൾ
7	A	28	കൂട്ടികൾ
8	രണ്ടക്ഷരം വരുന്ന അർത്ഥവത്തായ പദം	29	B
9		30	C
10		31	B
11		32	A
12	'ട' എന്ന അക്ഷരത്തിൽ അവസാനി ക്കുന്ന രണ്ടക്ഷരം വരുന്ന പദം	33	C
13	C	34	B
14	C	35	B
15	A	36	A
16	A	37	B
17	A	38	C
18	B	39	C
19	C	40	C
20	A	41	A
21	മാങ്ങ/മാമ്പഴം	42	C

Appendix C1

**UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION**

**Blueprint of Test of Achievement in Malayalam for
Standard III**

Draft							
Objectives Content	Objectives						Total number of items
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	
Vocabulary							
<i>Letters</i>	1, 2, 3			7			4
<i>Words</i>		8, 9, 10	4, 5, 6, 14, 15, 16, 20, 21	11, 12, 13, 17, 18, 19, 22, 23, 24			20
Comprehension							
<i>Sentences</i>				26, 27, 28	25	29, 30	6
<i>Passage</i>		31, 32, 33, 36, 37, 38, 39, 40		34	35		10
<i>Poems</i>		41, 42, 44, 46, 48		43, 47	50	45, 49	10
Total	3	16	8	16	3	4	50

Note: Numbers in italics denotes item numbers in the draft test.

Final

Objectives Subset/Content	Objectives						Total number of items
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	
Vocabulary							
<i>Letters</i>	2,3			7			3
<i>Words</i>		8,9,10	4, 6, 14,15, 20,21	11,12,13,17, 18,19, 22,24			17
Comprehension							
<i>Sentences</i>				26,27	25	29,30	5
<i>Passage</i>		32,33,36, 37,38,39,40		34	35		9
<i>Poems</i>		41,42,44,46,48		43, 47	50	49	9
Total	2	15	6	14	3	3	43

Note: Numbers in italics denotes item numbers in the final test.

Appendix C2
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in Malayalam for Standard III
(Draft)

Dr. K. Abdul Gafoor
Professor

Kadeeja Sanam K.P.
Research Scholar

പേര് :

ക്ലാസ്സ് :

വിദ്യാലയത്തിന്റെ പേര് :

ഓരോ ചോദ്യങ്ങളും ശ്രദ്ധാപൂർവ്വം വായിച്ച് ശരിയുത്തരത്തെ സൂചിപ്പിക്കുന്ന അക്ഷരത്തെ വൃത്തം വരച്ച് അടയാളപ്പെടുത്തുക.

ഉദാ: ഉത്തരം 'a' എങ്കിൽ a **(b)** c d

I. ശരിയായ പദം കണ്ടെത്തുക.

- | | | |
|-----------------|--------------|------------|
| 1. a) കയ | b) കഥ | c) കദ |
| 2. a) വിശ്രമം | b) വിശ്രമം | c) വിസ്രമം |
| 3. a) വ്യത്യാസം | b) വ്യത്യാസം | c) വ്യത്യം |

II. പിരിച്ചെഴുതുക.

4. ഓടിയൊളിച്ചു
- a) ഓടി + യൊളിച്ചു
- b) ഓടി + ഒളിച്ചു
- c) ഓടിയൊ + ളിച്ചു
5. ചാടിച്ചാടി
- a) ചാടി + ചാടി
- b) ചാടി + ചാടി
- c) ചാടി + ചാടി
6. ആയിരമായിരം
- a) ആയിരം + ആയിരം
- b) ആയിര + മായിരം
- c) ആയിരം + മായിരം

III. അക്ഷരമാല ക്രമത്തിലുള്ളത് കണ്ടെത്തുക

7. a) ഉരൽ, ഈച്ച, അമ്മ, ഴഷി
- b) ഈച്ച, ഉരൽ, അമ്മ, ഴഷി
- c) അമ്മ, ഈച്ച, ഉരൽ, ഴഷി

IV. അടിവരയിട്ട പദത്തിന് പകരപദം കണ്ടെത്തുക

8. ഞാൻ പറക്കാൻ മോഹിച്ചു
- a) ശ്രമിച്ചു b) താൽപര്യപ്പെട്ടു c) ആഗ്രഹിച്ചു

9. കോകിലം മനോഹരമായി പാടുന്നു.

- a) കുട്ടി b) കുയിൽ c) ഗായിക

10. വൃദ്ധന്റെ ദീനം മാറിയില്ല

- a) രോഗം b) സന്തോഷം c) സങ്കടം

V. കൂട്ടത്തിൽപ്പെടാത്തത് കണ്ടെത്തുക

11. a) ആകാശം b) വാനം c) വിണ്ണ് d) ധരണി

12. a) പൂവ് b) പൂഷ്പം c) ശലഭം d) മലർ

13. a) മണം b) ശാസന c) വാസന d) സുഗന്ധം

VI. വിപരീതപദം കണ്ടെത്തുക

14. നന്മ

- a) വെണ്മ b) തിന്മ c) അനന്മ d) മേന്മ

15. ഭംഗി

- a) ചീത്ത b) മോശം c) അഭംഗി d) വിരുപം

16. ശത്രു

- a) മിത്രം b) അശത്രു c) സുഹൃത്ത് d) സഹായി

VII. ഉചിതമായത് തിരഞ്ഞെടുക്കുക

17. പാവ നാടകം

- a) പാവങ്ങളുടെ നാടകം b) പാവകളുടെ നാടകം c) പാവയിലെ നാടകം

18. ആമ്പൽ മൊട്ട്

- a) ആമ്പൽ കൊണ്ടുള്ളമൊട്ട് b) ആമ്പലിലെ മൊട്ട് c) ആമ്പലിന്റെ മൊട്ട്

19. മാഞ്ചുവട്ടിൽ

- a) മാങ്ങയുടെ ചുവട്ടിൽ b) മാവിന്റെ ചുവട്ടിൽ c) മാനിന്റെ ചുവട്ടിൽ

VIII. മാതൃകപോലെ ഉചിതമായത് തിരഞ്ഞെടുക്കുക

രാജാവ്- a) മന്ത്രി	b) രാജ്ഞി	c) പ്രജകൾ
--------------------	---	-----------

20. പതി

- a) പത്നി b) ഭാര്യ c) അമ്മ

21. അദ്ധ്യാപിക

- a) അദ്ധ്യാപകർ b) അദ്ധ്യാപകൻ c) അദ്ധ്യാപക

IX. വിശേഷണപദം തിരഞ്ഞെടുക്കുക

22. കുട്ടി ചുവന്ന പൂവ് പഠിച്ചു.

- a) കുട്ടി b) ചുവന്ന c) പൂവ് d) പഠിച്ചു

23. മയിൽ മനോഹരമായി നൃത്തം വെച്ചു

- a) മയിൽ b) മനോഹരമായി c) നൃത്തം d) വെച്ചു

24. വൃദ്ധ റോഡിലൂടെ പതുക്കെ നടന്നു.

- a) വൃദ്ധ b) റോഡിലൂടെ c) പതുക്കെ d) നടന്നു

X. ശരിയായ വാക്യം കണ്ടെത്തുക

25. a) കാണാതായ പേന കിട്ടിയില്ല വീടു മുഴുവൻ എത്ര അന്വേഷിച്ചിട്ടും

b) വീടു മുഴുവൻ എത്ര അന്വേഷിച്ചിട്ടും കാണാതായ പേന കിട്ടിയില്ല

c) എത്ര അന്വേഷിച്ചിട്ടും വീടുമുഴുവൻ കാണാതായ പേന കിട്ടിയില്ല

XI. ഉത്തരം കണ്ടെത്തുക

26. ഒരമ്മ പെറ്റ മക്കളൊക്കെ തൊപ്പിക്കാർ.
 a) മാങ്ങ b) അടക്ക c) ചക്ക
27. മണ്ണിനടിയിൽ പൊന്നമ്മ
 a) മഞ്ഞൾ b) കപ്പ c) ചേന
28. തോളിൽ തൂങ്ങുന്ന തല്ലുകൊള്ളി
 a) കൂട b) തോർത്ത് c) ചെണ്ട

XII. സൂചനകൾ വായിച്ച് തന്നിരിക്കുന്ന തലക്കെട്ടുകളിൽനിന്നും യോജിച്ചത് തിരഞ്ഞെടുക്കുക

- | | |
|---|---|
| 29. | 30. |
| <ul style="list-style-type: none"> • കുറ്റൻ കെട്ടിടങ്ങൾ • നിറയെ വാഹനങ്ങൾ • ബഹളം • ട്രാഫിക് സിഗ്നൽ | <ul style="list-style-type: none"> • കൊച്ചുകൊച്ചു വീടുകൾ • പച്ച വിരിച്ച പാടങ്ങൾ • മലനിരകൾ • തെങ്ങിൻതോപ്പ് |
| a) ഗ്രാമം b) മരുഭൂമി c) പട്ടണം d) കാട് | |

XIII. ഖണ്ഡിക വായിച്ച് താഴെ കൊടുത്തിരിക്കുന്ന ചോദ്യങ്ങൾക്ക് ഉത്തരം തിരഞ്ഞെടുക്കുക.

A. ആകാശവീട്ടിൽ ഒത്തിരി നക്ഷത്രക്കുഞ്ഞുങ്ങളുണ്ട്. സന്ധ്യയായാൽ അവർ സവാരി കിറങ്ങും. ഭൂമിയിലെ കാഴ്ചകൾ കണ്ട് മാനത്തെങ്ങും ചുറ്റിക്കറങ്ങും. ഭൂമിയിൽ വെളിച്ചം പരക്കുമ്പോൾ അവർ ആകാശവീട്ടിലേക്ക് മടങ്ങും.

31. എവിടെയാണ് നക്ഷത്രങ്ങൾ ഉള്ളത്?
 a) ഭൂമിയിൽ b) ആകാശത്ത് c) പാടത്ത്
32. എപ്പോഴാണ് നക്ഷത്രങ്ങൾ സവാരിക്കിറങ്ങുന്നത്?
 a) രാവിലെ b) ഉച്ചക്ക് c) സന്ധ്യക്ക്
33. എന്തു കാരണമാണ് നക്ഷത്രങ്ങൾ ചുറ്റിക്കറങ്ങുന്നത്?
 a) ഭൂമിയിലെ കാഴ്ചകൾ
 b) ആകാശവീട്ടിലെ കാഴ്ചകൾ
 c) മാനത്തെ കാഴ്ചകൾ

34. എപ്പോഴാണ് നക്ഷത്രങ്ങൾ ആകാശവീട്ടിലേക്ക് മടങ്ങുന്നത്?
 a) നേരം വെളുക്കുമ്പോൾ b) ഉച്ചയാകുമ്പോൾ c) സന്ധയാകുമ്പോൾ
35. ഈ ഖണ്ഡികയിൽ എന്തിനെക്കുറിച്ചാണ് പറയുന്നത്?
 a) ആകാശം b) ഭൂമി c) നക്ഷത്രം

B. ആടുകളെ തൊഴുത്തിലാക്കിയിട്ട് മുത്തശ്ശി മഞ്ഞുകൂടിയ താഴ്വരയിലെങ്ങും ഒരു പു തേടിയെലഞ്ഞു. പക്ഷേ ഒരൊറ്റ പൂവുപോലും അവർക്കു കിട്ടിയില്ല. അവർ വീട്ടുമുറ്റത്തിരുന്ന് പൊട്ടിക്കരയാൻ തുടങ്ങി.

36. മുത്തശ്ശി ആടുകളെ എവിടെയാണ് നിർത്തിയത്?
 a) വീട്ടിൽ b) തൊഴുത്തിൽ c) താഴ്വരയിൽ
37. താഴ്വര എങ്ങനെ ഉള്ളതായിരുന്നു?
 a) ഇരുട്ടുമൂടിയത് b) വെളിച്ചം നിറഞ്ഞത് c) മഞ്ഞു നിറഞ്ഞത്
38. എന്തിനാണ് മുത്തശ്ശി താഴ്വരയിലേക്ക് പോയത്?
 a) ആടിനെ കാനാൻ b) പൂവിനുവേണ്ടി c) കരയാൻ വേണ്ടി

- 39. എവിടെ ഇരുന്നാണ് മുത്തശ്ശി പൊട്ടിക്കരഞ്ഞത്?
a) തൊഴുത്തിൽ b) താഴ്വരയിൽ c) വീട്ടുമുറ്റത്ത്
- 40. എന്തിനാണ് മുത്തശ്ശി പൊട്ടിക്കരഞ്ഞത്?
a) ആടുകളെ കാണാൻ
b) താഴ്വരയിലേക്ക് പോകാൻ
c) പൂ കിട്ടാത്തതിനാൽ

XIV. താഴെ കൊടുത്തിരിക്കുന്ന കവിത/പദ്യശകലങ്ങൾ വായിച്ച് ചോദ്യങ്ങളുടെ ഉത്തരങ്ങൾ കണ്ടെത്തി അടയാളപ്പെടുത്തുക

A. കുഞ്ഞുണ്ണിക്കൊരു മോഹം
 എന്നും കുഞ്ഞായിട്ടു മരിക്കാൻ
 കുഞ്ഞുങ്ങൾക്കു രസിച്ചിടുന്നൊരു
 കവിയായിട്ടു മരിക്കാൻ

- 41. ആർക്കാണ് മോഹം?
a) കുഞ്ഞിന് b) കുഞ്ഞുണ്ണിക്ക് c) കവിക്ക്
- 42. എന്താകാനാണ് മോഹം?
a) കുഞ്ഞാകാൻ b) രസിക്കാൻ c) മരിക്കാൻ
- 43. “മരിക്കുക” എന്നർത്ഥം വരുന്ന പദമേത്?
a) നടക്കുക b) ജീവിക്കുക c) മരിക്കുക
- 44. എങ്ങനെ മരിക്കാനാണ് കുഞ്ഞുണ്ണിക്ക് മോഹം?
a) കുഞ്ഞായിട്ട് b) രസിച്ച് c) കവിയായിട്ട്
- 45. ഈ വരികൾക്ക് ഉചിതമായ തലക്കെട്ട് തെരഞ്ഞെടുക്കുക
a) കവി b) കുഞ്ഞ് c) മോഹം

B. മക്കളായ് നാലുപേരുണ്ടെങ്കിലും
 അമ്മ ഏകയാണേകയാണീ ഊഴിയിൽ
 അച്ഛൻ മറഞ്ഞൊരു കാലം മുതൽക്കമ്മ
 ഭാരമായ് തീർന്നുവോ നാലുപേർക്കും?

- 46. ആരാണ് ഏകയായ് നിൽക്കുന്നത്?
a) മക്കൾ b) അമ്മ c) അച്ഛൻ
- 47. ആർക്കാണ് അമ്മ ഭാരമായ് നിൽക്കുന്നത്?
a) മക്കൾക്ക് b) അച്ഛന് c) ഭൃമിക്ക്
- 48. ആരാണ് മരിച്ചത്?
a) അമ്മ b) അച്ഛൻ c) മക്കൾ
- 49. ഈ വരികൾക്ക് ഉചിതമായ തലക്കെട്ട് തെരഞ്ഞെടുക്കുക.
a) നാലു മക്കൾ b) മറഞ്ഞൊരു കാലം c) ഏകയായമ്മ
- 50. ഈ വരികൾ നൽകുന്ന സന്ദേശമെന്ത്?
a) അമ്മയെ മക്കൾ സംരക്ഷിക്കേണ്ടതില്ല
b) അമ്മയെ മക്കൾ സംരക്ഷിക്കണം
c) അമ്മ ഒറ്റക്ക് ജീവിക്കണം

Appendix C3

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

**Data and Results of Item Analysis of Test of
Achievement in Malayalam for Standard III**

Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)	Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)
1	0.34	0.83	Rejected	26	0.46	0.59	22
2	0.40	0.54	1	27	0.30	0.47	23
3	0.50	0.57	2	28	0.18	0.21	Rejected
4	0.32	0.46	3	29	0.48	0.42	24
5	0.18	0.47	Rejected	30	0.52	0.32	25
6	0.30	0.45	4	31	0.42	0.79	Rejected
7	0.58	0.71	5	32	0.54	0.65	26
8	0.54	0.65	6	33	0.54	0.65	27
9	0.46	0.51	7	34	0.60	0.60	28
10	0.44	0.60	8	35	0.36	0.60	29
11	0.44	0.44	9	36	0.70	0.55	30
12	0.48	0.46	10	37	0.70	0.61	31
13	0.64	0.52	11	38	0.66	0.59	32
14	0.40	0.58	12	39	0.56	0.62	33
15	0.50	0.57	13	40	0.66	0.61	34
16	0.26	0.23	Rejected	41	0.72	0.58	35
17	0.38	0.39	14	42	0.56	0.52	36
18	0.40	0.46	15	43	0.30	0.49	37
19	0.30	0.43	16	44	0.50	0.45	38
20	0.58	0.57	17	45	0.20	0.34	Rejected
21	0.54	0.53	18	46	0.50	0.61	39
22	0.42	0.29	19	47	0.42	0.47	40
23	0.32	0.24	Rejected	48	0.56	0.48	41
24	0.36	0.28	20	49	0.40	0.40	42
25	0.56	0.50	21	50	0.56	0.52	43

Appendix C4
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in Malayalam for Standard III
(Final)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

പേര് :

ക്ലാസ്സ് :

വിദ്യാലയത്തിന്റെ പേര് :

ഓരോ ചോദ്യങ്ങളും ശ്രദ്ധാപൂർവ്വം വായിച്ച് ശരിയുത്തരത്തെ സൂചിപ്പിക്കുന്ന അക്ഷരത്തെ വൃത്തം വരച്ച് അടയാളപ്പെടുത്തുക.

ഉദാ: ഉത്തരം 'a' എങ്കിൽ a **(b)** c d

I. ശരിയായ പദം കണ്ടെത്തുക.

- | | | |
|----------------|-------------|-------------|
| 1. a) വിശ്രമം | b) വിശ്രമം | c) വിസ്രമം |
| 2. a) വൃത്യാസം | b) വൃത്യാസം | c) വൃത്യോസം |

II. പിരിച്ചെഴുതുക.

3. ഓടിയൊളിച്ചു
 a) ഓടി + യൊളിച്ചു
 b) ഓടി + ഒളിച്ചു
 c) ഓടിയൊ + ളിച്ചു
4. ആയിരമായിരം
 a) ആയിരം + ആയിരം
 b) ആയിര + മായിരം
 c) ആയിരം + മായിരം

III. അക്ഷരമാല ക്രമത്തിലുള്ളത് കണ്ടെത്തുക

5. a) ഉരൽ, ഇറച്ച, അമ്മ, ഋഷി
 b) ഇറച്ച, ഉരൽ, അമ്മ, ഋഷി
 c) അമ്മ, ഇറച്ച, ഉരൽ, ഋഷി

IV. അടിവരയിട്ട പദത്തിന് പകരംപദം കണ്ടെത്തുക

6. ഞാൻ പറക്കാൻ മോഹിച്ചു
 a) ശ്രമിച്ചു b) താൽപര്യപ്പെട്ടു c) ആഗ്രഹിച്ചു
7. കോകിലം മനോഹരമായി പാടുന്നു.
 a) കുട്ടി b) കുയിൽ c) ഗായിക
8. വൃദ്ധന്റെ ദീനം മാറിയില്ല
 a) രോഗം b) സന്തോഷം c) സങ്കടം

V. കൂട്ടത്തിൽപ്പെടാത്തത് കണ്ടെത്തുക

- | | | | |
|-------------|-----------|-----------|------------|
| 9. a) ആകാശം | b) വാനം | c) വിണ്ണ് | d) ധരണി |
| 10. a) പൂവ് | b) പൂഷ്പം | c) ശലഭം | d) മലർ |
| 11. a) മണം | b) ശാസന | c) വാസന | d) സുഗന്ധം |

VI. വിപരീതപദം കണ്ടെത്തുക

12. നന്മ
 a) വെണ്മ b) തിന്മ c) അനന്മ d) മേന്മ
13. ഭംഗി
 a) ചീത്ത b) മോശം c) അഭംഗി d) വിരുപം

VII. ഉചിതമായത് തിരഞ്ഞെടുക്കുക

14. പാവ നാടകം
 a) പാവങ്ങളുടെ നാടകം b) പാവങ്ങളുടെ നാടകം c) പാവയിലെ നാടകം
15. ആമ്പൽ മൊട്ട്
 a) ആമ്പൽ കൊണ്ടുള്ളമൊട്ട് b) ആമ്പലിലെ മൊട്ട് c) ആമ്പലിന്റെ മൊട്ട്
16. മാഞ്ചുവട്ടിൽ
 a) മാങ്ങയുടെ ചുവട്ടിൽ b) മാവിന്റെ ചുവട്ടിൽ c) മാനിന്റെ ചുവട്ടിൽ

VIII. മാതൃകപോലെ ഉചിതമായത് തിരഞ്ഞെടുക്കുക

രാജാവ് - a) മന്ത്രി	b) രാജ്ഞി	c) പ്രജകൾ
---------------------	-----------	-----------

17. പതി
 a) പത്നി b) ഭാര്യ c) അമ്മ
18. അദ്ധ്യാപിക
 a) അദ്ധ്യാപകർ b) അദ്ധ്യാപകൻ c) അദ്ധ്യാപക

IX. വിശേഷണപദം തിരഞ്ഞെടുക്കുക

19. കുട്ടി ചുവന്ന പൂവ് പഠിച്ചു.
 a) കുട്ടി b) ചുവന്ന c) പൂവ് d) പഠിച്ചു
20. വൃദ്ധ റോഡിലൂടെ പതുക്കെ നടന്നു.
 a) വൃദ്ധ b) റോഡിലൂടെ c) പതുക്കെ d) നടന്നു

X. ശരിയായ വാക്യം കണ്ടെത്തുക

21. a) കാണാതായ പേന കിട്ടിയില്ല വീടു മുഴുവൻ എത്ര അന്വേഷിച്ചിട്ടും
 b) വീടു മുഴുവൻ എത്ര അന്വേഷിച്ചിട്ടും കാണാതായ പേന കിട്ടിയില്ല
 c) എത്ര അന്വേഷിച്ചിട്ടും വീടുമുഴുവൻ കാണാതായ പേന കിട്ടിയില്ല

XI. ഉത്തരം കണ്ടെത്തുക

22. ഒരമ്മ പെറ്റ മക്കളൊക്കെ തൊപ്പിക്കാർ.
 a) മാങ്ങ b) അടക്ക c) ചക്ക
23. മണ്ണിനടിയിൽ പൊന്നമ്മ
 a) മഞ്ഞൾ b) കപ്പ c) ചേന

XII. സൂചനകൾ വായിച്ച് തന്നിരിക്കുന്ന തലക്കെട്ടുകളിൽനിന്നും യോജിച്ചത് തിരഞ്ഞെടുക്കുക

- | | |
|--|---|
| 24.
<ul style="list-style-type: none"> • കുറ്റൻ കെട്ടിടങ്ങൾ • നിറയെ വാഹനങ്ങൾ • ബഹളം • ട്രാഫിക് സിഗ്നൽ a) ഗ്രാമം b) മരുഭൂമി c) പട്ടണം | 25.
<ul style="list-style-type: none"> • കൊച്ചുകൊച്ചു വീടുകൾ • പച്ച വിരിച്ച പാടങ്ങൾ • മലനിരകൾ • തെങ്ങിൻതോപ്പ് d) കാട് |
|--|---|

XIII. ഖണ്ഡിക വായിച്ച് താഴെ കൊടുത്തിരിക്കുന്ന ചോദ്യങ്ങൾക്ക് ഉത്തരം തിരഞ്ഞെടുക്കുക.

C. ആകാശവീട്ടിൽ ഒത്തിരി നക്ഷത്രക്കുഞ്ഞുങ്ങളുണ്ട്. സന്ധ്യയായാൽ അവർ സവാരി ക്കിറങ്ങും. ഭൂമിയിലെ കാഴ്ചകൾ കണ്ട് മാനത്തെങ്ങും ചുറ്റിക്കിറങ്ങും. ഭൂമിയിൽ വെളിച്ചം പരക്കുമ്പോൾ അവർ ആകാശവീട്ടിലേക്ക് മടങ്ങും.

- 26. എപ്പോഴാണ് നക്ഷത്രങ്ങൾ സവാരിക്കിറങ്ങുന്നത്?
 - a) രാവിലെ b) ഉച്ചക്ക് c) സന്ധ്യക്ക്
- 27. എന്തു കാരണമാണ് നക്ഷത്രങ്ങൾ ചുറ്റിക്കിറങ്ങുന്നത്?
 - a) ഭൂമിയിലെ കാഴ്ചകൾ
 - b) ആകാശവീട്ടിലെ കാഴ്ചകൾ
 - c) മാനത്തെ കാഴ്ചകൾ
- 28. എപ്പോഴാണ് നക്ഷത്രങ്ങൾ ആകാശവീട്ടിലേക്ക് മടങ്ങുന്നത്?
 - a) നേരം വെളുക്കുമ്പോൾ b) ഉച്ചയാകുമ്പോൾ c) സന്ധ്യയാകുമ്പോൾ
- 29. ഈ ഖണ്ഡികയിൽ എന്തിനെക്കുറിച്ചാണ് പറയുന്നത്?
 - a) ആകാശം b) ഭൂമി c) നക്ഷത്രം

D. ആടുകളെ തൊഴുത്തിലാക്കിയിട്ട് മുത്തശ്ശി മഞ്ഞുകൂടിയ താഴ്വരയിലെങ്ങും ഒരു പു തേടിയലഞ്ഞു. പക്ഷേ ഒരൊറ്റ പൂവുപോലും അവർക്കു കിട്ടിയില്ല. അവർ വീട്ടുമുറ്റ ത്തിരുന്ന് പൊട്ടിക്കരയാൻ തുടങ്ങി.

- 30. മുത്തശ്ശി ആടുകളെ എവിടെയാണ് നിർത്തിയത്?
 - a) വീട്ടിൽ b) തൊഴുത്തിൽ c) താഴ്വരയിൽ
- 31. താഴ്വര എങ്ങനെ ഉള്ളതായിരുന്നു?
 - a) ഇരുട്ടുമുടിയത് b) വെളിച്ചം നിറഞ്ഞത് c) മഞ്ഞു നിറഞ്ഞത്
- 32. എന്തിനാണ് മുത്തശ്ശി താഴ്വരയിലേക്ക് പോയത്?
 - a) ആടിനെ കാണാൻ b) പൂവിനുവേണ്ടി c) കരയാൻ വേണ്ടി
- 33. എവിടെ ഇരുന്നാണ് മുത്തശ്ശി പൊട്ടിക്കരഞ്ഞത്?
 - a) തൊഴുത്തിൽ b) താഴ്വരയിൽ c) വീട്ടുമുറ്റത്ത്
- 34. എന്തിനാണ് മുത്തശ്ശി പൊട്ടിക്കരഞ്ഞത്?
 - a) ആടുകളെ കാണാൻ
 - b) താഴ്വരയിലേക്ക് പോകാൻ
 - c) പൂ കിട്ടാത്തതിനാൽ

XIV. താഴെ കൊടുത്തിരിക്കുന്ന കവിത/പദ്യശകലങ്ങൾ വായിച്ച് ചോദ്യങ്ങളുടെ ഉത്തര ങ്ങൾ കണ്ടെത്തി അടയാളപ്പെടുത്തുക

A. കുഞ്ഞുണ്ണിക്കൊരു മോഹം
 എന്നും കുഞ്ഞായിട്ടു മരിക്കാൻ
 കുഞ്ഞുങ്ങൾക്കു രസിച്ചിടുന്നൊരു
 കവിയായിട്ടു മരിക്കാൻ

- 35. ആർക്കാണ് മോഹം?
 - a) കുഞ്ഞിന് b) കുഞ്ഞുണ്ണിക്ക് c) കവിക്ക്

36. എന്താകാനാണ് മോഹം?
 a) കുഞ്ഞാകാൻ b) രസിക്കാൻ c) മരിക്കാൻ
37. “രമിക്കുക” എന്നർത്ഥം വരുന്ന പദമേത്?
 a) നടക്കുക b) ജീവിക്കുക c) മരിക്കുക
38. എങ്ങനെ മരിക്കാനാണ് കുഞ്ഞുണ്ണിക്ക് മോഹം?
 a) കുഞ്ഞായിട്ട് b) രസിച്ചു c) കവിയായിട്ട്
- B. *മക്കളായ് നാലുപേരുണ്ടെങ്കിലും
 അമ്മ ഏകയാണേകയാണീ ഊഴിയിൽ
 അച്ഛൻ മറഞ്ഞൊരു കാലം മുതൽക്കമ്മ
 ഭാരമായ് തീർന്നുവോ നാലുപേർക്കും?*
39. ആരാണ് ഏകയായ് നിൽക്കുന്നത്?
 a) മക്കൾ b) അമ്മ c) അച്ഛൻ
40. ആർക്കാണ് അമ്മ ഭാരമായ് നിൽക്കുന്നത്?
 a) മക്കൾക്ക് b) അച്ഛന് c) ഭൂമിക്ക്
41. ആരാണ് മരിച്ചത്?
 a) അമ്മ b) അച്ഛൻ c) മക്കൾ
42. ഈ വരികൾക്ക് ഉചിതമായ തലക്കെട്ട് തെരഞ്ഞെടുക്കുക.
 a) നാലു മക്കൾ b) മറഞ്ഞൊരു കാലം c) ഏകയായമ്മ
43. ഈ വരികൾ നൽകുന്ന സന്ദേശമെന്ത്?
 a) അമ്മയെ മക്കൾ സംരക്ഷിക്കേണ്ടതില്ല
 b) അമ്മയെ മക്കൾ സംരക്ഷിക്കണം
 c) അമ്മ ഒറ്റക്ക് ജീവിക്കണം

Appendix C5
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Scoring Key of Test of Achievement in
Malayalam for Standard III
(Final)

Item No.	Answer	Item No.	Answer
1	A	23	A
2	C	24	C
3	B	25	A
4	A	26	C
5	C	27	A
6	C	28	A
7	B	29	C
8	A	30	B
9	D	31	C
10	C	32	B
11	B	33	C
12	B	34	C
13	C	35	B
14	B	36	A
15	C	37	B
16	B	38	C
17	A	39	B
18	B	40	A
19	B	41	B
20	C	42	C
21	B	43	B
22	B		

Appendix D1

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

**Blueprint of Test of Achievement in
Malayalam for Standard V**

Draft								
Content	Objectives	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	Total number of items
	Vocabulary							
<i>Letters</i>	1,2,3				7			4
<i>Words</i>		8,9,10	4,5,6, 14,15,16, 20,21,22	11,12,13, 17,18,19, 23,24,25				21
Comprehension								
<i>Sentences</i>				27,28,29	26	30,31		6
<i>Passage</i>		32,33,34, 36,37, 38, 39			35,40			9
<i>Poem</i>		41,42, 43,47, 48	44	46, 49		45,50		10
Total	3	15	10	15	3	4		50

Note: Numbers in italics denotes item numbers in the draft test.

Final

Content	Objectives	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	Total number of items
	Vocabulary							
<i>Letters</i>	1,2,3				7			4
<i>Words</i>		8,9,10	4,5, 14,15,16, 20,22	11,13,17,19, 23,24,25				17
Comprehension								
<i>Sentences</i>				28,29	26	30,31		5
<i>Passage</i>		32,33,34,36,37, 38, 39			40			8
<i>Poem</i>		41,42, 43,47,48	44	46		45,50		9
Total	3	15	8	11	2	4		43

Note: Numbers in italics denotes item numbers in the final test.

Appendix D2
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in Malayalam for Standard V
(Draft)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

പേര് :
 ക്ലാസ്സ് :
 വിദ്യാലയത്തിന്റെ പേര് :
 മേൽവിലാസം :
 സ്ഥലം :

ഓരോ ചോദ്യങ്ങളും ശ്രദ്ധാപൂർവ്വം വായിച്ച് ഇതോടൊപ്പം പ്രത്യേകം തന്നിരിക്കുന്ന ഉത്തര കടലാസിൽ ശരിയുത്തരത്തെ സൂചിപ്പിക്കുന്ന അക്ഷരത്തെ വൃത്തം വരച്ച് അടയാളപ്പെടുത്തുക.

ഉദാ: ഉത്തരം 'a' എങ്കിൽ a **(b)** c d

I. ശരിയായ പദം കണ്ടെത്തുക.

1. a) അഗിലം b) അഘിലം c) അകിലം d) അഖിലം
2. a) പ്രക്രതി b) പ്രകൃതി c) പ്രഗൃതി d) പ്രഗ്രതി
3. a) അധ്യാപകൻ b) അദ്യാപകൻ c) അധ്യാപകൻ d) അത്യാപകൻ

II. ശരിയായത് തിരഞ്ഞെടുക്കുക

4. കുഴപ്പമില്ല
 - a) കുഴപ്പ + മില്ല b) കുഴപ്പം + ഇല്ല c) കുഴപ്പ + ഇല്ല d) കുഴപ്പം + മില്ല
5. എത്തിപ്പോയി
 - a) എത്തി + പോയി b) എത്തി + പ്പോയി c) എതി + പോയി d) എതി + പ്പോയി
6. മഹോന്നതം
 - a) മഹ + ഉന്നതം b) മഹാ + ഉന്നതം c) മഹോ + ഉന്നതം d) മഹൊ + ഉന്നതം

III. അക്ഷരമാല ക്രമത്തിലുള്ളത് തിരഞ്ഞെടുക്കുക

7. a) ധനികൻ, ജനം, ഘടികാരം, ശബ്ദം
- b) ജനം, ധനികൻ, ഘടികാരം, ശബ്ദം
- c) ഘടികാരം, ജനം, ധനികൻ, ശബ്ദം
- d) ശബ്ദം, ധനികൻ, ജനം, ഘടികാരം

IV. അടിവരയിട്ട പദത്തിന് പകരം പദം കണ്ടെത്തുക.

8. ഞാൻ ജനനിയോട് ചോദിച്ചു
 - a) ചേച്ചി b) അമ്മ c) ആകാശം d) അമ്പിളി
9. ആകാശം നക്ഷത്രശോഭയിൽ മുങ്ങി.
 - a) തിളക്കം b) മിന്നൽ c) വെളിച്ചം d) അന്ധകാരം
10. അച്ഛൻ കോപിച്ചു
 - a) സന്തോഷിച്ചു b) സഹായിച്ചു c) ദേഷ്യപ്പെട്ടു d) വിഷമിച്ചു

V. കൂട്ടത്തിൽ പെടാത്തത് ഏത്?

- 11. a) ആനനം b) വദനം c) ഗഗനം d) മുഖം
- 12. a) സ്വർണ്ണം b) കാനനം c) കനകം d) കാഞ്ചനം
- 13. a) അഗ്നി b) തീ c) മാരുതൻ d) വഹ്നി

VI. വിപരീതപദം കണ്ടെത്തുക

- 14. കഠിനം
a) അതികഠിനം b) വിഷമം c) ലളിതം d) അതിലളിതം
- 15. സ്വാഭാവികം
a) ഭാവികം b) അഭാവികം c) അനുഭാവികം d) അസ്വാഭാവികം
- 16. പുരാതനം
a) ആധുനികം b) അപുരാതനം c) പ്രാചീനം d) പഴയ

VII. യോജിച്ചത് തിരഞ്ഞെടുക്കുക

- 17. തുടക്കം മുതൽ ഒടുക്കം വരെ
a) പാതി b) ഉടനീളം c) പ്രാരംഭം d) ഏറെക്കുറെ
- 18. ഗൃഹത്തെ സംബന്ധിച്ചത്
a) ഗൃഹം b) ഗൃഹകം c) ഗാർഹികം d) ഗാർഹകം
- 19. വിനയത്തോടു കൂടിയവൻ
a) വിനയൻ b) വിനയ c) വിനയാന്വിതൻ d) വന്യൻ

VIII. മാതൃകപോലെ അനുയോജ്യമായ പദം കണ്ടെത്തുക

പ്രഭു - a) പ്രഭി b) പ്രഭി c) പ്രഭുല d) പ്രഭവയ

- 20. ഭവാൻ - a) ഭവാനി b) ഭവനി c) ഭവതി d) ഭവിണി
- 21. വിധവ - a) വിധവൻ b) വിധുരൻ c) വിധുര d) വിധവി
- 22. കവി - a) കവയത്രി b) കവിയത്രി c) കവയിത്രി d) കവിയിത്രി

IX. വിശേഷണപദം തിരഞ്ഞെടുക്കുക

- 23. a) വൃദ്ധ/ b) റോഡിലൂടെ/ c) പതുകെ/ d) നടന്നു
- 24. a) അവർ/ b) വലിയൊരു/ c) മരത്തിൽ/ d) കയറി
- 25. a) അവർ/ b) പരുപരുത്ത/ c) പാഠക്കുറിപ്പുകൾ/ d) കണ്ടു

X. ശരിയായ വാക്യം തിരഞ്ഞെടുക്കുക

- 26. a) എല്ലാ വെള്ളിയാഴ്ച തോറും പ്രാർത്ഥനയുണ്ട്
a) എല്ലാ വെള്ളിയാഴ്ചയും പ്രാർത്ഥനയുണ്ട്
b) വെള്ളിയാഴ്ച തോറും സ്ഥിരമായി പ്രാർത്ഥനയുണ്ട്.
c) എല്ലാ വെള്ളിയാഴ്ചതോറും സ്ഥിരമായി പ്രാർത്ഥനയുണ്ട്.

XI. ഉത്തരം കണ്ടെത്തുക

- 27. കിലുകിലുക്കം കിലുകിലുക്കം ഉത്തരത്തിൽ ചത്തിരിക്കും
a) വള b) താക്കോൽ c) പാദസരം d) കിങ്ങിണി
- 28. മണ്ണിൽ വീണൊരു ചോരത്തുള്ളി വറ്റാതെ കിടക്കുന്നു.
a) ചെമ്പരത്തിപൂവ് b) ചോര c) മഞ്ചാടി d) തവളക്കണ്ണ്
- 29. കുത്തുന്ന കാളക്ക് കണ്ണ് പിന്നിൽ
a) വണ്ട് b) സൂചി c) തേനീച്ച d) കൊതുകു്

XII. താഴെ കൊടുത്തിരിക്കുന്ന സൂചനകൾ വായിച്ച് ഉചിതമായത് തിരഞ്ഞെടുക്കുന്ന തലക്കെട്ടിൽനിന്നും തിരഞ്ഞെടുക്കുക

- | | |
|---|---|
| <p>30.</p> <ul style="list-style-type: none"> • താളം • ഈണം • ശബ്ദാലങ്കാരം • അർത്ഥാലങ്കാരം <p>a) ഗദ്യം b) പദ്യം c) നാടകം d) ചെറുകഥ</p> | <p>31.</p> <ul style="list-style-type: none"> • സന്ദർഭം • വേഷവിധാനം • രംഗം • അഭിനേതാക്കൾ |
|---|---|

XIII. ഖണ്ഡികകൾ വായിച്ച് താഴെ കൊടുത്തിരിക്കുന്ന 29 മുതൽ 37 വരെയുള്ള ചോദ്യങ്ങൾക്ക് ഉചിതമായ ഉത്തരം തിരഞ്ഞെടുക്കുക

A. റോമോ സ്കൂളിലെ ഉച്ചയൂൺ മറ്റ് സ്കൂളിൽനിന്നും വ്യത്യസ്തമായിരുന്നു. കുട്ടികൾ കഴിക്കേണ്ട സ്വാഭാവികമായ ഉച്ചയൂണിന് വേഷവിധാനത്തിനോ പാഠ്യപദ്ധതിക്കോ നൽകുന്നതിനേക്കാൾ വലിയ പരിഗണന നൽകിയിരുന്ന ഹെഡ്മാസ്റ്റർ കായിക മത്സരങ്ങളിൽ പങ്കെടുത്ത് വിജയികളാവുന്നവർക്ക് സമ്മാനമായി നൽകിയിരുന്നത് പച്ചക്കറികളാണ്.

32. എന്താണ് റോമോ സ്കൂളിനെ മറ്റു സ്കൂളുകളിൽനിന്നും വ്യത്യസ്തമാക്കിയത്?
 a) വേഷവിധാനം b) പാഠ്യപദ്ധതി c) ഉച്ചയൂൺ d) കായികമത്സരങ്ങൾ
33. കായിക മത്സരങ്ങളിൽ പങ്കെടുത്ത് വിജയികളാവുന്നവർക്ക് എന്താണ് സമ്മാനമായി നൽകിയിരുന്നത്?
 a) പഴങ്ങൾ b) പച്ചക്കറികൾ c) ഊൺ d) മിഠായി
34. ഏത് മത്സരവിജയികൾക്കാണ് സമ്മാനം നൽകിയത്?
 a) ചിത്രരചന b) പ്രസംഗം c) കായികം d) പരീക്ഷ
35. ഖണ്ഡികയുടെ പ്രതിപാദ്യവിഷയം എന്താണ്?
 a) വിദ്യാഭ്യാസം b) കായികം c) വസ്ത്രം d) ഭക്ഷണം

B. ചലച്ചിത്ര അഭിനേത്രിയും ടെലിവിഷൻ അവതാരകയുമാണ് തൈസുകോ കുറോയനഗി ജപ്പാനീസ് നഗരമായ ടോക്കിയോയിൽ ജനിച്ചു. ലോകവ്യാപകമായി വിദ്യാഭ്യാസ വിപ്ലവത്തിനു വഴിതെളിച്ച ടോട്ടോച്ചാൻ എന്ന ആത്മകഥാപരമായ ഗ്രന്ഥത്തിന്റെ കർത്താവാണ് തൈസുകോ.

36. ആരാണ് തൈസുകോ കുറോയനഗി?
 a) ഗായിക b) അഭിനേത്രി c) വക്കീൽ d) അദ്ധ്യാപിക
37. തൈസുകോയുടെ സ്വഭാവം ഏത്?
 a) കൊളംബോ b) വാഷിങ്ടൺ c) ലണ്ടൻ d) ടോക്കിയോ
38. 'ടോട്ടോച്ചാൻ' ഏതു വിപ്ലവത്തിനാണ് വഴിതെളിച്ചത്?
 a) കായികം b) വിദ്യാഭ്യാസം c) കായികം d) കാർഷികം
39. 'ടോട്ടോച്ചാൻ' എന്ന ഗ്രന്ഥം ഏതു വിഭാഗത്തിൽ പെടുന്നു?
 a) ചെറുകഥ b) ജീവചരിത്രം c) കവിത d) ആത്മകഥ

C. നല്ല ഭക്ഷണവും ഭക്ഷണരീതിയും ശരീരത്തിന് പ്രധാനമെന്നത്പോലെതന്നെ പ്രധാനമാണ് നമ്മുടെ മനസ്സിന് നമ്മൾ കൊടുക്കുന്ന കാഴ്ചകൾ, ജീവിതക്രമങ്ങൾ, വായിക്കുന്ന പുസ്തകങ്ങൾ, കേൾക്കുന്ന വാക്കുകൾ എല്ലാം.

40. ഈ വാക്യത്തിലെ ആശയം
 a) ആരോഗ്യം b) വായനാശീലം c) ഭക്ഷണക്രമം d) ജീവിതശൈലി

XIV. പദ്യശകലങ്ങൾ വായിച്ച് താഴെ കൊടുത്തിരിക്കുന്ന 41 മുതൽ 50 വരെയുള്ള ചോദ്യങ്ങൾക്ക് ഉചിതമായ ഉത്തരം തിരഞ്ഞെടുക്കുക

A *ഓത്തുപള്ളിയിലെ*

*കശുമാവിൻ തോട്ടത്തിൽ നിന്നും
അൻവർ കൊണ്ടുതരാറുള്ള
പറങ്കിമാങ്ങ മധുരം
അമ്പലപ്പറമ്പിലെ
ആൽമരം പോലെ
തണൽത്തലോടലായ്
അച്ഛനുമമ്മയും
തുമ്പപ്പുവെൺപൊൽ
വാത്സല്യമെൻ പെങ്ങൾ
കമ്പ്യൂട്ടറിന് ജീവിതം
പകുത്തു കൊടുക്കുമ്പോൾ
നാടിപ്പോൾ ഓർമകളുടെ
യൊരു കുമ്പസാരം.....*

- 41. എവിടെയാണ് കശുമാവിൻ തോട്ടം?
a) വീട്ടിൽ b) സ്കൂളിൽ c) ഓത്തുപള്ളിയിൽ d) അമ്പലപ്പറമ്പിൽ
- 42. എന്താണ് അൻവർ കൊണ്ടുതരാറുള്ളത്?
a) മാങ്ങ b) പറങ്കിമാങ്ങ c) മധുരം d) തുമ്പപ്പു
- 43. തണൽ തലോടലായ് നിൽക്കുന്നതാരാണ്?
a) ആൽമരം b) അമ്പലപ്പറമ്പ് c) അച്ഛനുമമ്മയും d) തുമ്പപ്പു
- 44. വാത്സല്യം നിറഞ്ഞ പെങ്ങളെ കവി എന്തിനോടാണ് ഉപമിച്ചിരിക്കുന്നത്?
a) അമ്പലപ്പറമ്പ് b) ആൽമരം c) തുമ്പപ്പു d) തുമ്പപ്പുവെൺ
- 45. ഉചിതമായ തലക്കെട്ട് തിരഞ്ഞെടുക്കുക
a) ഓത്തുപള്ളി b) അമ്പലപ്പറമ്പ് c) ആൽമരം d) ബാല്യകാല ഓർമകൾ

B. *വേനലിലമരുന്ന
മലർക്കാലത്തിലെന്റെ
ആശകളൊന്നൊന്നായി
വാടിവീണലിയവേ
ഒരു തുള്ളി നീരിനായി
കേഴുന്ന വേഴാമ്പലായ്
ഇനിയുമണയാത്ത
കുളിരു കാക്കുന്നു ഞാൻ*

- 46. ഏതു കാലത്തെക്കുറിച്ചാണ് ഈ വരികളിൽ പറഞ്ഞിരിക്കുന്നത്?
a) തണുപ്പുകാലം b) ചൂടുകാലം c) മഴക്കാലം d) വസന്തകാലം
- 47. എന്താണ് വാടിവീണലിയുന്നത്?
a) ഓർമ്മകൾ b) അനുഭവങ്ങൾ c) ആശകൾ/ആഗ്രഹങ്ങൾ d) സങ്കടങ്ങൾ
- 48. എന്തിനുവേണ്ടിയാണ് കവി കേഴുന്നത്?
a) ജലം b) ചൂട് c) തണുപ്പ് d) കുളിർ
- 49. “കുളിരു കാക്കുന്നു” എന്നതുകൊണ്ട് അർത്ഥമാക്കുന്നതെന്ത്?
a) തണുപ്പ് കാക്കുന്നു b) മഴ കാക്കുന്നു c) ചൂട് കാക്കുന്നു
- 50. ഉചിതമായ തലക്കെട്ട് തിരഞ്ഞെടുക്കുക?
a) വേനൽ b) ജലം c) വേഴാമ്പൽ d) വേനൽമഴ

Appendix D3

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION**Data and Results of Item Analysis of Test of
Achievement in Malayalam for Standard V**

Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item No. (Final tool)	Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item No. (Final tool)
1	0.44	0.42	1	26	0.38	0.39	22
2	0.46	0.71	2	27	-0.10	0.33	Rejected
3	0.58	0.67	3	28	0.56	0.58	23
4	0.68	0.56	4	29	0.58	0.47	24
5	0.58	0.57	5	30	0.60	0.46	25
6	0.14	0.37	Rejected	31	0.64	0.58	26
7	0.48	0.44	6	32	0.48	0.54	27
8	0.64	0.60	7	33	0.78	0.59	28
9	0.52	0.60	8	34	0.68	0.58	29
10	0.72	0.58	9	35	0.16	0.18	Rejected
11	0.32	0.32	10	36	0.60	0.54	30
12	0.20	0.38	Rejected	37	0.58	0.51	31
13	0.50	0.49	11	38	0.50	0.45	32
14	0.36	0.36	12	39	0.58	0.49	33
15	0.46	0.39	13	40	0.30	0.41	34
16	0.30	0.31	14	41	0.66	0.55	35
17	0.48	0.34	15	42	0.58	0.55	36
18	0.04	0.14	Rejected	43	0.34	0.35	37
19	0.38	0.37	16	44	0.38	0.27	38
20	0.30	0.31	17	45	0.40	0.36	39
21	0.06	0.19	Rejected	46	0.42	0.25	40
22	0.30	0.27	18	47	0.48	0.44	41
23	0.46	0.37	19	48	0.34	0.37	42
24	0.44	0.34	20	49	0.06	0.27	Rejected
25	0.30	0.37	21	50	0.50	0.41	43

AppendixD4

**UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION**

**Test of Achievement in Malayalam for Standard V
(Final)**

Dr. K. Abdul Gafoor
Professor

Kadeeja Sanam K.P.
Research Scholar

പേര് :
 ക്ലാസ്സ് :
 വിദ്യാലയത്തിന്റെ പേര് :
 മേൽവിലാസം :
 സ്ഥലം :

ഓരോ ചോദ്യങ്ങളും ശ്രദ്ധാപൂർവ്വം വായിച്ച് ഇതോടൊപ്പം പ്രത്യേകം തന്നിരിക്കുന്ന ഉത്തര കടലാസിൽ ശരിയുത്തരത്തെ സൂചിപ്പിക്കുന്ന അക്ഷരത്തെ വൃത്തം വരച്ച് അടയാളപ്പെടുത്തുക.

ഉദാ: ഉത്തരം 'a' എങ്കിൽ a b c d

I. ശരിയായ പദം കണ്ടെത്തുക.

- | | | | |
|----------------|-------------|-------------|-------------|
| 1. a) അഗിലം | b) അഘിലം | c) അകിലം | d) അവിലം |
| 2. a) പ്രക്രതി | b) പ്രകൃതി | c) പ്രഗൃതി | d) പ്രഗ്രതി |
| 3. a) അധ്യാപകൻ | b) അദ്യാപകൻ | c) അധ്യാപകൻ | d) അത്യാപകൻ |

II. ശരിയായത് തിരഞ്ഞെടുക്കുക

4. കുഴപ്പമില്ല
 a) കുഴപ്പ + മില്ല b) കുഴപ്പം + ഇല്ല c) കുഴപ്പ + ഇല്ല d) കുഴപ്പം + മില്ല
5. എത്തിപ്പോയി
 a) എത്തി + പോയി b) എത്തി + പ്പോയി c) എതി + പോയി d) എതി + പ്പോയി

III. അക്ഷരമാല ക്രമത്തിലുള്ളത് തിരഞ്ഞെടുക്കുക

6. a) ധനികൻ, ജനം, ഘടികാരം, ശബ്ദം
 b) ജനം, ധനികൻ, ഘടികാരം, ശബ്ദം
 c) ഘടികാരം, ജനം, ധനികൻ, ശബ്ദം
 d) ശബ്ദം, ധനികൻ, ജനം, ഘടികാരം

IV. അടിവരയിട്ട പദത്തിന് പകരം പദം കണ്ടെത്തുക.

7. ഞാൻ ജനനിയോട് ചോദിച്ചു
 a) ചേച്ചി b) അമ്മ c) ആകാശം d) അമ്പിളി
8. ആകാശം നക്ഷത്രശോഭയിൽ മുങ്ങി.
 a) തിളക്കം b) മിന്നൽ c) വെളിച്ചം d) അന്ധകാരം
9. അച്ഛൻ കോപിച്ചു
 a) സന്തോഷിച്ചു b) സഹായിച്ചു c) ദേഷ്യപ്പെട്ടു d) വിഷമിച്ചു

V. കൂട്ടത്തിൽ പൊത്തൽ ഏത്?

10. a) ആനനം b) വദനം c) ഗഗനം d) മുഖം
 11. a) അഗ്നി b) തീ c) മാരുതൻ d) വഹ്നി

VI. വിപരീതപദം കണ്ടെത്തുക

12. കഠിനം
 a) അതികഠിനം b) വിഷമം c) ലളിതം d) അതിലളിതം
 13. സ്വാഭാവികം
 a) ഭാവികം b) അഭാവികം c) അനുഭാവികം d) അസ്വാഭാവികം
 14. പുരാതനം
 a) ആധുനികം b) അപുരാതനം c) പ്രാചീനം d) പഴയ

VII. യോജിച്ചത് തിരഞ്ഞെടുക്കുക

15. തുടക്കം മുതൽ ഒടുക്കം വരെ
 a) പാതി b) ഉടനീളം c) പ്രാരംഭം d) ഏറെക്കുറെ
 16. വിനയത്തോടു കൂടിയവൻ
 a) വിനയൻ b) വിനയ c) വിനയാന്വിതൻ d) വന്യൻ

VIII. മാതൃകപോലെ അനുയോജ്യമായ പദം കണ്ടെത്തുക

പ്രഭു - a) പ്രഭി b) പ്രഭി c) പ്രഭുല d) പ്രഭവ

17. ഭവൻ - a) ഭവാനി b) ഭവനി c) ഭവതി d) ഭവിണി
 18. കവി - a) കവയത്രി b) കവിയത്രി c) കവയിത്രി d) കവിയിത്രി

IX. വിശേഷണപദം തിരഞ്ഞെടുക്കുക

19. a) വൃദ്ധ/ b) റോഡിലൂടെ/ c) പതുകെ/ d) നടന്നു
 20. a) അവർ/ b) വലിയൊരു/ c) മരത്തിൽ/ d) കയറി
 21. a) അവർ/ b) പരുപരുത്ത/ c) പാറക്കുഴലങ്ങൾ/ d) കണ്ടു

X. ശരിയായ വാക്യം തിരഞ്ഞെടുക്കുക

22. a) എല്ലാ വെള്ളിയാഴ്ച തോറും പ്രാർത്ഥനയുണ്ട്
 b) എല്ലാ വെള്ളിയാഴ്ചയും പ്രാർത്ഥനയുണ്ട്
 c) വെള്ളിയാഴ്ച തോറും സ്ഥിരമായി പ്രാർത്ഥനയുണ്ട്.
 d) എല്ലാ വെള്ളിയാഴ്ചതോറും സ്ഥിരമായി പ്രാർത്ഥനയുണ്ട്.

XI. ഉത്തരം കണ്ടെത്തുക

23. മണ്ണിൽ വീണൊരു ചോരത്തുള്ളി വറ്റാതെ കിടക്കുന്നു.
 a) ചെമ്പരത്തിപൂവ് b) ചോര c) മഞ്ചാടി d) തവളക്കണ്ണ്
 24. കുത്തുന്ന കാളക്ക് കണ്ണ് പിന്നിൽ
 a) വണ്ട് b) സൂചി c) തേനീച്ച d) കൊതുക്

XII. താഴെ കൊടുത്തിരിക്കുന്ന സൂചനകൾ വായിച്ച് ഉചിതമായത് തിരഞ്ഞെടുക്കുന്ന തലക്കെട്ടിൽനിന്നും തിരഞ്ഞെടുക്കുക

- | | |
|--|---|
| 25.
<ul style="list-style-type: none"> • താളം • ഇറുണം • ശബ്ദാലങ്കാരം • അർത്ഥാലങ്കാരം a) ഗദ്യം b) പദ്യം c) നാടകം d) ചെറുകഥ | 26.
<ul style="list-style-type: none"> • സന്ദർഭം • വേഷവിധാനം • രംഗം • അഭിനേതാക്കൾ |
|--|---|

XIII. ഖണ്ഡികകൾ വായിച്ച് താഴെ കൊടുത്തിരിക്കുന്ന 27 മുതൽ 34 വരെയുള്ള ചോദ്യങ്ങൾക്ക് ഉചിതമായ ഉത്തരം തിരഞ്ഞെടുക്കുക

D. റോമോ സ്കൂളിലെ ഉച്ചയൂണ് മറ്റ് സ്കൂളിൽനിന്നും വ്യത്യസ്തമായിരുന്നു. കുട്ടികൾ കഴിക്കേണ്ട സാദൃശ്യമായ ഉച്ചയൂണിന് വേഷവിധാനത്തിനോ പാഠ്യപദ്ധതിക്കോ നൽകുന്നതിനേക്കാൾ വലിയ പരിഗണന നൽകിയിരുന്ന ഹെഡ്മാസ്റ്റർ കായിക മത്സരങ്ങളിൽ പങ്കെടുത്ത് വിജയികളാവുന്നവർക്ക് സമ്മാനമായി നൽകിയിരുന്നത് പച്ചക്കറികളാണ്.

27. എന്താണ് റോമോ സ്കൂളിനെ മറ്റു സ്കൂളുകളിൽനിന്നും വ്യത്യസ്തമാക്കിയത്?
 a) വേഷവിധാനം b) പാഠ്യപദ്ധതി c) ഉച്ചയൂണ് d) കായികമത്സരങ്ങൾ
28. കായിക മത്സരങ്ങളിൽ പങ്കെടുത്ത് വിജയികളാവുന്നവർക്ക് എന്താണ് സമ്മാനമായി നൽകിയിരുന്നത്?
 a) പഴങ്ങൾ b) പച്ചക്കറികൾ c) ഉറുഞ്ചി d) മിഠായി
29. ഏത് മത്സരവിജയികൾക്കാണ് സമ്മാനം നൽകിയത്?
 a) ചിത്രരചന b) പ്രസംഗം c) കായികം d) പരീക്ഷ

E. ചലച്ചിത്ര അഭിനേത്രിയും ടെലിവിഷൻ അവതാരകയുമാണ് തൈസുകോ കുറോയനഗി ജപ്പാനീസ് നഗരമായ ടോക്കിയോയിൽ ജനിച്ചു. ലോകവ്യാപകമായി വിദ്യാഭ്യാസ വിപ്ലവത്തിനു വഴിതെളിച്ച ടോട്ടോച്ചാൻ എന്ന ആത്മകഥാപരമായ ഗ്രന്ഥത്തിന്റെ കർത്താവാണ് തൈസുകോ

30. ആരാണ് തൈസുകോ കുറോയനഗി?
 a) ഗായിക b) അഭിനേത്രി c) വക്കീൽ d) അദ്ധ്യാപിക
31. തൈസുകോയുടെ സ്വദേശം ഏത്?
 a) കൊളംബോ b) വാഷിങ്ടൺ c) ലണ്ടൻ d) ടോക്കിയോ
32. 'ടോട്ടോച്ചാൻ' ഏതു വിപ്ലവത്തിനാണ് വഴിതെളിച്ചത്?
 a) കായികം b) വിദ്യാഭ്യാസം c) കായികം d) കാർഷികം
33. 'ടോട്ടോച്ചാൻ' എന്ന ഗ്രന്ഥം ഏതു വിഭാഗത്തിൽ പെടുന്നു?
 a) ചെറുകഥ b) ജീവചരിത്രം c) കവിത d) ആത്മകഥ

F. നല്ല ഭക്ഷണവും ഭക്ഷണരീതിയും ശരീരത്തിന് പ്രധാനമെന്നത്പോലെതന്നെ പ്രധാനമാണ് നമ്മുടെ മനസ്സിന് നമ്മൾ കൊടുക്കുന്ന കാഴ്ചകൾ, ജീവിതക്രമങ്ങൾ, വായിക്കുന്ന പുസ്തകങ്ങൾ, കേൾക്കുന്ന വാക്കുകൾ എല്ലാം.

34. ഈ വാക്യത്തിലെ ആശയം
 a) ആരോഗ്യം b) വായനാശീലം c) ഭക്ഷണക്രമം d) ജീവിതശൈലി

XIV. പദ്യശകലങ്ങൾ വായിച്ച് താഴെ കൊടുത്തിരിക്കുന്ന 35 മുതൽ 43 വരെയുള്ള ചോദ്യങ്ങൾക്ക് ഉചിതമായ ഉത്തരം തിരഞ്ഞെടുക്കുക

A. *ഓത്തുപള്ളിയിലെ
കശുമാവിൻ തോട്ടത്തിൽ നിന്നും
അൻവർ കൊണ്ടുതരാറുള്ള
പറങ്കിമാങ്ങ മധുരം
അമ്പലപ്പുറമ്പിലെ
ആൽമരം പോലെ
തണൽത്തലോടലായ്
അച്ഛനുമമ്മയും
തുമ്പപ്പുവെൺപൊൽ
വാത്സല്യമെൻ പെങ്ങൾ
കന്യുട്ടറിന് ജീവിതം
പകുത്തു കൊടുക്കുമ്പോൾ
നാടിപ്പോൾ ഓർമകളുടെ
യൊരു കുമ്പസാരം.....*

- 35. എവിടെയാണ് കശുമാവിൻ തോട്ടം?
a) വീട്ടിൽ b) സ്കൂളിൽ c) ഓത്തുപള്ളിയിൽ d) അമ്പലപ്പുറമ്പിൽ
 - 36. എന്താണ് അൻവർ കൊണ്ടുതരാറുള്ളത്?
a) മാങ്ങ b) പറങ്കിമാങ്ങ c) മധുരം d) തുമ്പപ്പു
 - 37. തണൽ തലോടലായ് നിൽക്കുന്നതാരാണ്?
a) ആൽമരം b) അമ്പലപ്പുറമ്പ് c) അച്ഛനുമമ്മയും d) തുമ്പപ്പു
 - 38. വാത്സല്യം നിറഞ്ഞ പെങ്ങളെ കവി എന്തിനോടാണ് ഉപമിച്ചിരിക്കുന്നത്?
a) അമ്പലപ്പുറമ്പ് b) ആൽമരം c) തുമ്പപ്പു d) തുമ്പപ്പുവെൺ
 - 39. ഉചിതമായ തലക്കെട്ട് തിരഞ്ഞെടുക്കുക
a) ഓത്തുപള്ളി b) അമ്പലപ്പുറമ്പ് c) ആൽമരം d) ബാല്യകാല ഓർമകൾ
- B. *വേനലിലമരുന്ന
മലർക്കാലത്തിലെന്റേ
ആശകളൊന്നൊന്നായി
വാടിവീണലിയവേ
ഒരു തുള്ളി നീരിനായി
കേഴുന്ന വേഴാമ്പലായ്
ഇനിയുമണയാത്ത
കുളിരു കാക്കുന്നു ഞാൻ*
- 40. ഏതു കാലത്തെക്കുറിച്ചാണ് ഈ വരികളിൽ പറഞ്ഞിരിക്കുന്നത്?
a) തണുപ്പുകാലം b) ചൂടുകാലം c) മഴക്കാലം d) വസന്തകാലം
 - 41. എന്താണ് വാടിവീണലിയുന്നത്?
a) ഓർമ്മകൾ b) അനുഭവങ്ങൾ c) ആശകൾ/ആഗ്രഹങ്ങൾ d) സങ്കടങ്ങൾ
 - 42. എന്തിനുവേണ്ടിയാണ് കവി കേഴുന്നത്?
a) ജലം b) ചൂട് c) തണുപ്പ് d) കുളിർ
 - 43. ഉചിതമായ തലക്കെട്ട് തിരഞ്ഞെടുക്കുക?
a) വേനൽ b) ജലം c) വേഴാമ്പൽ d) വേനൽമഴ

Appendix D5

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

**Scoring Key of Test of Achievement in
Malayalam for Standard V
(Final)**

Item No.	Answer	Item No.	Answer
1	D	23	C
2	B	24	B
3	C	25	B
4	B	26	C
5	A	27	C
6	C	28	B
7	B	29	C
8	C	30	B
9	C	31	D
10	C	32	B
11	C	33	D
12	C	34	D
13	D	35	C
14	A	36	B
15	B	37	C
16	C	38	C
17	C	39	D
18	C	40	B
19	C	41	C
20	B	42	D
21	B	43	B
22	B		

Appendix E1

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION**Blueprint of Test of Achievement in
English for Standard 1**

Draft							
Content	Objectives						
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	Total number of items
Vocabulary							
Letters		1,2,3,4,5					5
Words	6,7	12,13, 16,17,18, 19,20	21,22,23, 29,30	8,9,10, 11,14, 15,24,25			22
Comprehension							
Sentences						31,32,33,34,35	5
Passage		36,37,39, 40, 42,43		41,44	38, 45		10
Pictures				26,27, 28			3
Total	2	18	5	13	2	5	45

Note: Numbers in italics denotes item numbers in the draft test.

Final

Content	Objectives						
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	Total number of items
Vocabulary							
Letters		1,2,3,4,5					5
Words	6,7	12,13,16, 19,20	21, 22, 23, 29, 30	8,9,10, 11,14, 15,24, 25			20
Comprehension							
Sentences						31,32,33, 34,35	5
Passage		36,39, 40,42			38, 45		6
Pictures				26,27, 28			3
Total	2	14	5	11	2	5	39

Note: Numbers in italics denotes item numbers in the final test.

Appendix E2
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Test of Achievement in English for Standard I
(Draft)

Dr. K. Abdul Gafoor
Professor

Kadeeja Sanam K.P.
Research Scholar

Name Class.....

Read the instructions of each items carefully and mark the responses accordingly.

I. Fill in the blanks

1.
a b c d _ f g h _ j k _ m
n o _ q r s t u _ w x y z

II. Match the following

<u>A</u>	<u>B</u>
2. K	a) a
3. M	b) k
4. T	c) m
5. A	d) r
	e) t

III. Identify the first letter of the name of the picture







6. a) l b) p c) a d) e

IV. Look at the picture and tick the missing letter



7. c _ _ _ p
a) a b) e c) u d) i

V. Match the pictures with the words

8.	<u>A</u>	<u>B</u>
		a) ball
9.		b) bag
10.		c) cow
11.		d) fan

VI. Underline the word which rhyme with the given word

12. **can** a) mat b) pan c) fat d) bad
 13. **bed** a) pet b) pen c) red d) wet

VII. Circle the opposite words

14. **small** a) short b) big c) heavy d) long
 15. **sad** a) bad b) good c) happy d) angry

VIII. Tick the young ones

16. **Duck** a) chick b) duckling c) hen d) ducky
 17. **Elephant** a) kid b) calf c) cub d) pup



IX. Tick the correct spelling of the following words

18. a) gge b) geg c) egg
 19. a) leef b) leaf c) lief d) leif
 20. a) chick b) chik c) chikk d) chikc




X. Match the colour with the objects

21. apple a) green
 22. banana b) red
 23. parrot c) yellow

XI. Look at the pictures and tick the right option to complete the sentences

24. The cat is _____ the mat 
 a) in b) at c) on d) under
 25. The ball is _____ the table 
 a) in b) at c) on d) under

XII. Match sentences with the pictures

26. A crow is on the tree  a)
 27. A boy swims in the pond  b)
 28. The baby drinks milk  c)

XIII. Replace the picture with the word

29.  _____
 30.  _____ at home.

XIV. Write your favourite things

- 31. I like to eat
- 32. I like colour
- 33. My favourite toy is.....

XV. Write two things you can do alone

- 34. I can.....
- 35. I can

XVI. Read the following passages and choose the right answers for the questions.

A. Mox is an ox.

He looks like a big fat box.

Mox met Rox.

Rox is a fox.

- 36. Who is Mox?
a. ox b. box c. fox
- 37. Whom did Mox meet?
a. ox b. box c. fox
- 38. The above lines are about?
a. mox b. rox c. animals

B. There is a fat cat Lat.

It is on the mat.

Lat and rat are sitting near bat.

- 39. The name of the cat is
a. bat b. mat c. Lat
- 40. Where does the cat sit?
a. mat b. bat c. rat
- 41. Who is sitting near the cat?
a. bat b. rat c. mat

C. Tinu has a pet dog and a pet cat

Her dog has a yellow and black cap

Her cat has a red and blue cap

She loves cats and dogs.

- 42. Who has pets?
a. Anu b. Minu c. Tinu
- 43. Who has yellow and black cap?
a. Anu b. dog c. cat
- 44. What is the colour of the cap of cat?
a. Yellow b. black c. red
- 45. What is the paragraph about?
a. dog b. cat c. pets

Appendix E3

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

**Data and Results of Item Analysis of Test of
Achievement in English for Standard I**

Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)	Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)
1	0.76	0.44	1	24	0.42	0.39	22
2	0.72	0.62	2	25	0.32	0.26	23
3	0.74	0.63	3	26	0.80	0.54	24
4	0.78	0.59	4	27	0.74	0.53	25
5	0.78	0.61	5	28	0.80	0.50	26
6	0.38	0.37	6	29	0.92	0.50	27
7	0.56	0.40	7	30	0.76	0.54	28
8	0.62	0.69	8	31	0.78	0.55	29
9	0.66	0.65	9	32	0.92	0.54	30
10	0.50	0.75	10	33	0.86	0.47	31
11	0.48	0.74	11	34	0.76	0.40	32
12	0.66	0.43	12	35	0.68	0.36	33
13	0.60	0.36	13	36	0.36	0.22	34
14	0.52	0.34	14	37	0.08	0.08	Rejected
15	0.34	0.21	15	38	0.30	0.21	35
16	0.76	0.40	16	39	0.34	0.23	36
17	0.18	0.11	Rejected	40	0.32	0.20	37
18	0.18	0.81	Rejected	41	0.12	0.06	Rejected
19	0.64	0.46	17	42	0.40	0.20	38
20	0.38	0.35	18	43	0.22	0.11	Rejected
21	0.74	0.61	10	44	0.08	0.04	Rejected
22	0.84	0.58	20	45	0.42	0.21	39
23	0.68	0.66	21				

Appendix E4

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in English for Standard I
(Final)

Dr. K. Abdul Gafoor
Professor

Kadeeja Sanam K.P.
Research Scholar

Name Class.....

Read the instructions of each items carefully and mark the responses accordingly.

I. Fill in the blanks

1.
a b c d _ f g h _ j k _ m
n o _ q r s t u _ w x y z

II. Match the following

- | | | | |
|----|----------|--|----------|
| | <u>A</u> | | <u>B</u> |
| 2. | K | | a) a |
| 3. | M | | b) k |
| 4. | T | | c) m |
| 5. | A | | d) r |
| | | | e) t |

III. Identify the first letter of the name of the picture







6. a) l b) p c) a d) e

IV. Look at the picture and tick the missing letter



7. c _ p
b) a b) e c) u d) i

V. Match the pictures with the words

- | | | | |
|-----|---|--|----------|
| 8. | <u>A</u> | | <u>B</u> |
| |  | | a) ball |
| 9. | | | |
| |  | | b) bag |
| 10. | | | |
| |  | | c) cow |
| 11. | | | |
| |  | | d) fan |

VI. Underline the word which rhyme with the given word

12. **can** a) mat b) pan c) fat d) bad
 13. **bed** a) pet b) pen c) red d) wet

VII. Circle the opposite words

14. **small** a) short b) big c) heavy d) long
 15. **sad** a) bad b) good c) happy d) angry

VIII. Tick the young ones

16. **Duck** a) chick b) duckling c) hen d) ducky


IX. Tick the correct spelling of the following words


17. a) leef b) leaf c) lief d) leif
 18. a) chick b) chik c) chikk d) chike

X. Match the colour with the objects




19. apple a) green
 20. banana b) red
 21. parrot c) yellow

X. Look at the pictures and tick the right option to complete the sentences


22. The cat is _____ the mat 
 a) in b) at c) on d) under

23. The ball is _____ the table 
 a) n b) at c) on d) under

XI. Match sentences with the pictures

24. A crow is on the tree  a)
 25. A boy swims in the pond  b)
 26. The baby drinks milk  c)

XII. Replace the picture with the word

27. My father writes with a  _____

28. We have a  _____ at home.

XIII. Write your favourite things

- 29. I like to eat
- 30. I like colour
- 31. My favourite toy is.....

XIV. Write two things you can do alone

- 32. I can.....
- 33. I can

XV. Read the following passages and choose the right answers for the questions.

A. Mox is an ox.

He looks like a big fat box.

Mox met Rox.

Rox is a fox.

- 34. Who is Mox?
a. ox b. box c. fox
- 35. The above lines are about?
a. mox b. rox c. animals

B. There is a fat cat Lat.

It is on the mat.

Lat and rat are sitting near bat.

- 36. The name of the cat is
a. bat b. mat c. lat
- 37. Where does the cat sit?
a. mat b. bat c. rat

C. Tinu has a pet dog and a pet cat

Her dog has a yellow and black cap

Her cat has a red and blue cap

She loves cats and dogs.

- 38. Who has pets?
a. Anu b. Minu c. Tinu
- 39. What is the paragraph about?
a. dog b. cat c. pets

Appendix E5

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

**Scoring Key of Test of Achievement in
English for Standard I
(Final)**

Item No.	Answer	Item No.	Answer
1	e, i, l, p, v	21	A
2	B	22	C
3	C	23	D
4	E	24	C
5	A	25	A
6	C	26	B
7	A	27	Pen
8	B	28	Dog/puppy
9	D	29	Name of a food
10	A	30	Name of a colour
11	C	31	Name of a Toy
12	B	32	List out two things that child can do alone
13	C	33	
14	B	34	A
15	C	35	A
16	B	36	C
17	B	37	A
18	A	38	C
19	B	39	C
20	C		

Appendix F1

UNIVERSITY OF CALICUT DEPARTMENT OF EDUCATION

Blueprint of Test of Achievement in English for Standard III

Draft							
Objectives	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	Total number of items
Content							
Vocabulary	1, 2, 3						5
Letters	6, 7						
Words	4, 5, 23, 24, 25, 33, 34	21, 22, 26, 27, 28, 29, 30, 31, 32	8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20				27
Comprehension							
Sentences					38, 39		2
Picture				35, 36, 37			3
Passage	40, 41, 42, 44, 45, 46, 47, 48, 51, 52, 53, 54			43, 49		50, 55	16
Total	5	19	9	16	2	2	55

Note: Numbers in italics denotes item numbers in the draft test.

Final

Objectives	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	Total number of items
Content							
Vocabulary							
Letters	1, 2, 3, 6, 7						5
Words	4, 5, 24, 25, 33, 34	21, 22, 26, 27, 28, 29, 30, 31, 32	8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18				25
Comprehension							
Sentences					38, 39		2
Picture				35, 36, 37			3
Passage	40, 41, 42, 46, 47, 48, 51, 52, 53, 54			43, 49		55	13
Total	5	16	9	15	2	1	48

Note: Numbers in italics denotes item numbers in the final test.

Appendix F2
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in English for Standard III

(Draft)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

Name Class.....

Name of the school

Read the instructions of each items carefully and mark the responses accordingly.

I. Find the missing letters from the bracket.

a) i	b) o	c) u	d) e	e) a
------	------	------	------	------

1. c ___ lourful
2. d ___ fferent
3. na ___ ghty

II. Circle the word which does not belong in the group.

4. a) get b) wet c) vat d) pet
5. a) fun b) fin c) run d) bun

III. Tick the words which spelt correctly

6. a) giraf b) girafe c) giraff d) giraffe
7. a) bicycle b) bycikle c) bycycle d) bicycel
8. a) baautiful b) beautiful c) beautifull d) baeutifull

IV. Choose the opposites from the options given.

9. old a) bad b) new c) dirty d) weak
10. right a) straight b) back c) front d) left
11. hard a) rough b) soft c) tough d) smooth

V. Match the animals with their homes

12. bee a) nest
13. dog b) hive
14. bird c) kennel

VI. Underline the word which cannot be made from the given word.

15. Circle the noun
 a) flower b) grow c) dry d) hard
16. Tick the proper noun
 a) man b) boy c) Raju d) nephew

VII. Underline the action words.

17. a b c d
 Sam/ plays/ football/ well.
18. a b c d
 Meena/ reads/ the/ stories.

VIII. Cross the words which describe noun

19. a) book b) toy c) read d) good
 20. a) wonderful b) wings c) house d) glass

IX. Choose appropriate pronouns from the box to fill the blanks.

a) he	b) she	c) it	d) they
-------	--------	-------	---------

21. Smitha dances well. _____ has won awards.
 22. Anu and Manu are friends. _____ are planning a trip.

X. Write the plural form of the given words

23. man a) men b) mans c) mens
 24. baby a) babys b) babees c) babies
 25. foot a) foots b) feet c) feets

XI. Fill the blanks using the prepositions from bracket.

a) from	b) on	c) in	d) at
---------	-------	-------	-------

26. The groceries were _____ the basket
 27. Grandfather was searching for his spectacles. It was _____ his head.

XII. Fill in the blanks using the words given below

a) are	b) am	c) is	d) were
--------	-------	-------	---------

28. Raju a good boy.
 29. He intelligent too.

XIII. Choose the appropriate article for the following words.

a) a	b) an	c) the
------	-------	--------

30. _____ mug
 31. _____ elephant
 32. _____ hour

XIV. Fill in the blanks with appropriate words.

33. My mother's father is my
 a) uncle b) father c) grandfather d) brother
 34. My uncle's daughter is my
 a) aunt b) sister c) niece d) cousin

XV. Write down appropriate words which indicating the feelings in the spaces provided

35.



36.



37.



XVI. Circle the correct one.

38. I can fly.
I sleep during the day.
I have round face.
My eyes are sharp.
I eat rats.
- a) parrot b) crow c) robin d) owl
39. My colour is orange.
Rabbits like me.
I am sweet.
- a) tomato b) potato c) carrot d) onion

XVII. Read the passage and answer the questions that follow.

- A. Emy, the elephant lives in a forest. She goes to school every day. The school is just outside the forest. Jin, the giraffe and Eric, the bear are her best friends. They go to school together.
40. Who is the elephant?
a. Emy b. Jin c. Eric
41. Where does they live?
a. near the forest b. in the forest c. outside the forest
42. Eric is a
- a. an elephant b. giraffe c. bear
43. Jin and Eric are the of Emy.
a. enemies b. brothers c. friends
44. Where do they go together?
a. forest b. home c. school
- B. Once upon a time there were three goats. One of them made a house of grass. A fox came and blew at the house, which broke. The second one made a house of wood. The fox came and blew again and the house broke. The third goat made the house of bricks. The fox again blew at the house, but the house did not break because it was strong.
45. How many goats were there?
a) two b) three c) one d) four
46. What did the second goat use to make his house?
a) grass b) brick c) wood d) sand
47. Who was destructing the houses?
a) goats b) fox c) ox d) dog
48. Who made the house of bricks?
a) first goat b) second goat c) third goat d) fox
49. Choose the meaning of the word strong
a) soft b) hard c) powerful d) weak

50. Write a suitable title to the passage.

- a) Three goats
- b) The house of bricks
- c) The intelligent goats
- d) The house of grass

C. A long time ago there lived a little girl and her mother in a village near forest. The girl always wore a red coat with a hood. So everyone in the village called her Little Red Riding Hood. One morning she started to visit her grandmother with her pet dog 'Julie'. But they were chased by a pack of wolves and foxes. A woodcutter saved them and helped to reach grandmother's house.

51. Where did the little girl and her mother live?

- a) Forest
- b) town
- c) village
- d) grandmother's house

52. Why everyone called the little girl 'Little Red Riding Hood'?

- a) because she was little girl
- b) because she is red colour
- c) because she were red coat
- d) because it is her pet name

53. Name the animals chased the little girl and her pet.

- a) foxes and dogs
- b) foxes and wolves
- c) wolves and dogs
- d) wolves and lions

54. Who did save her from animals?

- a) mother
- b) grandmother
- c) dog
- d) woodcutter

55. Select a suitable title to the passage?

- a) woodcutter
- b) little red riding hood
- c) Julie
- d) wolves and foxes

Appendix F3

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

**Data and Results of Item Analysis of Test of
Achievement in English for Standard III**

Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)	Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)
1	0.78	0.59	1	29	0.54	0.55	26
2	0.78	0.43	2	30	0.44	0.48	27
3	0.58	0.39	3	31	0.42	0.49	28
4	0.70	0.45	4	32	0.46	0.41	29
5	0.66	0.51	5	33	0.88	0.50	30
6	0.60	0.62	6	34	0.58	0.49	31
7	0.72	0.44	7	35	0.78	0.55	32
8	0.68	0.50	8	36	0.88	0.56	33
9	0.72	0.52	9	37	0.70	0.45	34
10	0.76	0.54	10	38	0.62	0.49	35
11	0.48	0.40	11	39	0.46	0.59	36
12	0.58	0.59	12	40	0.58	0.55	37
13	0.66	0.65	13	41	0.56	0.56	38
14	0.62	0.67	14	42	0.62	0.49	39
15	0.52	0.50	15	43	0.54	0.61	40
16	0.42	0.33	16	44	0.46	0.77	Rejected
17	0.66	0.37	17	45	0.36	0.78	Rejected
18	0.66	0.43	18	46	0.66	0.47	41
19	0.26	0.21	Rejected	47	0.44	0.58	42
20	0.30	0.23	Rejected	48	0.58	0.45	43
21	0.70	0.55	19	49	0.74	0.51	44
22	0.72	0.48	20	50	0.30	0.21	Rejected
23	0.40	0.22	Rejected	51	0.66	0.49	45
24	0.62	0.39	21	52	0.62	0.49	46
25	0.40	0.26	22	53	0.52	0.48	47
26	0.60	0.36	23	54	0.38	0.35	48
27	0.52	0.34	24	55	0.56	0.48	49
28	0.70	0.59	25				

Appendix F4

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in English for Standard III (Final)

Dr. K. Abdul Gafoor
Professor

Kadeeja Sanam K.P.
Research Scholar

Name Class.....

Name of the school

Read the instructions of each items carefully and mark the responses accordingly.

I. Find the missing letters from the bracket.

a) i	b) o	c) u	d) e	e) a
------	------	------	------	------

1. c ___ lourful
2. d ___ fferent
3. na ___ ghty

II. Circle the word which does not belong in the group.

4. a) get b) wet c) vat d) pet
5. a) fun b) fin c) run d) bun

III. Tick the words which spelt correctly

6. a) giraf b) giraf c) giraff d) giraffe
7. a) bicycle b) bycikle c) bycicle d) bicycel
8. a) baautiful b) beautiful c) beautifull d) baautifull

IV. Choose the opposites from the options given.

9. old a) bad b) new c) dirty d) weak
10. right a) straight b) back c) front d) left
11. hard a) rough b) soft c) tough d) smooth

V. Match the animals with their homes

12. bee a) nest
13. dog b) hive
14. bird c) kennel

VI. Underline the word which cannot be made from the given word.

15. Circle the noun
a) flower b) grow c) dry d) hard
16. Tick the proper noun
a) man b) boy c) Raju d) nephew

VII. Underline the action words.

17. a b c d
Sam/ plays/ football/ well.
18. a b c d
Meena/ reads/ the/ stories.

VIII. Choose appropriate pronouns from the box to fill the blanks.

a) he	b) she	c) it	d) they
-------	--------	-------	---------

19. Smitha dances well. ____ has won awards.
 20. Anu and Manu are friends. ____ are planning a trip.

IX. Write the plural form of the given words

21. baby a) babys b) babees c) babies
 22. foot a) foots b) feet c) feets

X. Fill the blanks using the prepositions from bracket.

a) from	b) on	c) in	d) at
---------	-------	-------	-------

23. The groceries were _____ the basket
 24. Grandfather was searching for his spectacles. It was _____ his head.

XI. Fill in the blanks using the words given below

a) are	b) am	c) is	d) were
--------	-------	-------	---------

25. Raju a good boy.
 26. He is intelligent too.

XII. Choose the appropriate article for the following words.




a) a	b) an	c) the
------	-------	--------

27. _____ mug
 28. _____ elephant
 29. _____ hour

XIII. Fill in the blanks with appropriate words.

30. My mother's father is my
 a) uncle b) father c) grandfather d) brother
 31. My uncle's daughter is my
 a) aunt b) sister c) niece d) cousin

XIV. Write down appropriate words which indicating the feelings in the spaces provided

32.  _____
 33.  _____
 34.  _____

XV. Circle the correct one.

35. I can fly.

I sleep during the day.

I have round face.

My eyes are sharp.

I eat rats.

a) parrot b) crow c) robin d) owl

36. My colour is orange.

Rabbits like me.

I am sweet.

a) tomato b) potato c) carrot d) onion

XVI. Read the passage and answer the questions that follow.

A. Emy, the elephant lives in a forest. She goes to school every day. The school is just outside the forest. Jin, the giraffe and Eric, the bear are her best friends. They go to school together.

37. Who is the elephant?

a. Emy b. Jin c. Eric

38. Where does they live?

a. near the forest b. in the forest c. outside the forest

39. Eric is a

a. an elephant b. giraffe c. bear

40. Jin and Eric are the of Emy.

a. enemies b. brothers c. friends

B. Once upon a time there were three goats. One of them made a house of grass. A fox came and blew at the house, which broke. The second one made a house of wood. The fox came and blew again and the house broke. The third goat made the house of bricks. The fox again blew at the house, but the house did not break because it was strong.

41. What did the second goat use to make his house?

a) grass b) brick c) wood d) sand

42. Who was destructing the houses?

a) goats b) fox c) ox d) dog

43. Who made the house of bricks?

a) first goat b) second goat c) third goat d) fox

44. Choose the meaning of the word strong

a) soft b) hard c) powerful d) weak

C. A long time ago there lived a little girl and her mother in a village near forest. The girl always wore a red coat with a hood. So everyone in the village called her Little Red Riding Hood. One morning she started to visit her grandmother with her pet dog 'Julie'. But they were chased by a pack of wolves and foxes. A woodcutter saved them and helped to reach grandmother's house.

45. Where did the little girl and her mother live?

- a) Forest b) town c) village d) grandmother's house

46. Why everyone called the little girl 'Little Red Riding Hood'?

- a) because she was little girl
b) because she is red colour
c) because she were red coat
d) because it is her pet name

47. Name the animals chased the little girl and her pet.

- a) foxes and dogs
b) foxes and wolves
c) wolves and dogs
d) wolves and lions

48. Who did save her from animals?

- a) mother b) grandmother c) dog d) woodcutter

49. Select a suitable title to the passage?

- a) woodcutter b) little red riding hood
c) Julie d) wolves and foxes

Appendix F5

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

**Scoring Key of Test of Achievement in
English for Standard III
(Final)**

Item No.	Answer	Item No.	Answer
1	B	26	C
2	A	27	A
3	C	28	B
4	C	29	B
5	B	30	C
6	D	31	D
7	A	32	Sad
8	B	33	Happy
9	B	34	Angry
10	D	35	D
11	B	36	C
12	B	37	A
13	C	38	B
14	A	39	C
15	A	40	C
16	C	41	C
17	B	42	B
18	B	43	C
19	B	44	C
20	D	45	C
21	C	46	C
22	B	47	B
23	C	48	D
24	B	49	B
25	C		

Appendix G1

UNIVERSITY OF CALICUT DEPARTMENT OF EDUCATION

Blueprint of Test of Achievement in English for Standard V

Draft

Objectives Content	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	Total number of items
	Vocabulary						
<i>Letters</i>	1, 2, 3, 6, 7						5
<i>Words</i>		4, 5, 14, 15, 16, 34, 35	12, 13, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33	8, 9, 10, 11, 17, 18, 19, 20			30
Comprehension							
<i>Sentences</i>					36		1
<i>Passages</i>		1, 6, 8, 11, 12, 13, 14, 16, 19		2, 3, 4, 7, 9, 17, 18	5, 10, 15	20	20
Total	5	16	15	15	4	1	56

Note: Numbers in italics denotes item numbers in the draft test.

Final

Objectives Content	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	Total number of items
	Vocabulary						
<i>Letters</i>	1,2,3, 6,7						5
<i>Words</i>		5, 14, 15, 16, 35	12,13,21,22, 23,24,25,26, 27,29,30,31,32	8,9,10,11, 17,18,19,20			27
Comprehension							
<i>Sentences</i>					36		1
<i>Passages</i>		1,6,8,12, 13,14,19		2,3,4,7,9, 17	5,10,15	20	17
Total	5	12	13	14	4	1	51

Note: Numbers in italics denotes item numbers in the final test.

Appendix G2

**UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION**

Test of Achievement in English for Standard V

(Draft)

Dr. K. Abdul Gafoor
Professor

Kadeeja Sanam K.P.
Research Scholar

Name Class.....

Name of the school

Address.....

Section A: Vocabulary

Read the instructions of each items carefully and circle the appropriate answer in the given response sheet.

Eg: If 'a' is the answer (a) b c d

I. Fill the words using suitable spelling

a) u	b) a	c) o	d) e
------	------	------	------

1. cre__ture
2. p__bbles
3. dangero__s

II. Find the rhyming words

4. fast
a) best b) fest c) cast d) dust
5. cream
a) stem b) dream c) from d) drum

III. Tick the correctly spelt words

6. a) remembar b) remambar c) rimember d) remember
7. a) bouquet b) bouquette c) boquet d)boquette

IV. Choose the opposites

8. appear
a) misappear b) unappear c) disappear d) inappear
9. wide
a) thin b) narrow c) lean d) small

V. Cross odd one.

10. a) dinner b) lunch c) tea d) break fast
11. a) meow b) talk c) trumpet d) moo

VI. Circle the correct contracted form

12. is not
a) isnt b) is n't c) isn't d) isnt'

13. we are
 a) we're b) weare c) we're d) were

VII. Find the plural form of the words

14. butterfly
 a) butterflys b) butterflies c) butterflis d) butterflees
15. dish
 a) dishes b) dishies c) dishes d) dish
16. child
 a) childs b) childes c) childrens d) children

VIII. Find the words which describe noun

- a b c d e
17. Anu / is / an / intelligent / student.
 a b c d
18. Grandmother / tells / adventurous / stories.

IX. Identify the adverbs in the sentences

- a b c d
19. He/ ran / fast / in the race.
 a b c d
20. The / cobra / turned / quickly.

X. Complete the paragraph using the suitable prepositions from the bracket

a) he b) his c) it d) they

Arun is a good boy. (21)___ helps others in their needs. (22)___parents also help others. (23)___ are so generous. (24) ___ made them dears to all.

XI. Fill the gap with the appropriate words from the box.

a) all b) some c) a d) an

Once there was (25) _____ flock of pigeons that lived in (26) _____ oak tree. One day, the pigeons were flying in search of food, they saw (27) _____ grains on the ground. But a few rats came and ate them completely.

XII. Pick the suitable verb forms to fill the blanks.

28. Motherthe food everyday.
 a) cook b) cooked c) cooks d) cooking
29. Hari to park yesterday.
 a) go b) went c) goes d) gone
30. Uncle a doll for me next week.
 a) will bring b) will brought c) will brings d) will bringing

XIII. Select the words in the box to complete the sentences

a) up b) under c) at d) on

- 31. The dog was hidden the table.
- 32. I was alone home.
- 33. Ram climbed the tree.

XIV. Find the sounds of animals from the options

- 34. Pig a) brays b) neighs c) barks d) grunts
- 35. Elephant a) chatters b) clucks c) trumpets d) roars

XV. Select the correct sentence

- 36. a) Rema is book reading. b) Rema book is reading.
- c) Rema reading is book. d) Rema is reading book.

Section B: Reading Comprehension*

Read the passages from I to V has three responses A B or C for each question choose the correct answer there below.

I Passage:

Hanna is an artist. She draws the moon. She draws clouds.
She draws stars.

- 1. **Hanna is ----- ?**
(a) an artist (b) a doctor (c) an actor
- 2. **Hanna draws things that are in the-----?**
(a) ground (b) ocean (c) sky
- 3. **Hanna draws-----?**
(a) shells (b) stars (c) flowers
- 4. **Hanna does not draw-----?**
(a) the moon (b) clouds (c) trees
- 5. **Hanna probably also draws-----?**
(a) airplanes (b) trees (c) fish

II Passage:

Kiran works on a farm. He grows corn. He grows peas.
He grows carrots.

- 6. **Where does Kiran work?**
(a) on a farm (b) at a store (c) at a park
- 7. **What kind of food does Kiran grow?**
(a) flowers (b) vegetables (c) animals
- 8. **Kiran grows-----?**
(a) potatoes (b) carrots (c) onions

** Items from this section (1-20) is adopted from Test on Reading Comprehension in English (Gafoor & Iqbal,2018)*

9. Kiran does not grow-----?

- (a) corn (b) peas (c) lettuce

10. Kiran probably also grows-----?

- (a) chickens (b) pigs (c) tomatoes

III Passage:

My father is a construction worker. He builds houses. He builds schools. He builds houses and schools. He uses a hammer and a saw. My brother is an engineer. He designs buildings. He designs bridges. He designs buildings and bridges. He uses a pencil and a calculator.

My son is an athlete. He plays soccer. He plays tennis. He plays soccer and tennis. He uses a racket and a ball. My daughter is an artist. She draws pictures of animals. She draws pictures of people. She draws pictures of animals and people. She uses a pencil and a piece of paper.

11. Who is a construction worker?

- (a) my father (b) my daughter (c) my son

12. What does my brother do?

- (a) He is a construction worker (b) He is an engineer (c) He is an artist.

13. Who uses a saw?

- (a) my father (b) my brother (c) my son

14. Who uses a pencil?

I. my brother II. my daughter III. my father

- (a) I only (b) I and II only (c) I, II, and III

15. Who probably uses an eraser?

- (a) my daughter (b) my brother (c) my son

IV Passage:

Tom is going on a trip to the mountains. Tom needs to take his bag. The bag is small and brown. Tom opens the bag and he wants to put things in the bag. Tom wants to pack his bag. Tom puts a map, a camera, a book and boots in the bag. Tom closes the bag. But the bag cannot close! Tom takes the boots out of the bag. He puts them on his feet.

16. Tom has a bag. His bag is

I. small II. brown III. old

- (a) I only (b) I and II only (c) I, II, and III

17. If you pack a bag, this mean you

- (a) take things out of it (b) put things into it (c) open and close it

18. Using the things in the bag, Tom can -----on the trip.

- (a) go fishing (b) take pictures (c) make a tent

19. After Tom puts his things in the bag, he-----the bag.

- (a) puts (b) closes (c) opens

20. What is the best title for this passage?

- (a) A Trip to the Mountains (b) Tom Packs His Bag (c) Tom Puts a Camera in the Bag

Appendix G3

UNIVERSITY OF CALICUT DEPARTMENT OF EDUCATION

Data and Results of Item Analysis of Test of Achievement in English for Standard V

Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)	Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)
Vocabulary				29	0.36	0.46	26
1	0.58	0.59	1	30	0.34	0.33	27
2	0.42	0.29	2	31	0.62	0.53	28
3	0.44	0.40	3	32	0.78	0.61	29
4	0.30	0.41	4	33	0.20	0.18	Rejected
5	0.50	0.69	5	34	0.06	0.27	Rejected
6	0.58	0.51	6	35	0.58	0.55	30
7	0.32	0.44	7	36	0.68	0.54	31
8	0.68	0.54	8	Reading Comprehension			
9	0.34	0.31	9	1	0.64	0.66	1
10	0.68	0.60	10	2	0.56	0.66	2
11	0.20	0.42	Rejected	3	0.78	0.59	3
12	0.46	0.53	11	4	0.82	0.53	4
13	0.56	0.58	12	5	0.82	0.53	5
14	0.68	0.54	13	6	0.78	0.59	6
15	0.74	0.59	14	7	0.60	0.68	7
16	0.22	0.45	Rejected	8	0.82	0.59	8
17	0.42	0.27	15	9	0.72	0.54	9
18	0.30	0.35	16	10	0.72	0.52	10
19	0.40	0.28	17	11	0.60	0.70	11
20	0.46	0.27	18	12	0.78	0.59	12
21	0.66	0.59	19	13	0.66	0.47	13
22	0.76	0.56	20	14	0.46	0.37	14
23	0.80	0.56	21	15	0.58	0.43	15
24	0.74	0.55	22	16	0.46	0.53	16
25	0.46	0.35	23	17	0.68	0.48	17
26	0.60	0.42	24	18	0.46	0.47	18
27	0.48	0.38	25	19	0.46	0.51	19
28	0.16	0.30	Rejected	20	0.48	0.42	20

Appendix G4

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in English for Standard V (Final)

Dr. K. Abdul Gafoor
Professor

Kadeeja Sanam K.P.
Research Scholar

Name Class.....

Name of the school

Address.....

Section A: Vocabulary

Read the instructions of each items carefully and circle the appropriate answer in the given response sheet.

Eg: If 'a' is the answer, (a) b c d

I. Fill the words using suitable spelling

a) u	b) a	c) o	d) e
------	------	------	------

1. cre__ture
2. p__bbles
3. dangero__s

II. Find the rhyming words

4. fast
a) best b) fest c) cast d) dust
5. cream
a) stem b) dream c) from d) drum

III. Tick the correctly spelt words

6. a) remembar b) remambar c) rimember d) remember
7. a) bouquet b) bouquette c) boquet d)boquette

IV. Choose the opposites

8. appear
a) misappear b) unappear c) disappear d) inappear
9. wide
a) thin b) narrow c) lean d) small

V. Cross odd one.

10. a) dinner b) lunch c) tea d) break fast

VI. Circle the correct contracted form

11. is not
a) isnt b) is n't c) isn't d) isnt'
12. we are
a) we're b) weare c) we're d) were

VII. Find the plural form of the words

13. butterfly
 a) butterflys b) butterflies c) butterflis d) butterflees
14. dish
 a) dishes b) dishies c) dishes d) dish

VIII. Find the words which describe noun

- | | | | | | |
|-----|-------|------|------|---------------|----------|
| | a | b | c | d | e |
| 15. | Anu / | is / | an / | intelligent / | student. |
| | a | b | c | d | |
16. Grandmother / tells / adventurous / stories.

IX. Identify the adverbs in the sentences

- | | | | | |
|-----|-----|-------|--------|--------------|
| | a | b | c | d |
| 17. | He/ | ran / | fast / | in the race. |
| | a | b | c | d |
18. The / cobra / turned / quickly.

X. Complete the paragraph using the suitable prepositions from the bracket

a) he	b) his	c) it	d) they
-------	--------	-------	---------

Arun is a good boy. (19)___ helps others in their needs. (20)___parents also help others. (21)___ are so generous. (22) ___ made them dears to all.

XI. Fill the gap with the appropriate words from the box.

a) all	b) some	c) a	d) an
--------	---------	------	-------

Once there was (23) _____ flock of pigeons that lived in (24) _____ oak tree. One day, the pigeons were flying in search of food, they saw (25) _____ grains on the ground. But a few rats came and ate them completely.

XII. Pick the suitable verb forms to fill the blanks.

26. Hari to park yesterday.
 a) go b) went c) goes d) gone
27. Uncle a doll for me next week.
 a) will bring b) will brought c) will brings d) will bringing

XIII. Select the words in the box to complete the sentences

b) up	b) under	c) at	d) on
-------	----------	-------	-------

28. The dog was hidden the table.
29. I was alone home.

XIV. Find the sounds of animals from the options

30. Elephant a) chatters b) clucks c) trumpets d) roars

XV. Select the correct sentence

31. a) Rema is book reading. b) Rema book is reading.
 c) Rema reading is book. d) Rema is reading book.

Section B: Reading Comprehension*

Read the passages from I to V has three responses A B or C for each question choose the correct answer there below.

I Passage:

Hanna is an artist. She draws the moon. She draws clouds.
She draws stars.

1. **Hanna is ----- ?**
(a) an artist (b) a doctor (c) an actor
2. **Hanna draws things that are in the-----?**
(a) ground (b) ocean (c) sky
3. **Hanna draws-----?**
(a) shells (b) stars (c) flowers
4. **Hanna does not draw-----?**
(a) the moon (b) clouds (c) trees
5. **Hanna probably also draws-----?**
(a) airplanes (b) trees (c) fish

II Passage:

Kiran works on a farm. He grows corn. He grows peas.
He grows carrots.

6. **Where does Kiran work?**
(a) on a farm (b) at a store (c) at a park
7. **What kind of food does Kiran grow?**
(a) flowers (b) vegetables (c) animals
8. **Kiran grows-----?**
(a) potatoes (b) carrots (c) onions
9. **Kiran does not grow-----?**
(a) corn (b) peas (c) lettuce
10. **Kiran probably also grows-----?**
(a) chickens (b) pigs (c) tomatoes

III Passage:

My father is a construction worker. He builds houses. He builds schools. He builds houses and schools. He uses a hammer and a saw. My brother is an engineer. He designs buildings. He designs bridges. He designs buildings and bridges. He uses a pencil and a calculator.

My son is an athlete. He plays soccer. He plays tennis. He plays soccer and tennis. He uses a racket and a ball. My daughter is an artist. She draws pictures of animals. She draws pictures of people. She draws pictures of animals and people. She uses a pencil and a piece of paper.

11. **Who is a construction worker?**
(a) my father (b) my daughter (c) my son

* Items from this section (1-20) is adopted from Test on Reading Comprehension in English (Gafour & Iqbal,2018)

12. What does my brother do?

- (a) He is a construction worker (b) He is an engineer (c) He is an artist.

13. Who uses a saw?

- (a) my father (b) my brother (c) my son

14. Who uses a pencil?

I. my brother II. my daughter III. my father

- (a) I only (b) I and II only (c) I, II, and III

15. Who probably uses an eraser?

- (a) my daughter (b) my brother (c) my son

IV Passage:

Tom is going on a trip to the mountains. Tom needs to take his bag. The bag is small and brown. Tom opens the bag and he wants to put things in the bag. Tom wants to pack his bag. Tom puts a map, a camera, a book and boots in the bag. Tom closes the bag. But the bag cannot close! Tom takes the boots out of the bag. He puts them on his feet.

16. Tom has a bag. His bag is

I. small II. brown III. old

- (a) I only (b) I and II only (c) I, II, and III

17. If you pack a bag, this mean you

- (a) take things out of it (b) put things into it (c) open and close it

18. Using the things in the bag, Tom can -----on the trip.

- (a) go fishing (b) take pictures (c) make a tent

19. After Tom puts his things in the bag, he-----the bag.

- (a) puts (b) closes (c) opens

20. What is the best title for this passage?

- (a) A Trip to the Mountains (b) Tom Packs His Bag (c) Tom Puts a Camera in the Bag

Appendix G5
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Scoring Key of Test of Achievement in
English for Standard V
(Final)

Item No.	Answer	Item No.	Answer
Vocabulary			
1	B	17	C
2	D	18	D
3	A	19	A
4	C	20	B
5	B	21	D
6	D	22	C
7	C	23	C
8	C	24	D
9	B	25	B
10	C	26	B
11	C	27	A
12	C	28	B
13	B	29	C
14	C	30	C
15	D	31	D
16	C		
Reading Comprehension			
1	A	11	A
2	C	12	B
3	B	13	A
4	C	14	B
5	A	15	A
6	A	16	B
7	B	17	C
8	B	18	B
9	C	19	B
10	C	20	A

Appendix H1

UNIVERSITY OF CALICUT DEPARTMENT OF EDUCATION

Blueprint of Test of Achievement in Mathematics for Standard 1

Draft

Content	Objectives						Total number of items
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	
Numbers	1	32, 33, 34	12,13,14,15, 16,17,18		23	24,25	14
Measures		2,3,4,5,6,7,8,11					8
Shapes and Patterns				9,10, 19, 20,21,22			6
Time, days, week & months	29	26,27,28		30,31			6
Addition			35		36		2
Subtraction			37	38			2
Total	2	14	9	9	2	2	38

Note: Numbers in italics denotes item numbers in the draft test.

Final

Content	Objectives						Total number of items
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	
Numbers	1	32, 33, 34	12,13,14, 15,16,17,18		23	24,25	14
Measures		2,6,7					3
Shapes and Patterns				9,10, 19, 20,21,22			6
Time, days, week & months	29	26,27, 28		30,31			6
Addition			35		36		2
Subtraction			37	38			2
Total	2	9	9	9	2	2	33

Note: Numbers in italics denotes item numbers in the final test.

Appendix H2
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in Mathematics for Standard I
(For Malayalam Medium Students)
(Draft)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

താഴെ തന്നിരിക്കുന്ന നിർദ്ദേശങ്ങൾ ശ്രദ്ധാപൂർവ്വം വായിച്ച് ഉചിതമായി ഉത്തരങ്ങൾ അടയാളപ്പെടുത്തുക.

I. 1 മുതൽ 11 വരെയുള്ള ചോദ്യങ്ങളുടെ ഉത്തരങ്ങൾക്ക് വട്ടം വരയ്ക്കുക

1. കള്ളിയിലുള്ള അക്കങ്ങൾ കണ്ടെത്തുക

5	N	8	L	3	7	U	T	6	H
---	---	---	---	---	---	---	---	---	---

2. കൂടുതൽ പുസ്തകങ്ങൾ ഉള്ളത് തിരഞ്ഞെടുക്കുക



3. കൂടുതൽ നീളമുള്ള പെൻസിൽ തിരഞ്ഞെടുക്കുക



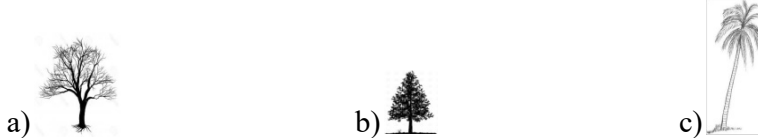
4. ചെറിയ പന്ത് ഏതാണ്?



5. തടിച്ച പൂച്ചയെ കണ്ടെത്തുക.



6. ഏറ്റവും ഉയരം കൂടിയ മരം ഏതാണ്?



7. ഏറ്റവും ഭാരം കുറഞ്ഞത് ഏതെന്ന് കണ്ടെത്തുക.



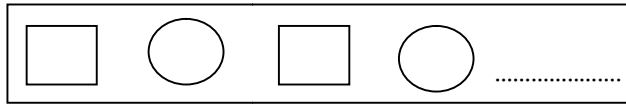
8. പെട്ടിയിലുള്ള നായക്കുട്ടിയെ കണ്ടെത്തുക.






9. കൂട്ടത്തിൽ പെടാത്തതിനെ കണ്ടെത്തുക.

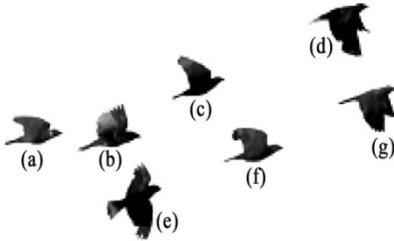


10. തന്നിരിക്കുന്ന പാറ്റേൺ പൂർത്തീയാക്കുക



- a)  b)  c) 

11. ഏറ്റവും ഉയരത്തിൽ പറക്കുന്ന പക്ഷിയെ തിരഞ്ഞെടുക്കുക.




II. തന്നിരിക്കുന്ന വസ്തുക്കൾ എണ്ണി അക്ഷരത്തിൽ എഴുതുക.

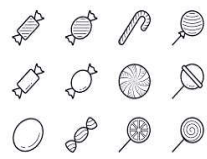
12.  _____

13.  _____

14.  _____

III. തന്നിരിക്കുന്ന വസ്തുക്കൾ എണ്ണി, ശരിയായ സംഖ്യകളുമായി യോജിപ്പിക്കുക.






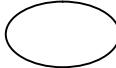
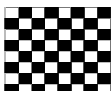

15.  a) 6

16.  b) 9

17.  c) 4

18.  d) 12

IV. വസ്തുക്കളെ അതാതിന്റെ രൂപങ്ങളുമായി വരച്ച് യോജിപ്പിക്കുക.

- | | | | |
|-----|---|----|---|
| 19. |  | a) |  |
| 20. |  | b) |  |
| 21. |  | c) |  |
| 22. |  | d) |  |

23. താഴെ തന്നിരിക്കുന്ന സംഖ്യകൾ ആരോഹണക്രമത്തിൽ എഴുതുക.
15 12 17 14

V. വിട്ടുപോയ സംഖ്യകൾ എഴുതുക

24. 5 _____ 3 _____ 1
25. 20 _____ 40 _____ 60 _____

VI. ദിവസങ്ങളും ആഴ്ചകളും

26. ഒരു ആഴ്ചയിൽ എത്ര ദിവസങ്ങളാണ്?
a) 5 b) 6 c) 7 d) 8
27. ചൊവ്വാഴ്ചയും വ്യാഴാഴ്ചയും ഇടയിൽ വരുന്ന ദിവസമേത്?
a) തിങ്കൾ b) ബുധൻ c) വെള്ളി d) ശനി
28. മെയ് മാസത്തിന് മുന്നേയുള്ള മാസമേത്?
a) ഫെബ്രുവരി b) മാർച്ച് c) ഏപ്രിൽ d) മെയ്

VII. താഴെ തന്നിരിക്കുന്ന ഭക്ഷണങ്ങളും അതിന്റെ സമയവും യോജിപ്പിക്കുക.

29. പ്രാതൽ a) രാത്രി
30. അത്താഴം b) ഉച്ച
31. ഉറൺ c) രാവിലെ

VIII. ഉത്തരങ്ങൾ വട്ടത്തിലാക്കുക

32. ഏറ്റവും വലിയ സംഖ്യ കണ്ടെത്തുക.
a) 19 b) 16 c) 13 d) 11
33. 46-നേക്കാളും വലിയ സംഖ്യയാണ്
a) 42 b) 44 c) 45 d) 49
34. 73-നേക്കാളും ചെറിയ സംഖ്യയാണ്
a) 78 b) 77 c) 75 d) 71
35. മനുവിന് 5 മിറായിയും ബേബിക്ക് 3 മിറായിയും ഉണ്ട്. രണ്ടുപേർക്കും കൂടി എത്ര മിറായികൾ ഉണ്ട്?
a) 7 b) 8 c) 9 d) 10
36. 6 എന്ന സംഖ്യ കിട്ടാൻ, കൂട്ടേണ്ടത്
a) 4+3 b) 3+4 c) 3+3 d) 3+2
37. ഒരു സഞ്ചിയിൽ 9 ഓറഞ്ചുകൾ ഉണ്ട്. അതിൽനിന്നും 4 എണ്ണം അനിൽ എടുത്തു. ബാക്കി എത്ര ഓറഞ്ചുകൾ സഞ്ചിയിൽ ഉണ്ട്?
a) 3 b) 4 c) 5 d) 6
38. $7 - \dots = 4$ a) 6 b) 5 c) 4 d) 3

Appendix H3
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Test of Achievement in Mathematics for Standard I
(For English Medium Students)
(Draft)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

Name:..... Class:

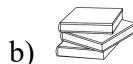
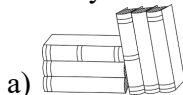
Read the instructions of each items carefully and mark the responses accordingly.

I. Circle the answers of the questions 1- 11.

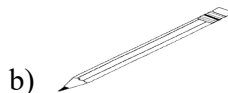
1. Find the numbers in the boxes

5	N	8	L	3	7	U	T	6	H
---	---	---	---	---	---	---	---	---	---

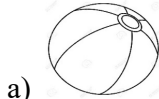
2. Identify more books



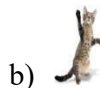
3. Select the long pencil



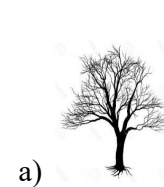
4. Which is small ball?



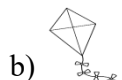
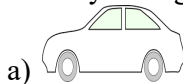
5. Find the fat cat



6. Select the tallest tree



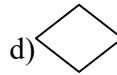
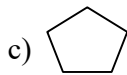
7. Identify the lightest thing



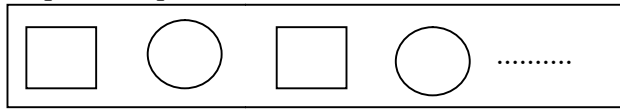
8. Select the puppy in the box






9. Find the odd one

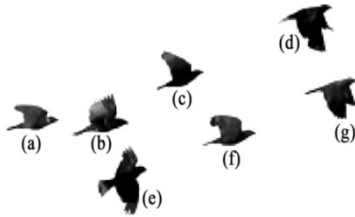


10. Complete the pattern

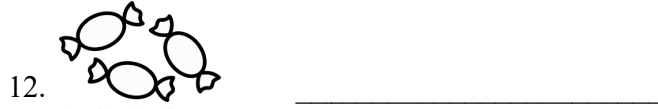


- a)  b)  c) 

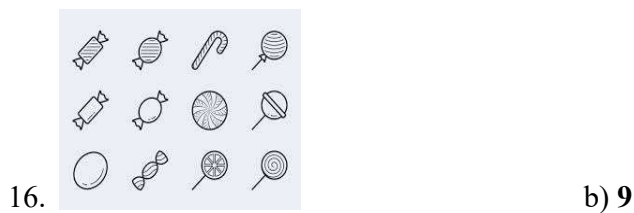
11. Choose the bird which is high in the sky

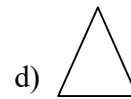
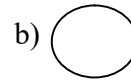
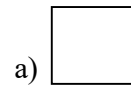
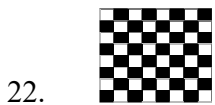


II. Count and write number names



III. Count the objects and match with its number



IV. Match the objects with the shapes**23. Write the following numbers in ascending order**

15, 12, 17, 14

V. Write the missing numbers

24. 5 _____ 3 _____ 1

25. 20 _____ 40 _____ 60 _____

VI. Match the food and its time

26. Breakfast a) Night

27. Dinner b) Noon

28. Lunch c) Morning

VIII. Days and weeks

29. How many days in a week? a) 5 b) 6 c) 7 d) 8

30. Which day comes between Tuesday and Thursday?

a) Monday b) Wednesday c) Friday d) Saturday

31. Which month comes before May?

a) February b) March c) April d) May

IX. Circle the answers

32. Find the biggest number.

a) 19 b) 16 c) 13 d) 11

33. Number which is greater than 46 is,

a) 42 b) 44 c) 45 d) 49

34. Number which is smaller than 73 is,

a) 78 b) 77 c) 75 d) 71

35. Manu has five sweets and Baby has three sweets. How many sweets are there altogether?

a) 7 b) 8 c) 9 d) 10

36. To get 6, we can add

a) 4+3 b) 3+4 c) 3+3 d) 3+2

37. There are 9 oranges in a cover. Anil took 4 oranges from it. How many oranges are left in the cover?

a) 3 b) 4 c) 5 d) 6

38. $7 - \dots = 4$ a) 6 b) 5 c) 4 d) 3

Appendix H4
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Data and Results of Item Analysis of Test of
Achievement in Mathematics for Standard I

Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)	Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)
1	0.36	0.80	1	20	0.48	0.76	15
2	0.34	0.79	2	21	0.42	0.79	16
3	0.14	0.91	Rejected	22	0.42	0.79	17
4	0.20	0.86	Rejected	23	0.74	0.43	18
5	0.08	0.96	Rejected	24	0.68	0.48	19
6	0.68	0.62	3	25	0.68	0.46	20
7	0.48	0.50	4	26	0.44	0.50	21
8	0.28	0.70	Rejected	27	0.62	0.45	22
9	0.48	0.50	5	28	0.56	0.44	23
10	0.30	0.43	6	29	0.48	0.34	24
11	0.26	0.81	Rejected	30	0.46	0.23	25
12	0.70	0.63	7	31	0.48	0.24	26
13	0.68	0.62	8	32	0.68	0.40	27
14	0.76	0.56	9	33	0.70	0.47	28
15	0.34	0.79	10	34	0.52	0.28	29
16	0.48	0.76	11	35	0.74	0.43	30
17	0.42	0.79	12	36	0.60	0.36	31
18	0.48	0.76	13	37	0.58	0.39	32
19	0.50	0.75	14	38	0.40	0.24	33

Appendix H5

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in Mathematics for Standard I
(For Malayalam Medium Students)
(Final)

Dr. K. Abdul Gafoor
Professor

Kadeeja Sanam K.P.
Research Scholar

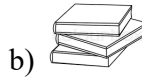
താഴെ തന്നിരിക്കുന്ന നിർദ്ദേശങ്ങൾ ശ്രദ്ധാപൂർവ്വം വായിച്ച് ഉചിതമായി ഉത്തരങ്ങൾ അടയാളപ്പെടുത്തുക.

I. 1 മുതൽ 11 വരെയുള്ള ചോദ്യങ്ങളുടെ ഉത്തരങ്ങൾക്ക് വട്ടം വരയ്ക്കുക

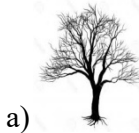
1. കള്ളിയിലുള്ള അക്കങ്ങൾ കണ്ടെത്തുക

5	N	8	L	3	7	U	T	6	H
---	---	---	---	---	---	---	---	---	---

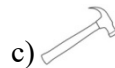
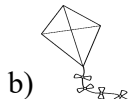
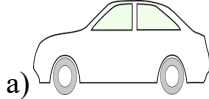
2. കൂടുതൽ പുസ്തകങ്ങൾ ഉള്ളത് തിരഞ്ഞെടുക്കുക



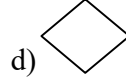
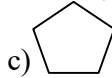
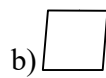
3. ഏറ്റവും ഉയരം കൂടിയ മരം ഏതാണ്?



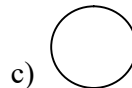
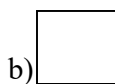
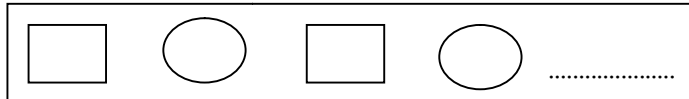
4. ഏറ്റവും ഭാരം കുറഞ്ഞത് ഏതെന്ന് കണ്ടെത്തുക.



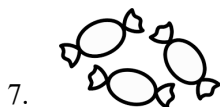
5. കൂട്ടത്തിൽ പെടാത്തതിനെ കണ്ടെത്തുക.



6. തന്നിരിക്കുന്ന പാറ്റേൺ പൂർത്തീയാക്കുക

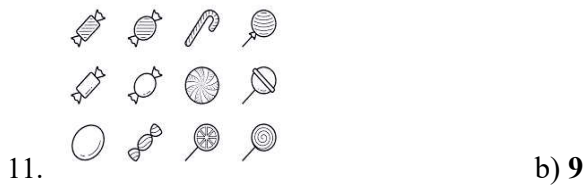


II. തന്നിരിക്കുന്ന വസ്തുക്കൾ എണ്ണി അക്ഷരത്തിൽ എഴുതുക.





III. തിരിച്ചറിയുന്ന വസ്തുക്കൾ എണ്ണി, ശരിയായ സംഖ്യകളുമായി യോജിപ്പിക്കുക.



IV. വസ്തുക്കളെ അതാതിന്റെ രൂപങ്ങളുമായി വരച്ച് യോജിപ്പിക്കുക.



18. താഴെ തന്നിരിക്കുന്ന സംഖ്യകൾ ആരോഹണക്രമത്തിൽ എഴുതുക.
15, 12 17 14

V. വിട്ടുപോയ സംഖ്യകൾ എഴുതുക

19. 5 ____ 3 ____ 1
20. 20 ____ 40 ____ 60 ____

VI. ദിവസങ്ങളും ആഴ്ചകളും

21. ഒരു ആഴ്ചയിൽ എത്ര ദിവസങ്ങളാണ്?
a) 5 b) 6 c) 7 d) 8
22. ചൊവ്വാഴ്ചയും വ്യാഴാഴ്ചയും ഇടയിൽ വരുന്ന ദിവസമേത്?
a) തിങ്കൾ b) ബുധൻ c) വെള്ളി d) ശനി
23. മെയ് മാസത്തിന് മുന്നേയുള്ള മാസമേത്?
a) ഫെബ്രുവരി b) മാർച്ച് c) ഏപ്രിൽ d) മെയ്

VII. താഴെ തന്നിരിക്കുന്ന ഭക്ഷണങ്ങളും അതിന്റെ സമയവും യോജിപ്പിക്കുക.

24. പ്രാതൽ a) രാത്രി
25. അത്താഴം b) ഉച്ച
26. ഉൗൺ c) രാവിലെ

VIII. ഉത്തരങ്ങൾ വട്ടത്തിലാക്കുക

27. ഏറ്റവും വലിയ സംഖ്യ കണ്ടെത്തുക.
a) 19 b) 16 c) 13 d) 11
28. 46-നേക്കാളും വലിയ സംഖ്യയാണ്
a) 42 b) 44 c) 45 d) 49
29. 73-നേക്കാളും ചെറിയ സംഖ്യയാണ്
a) 78 b) 77 c) 75 d) 71
30. മനുവിന് 5 മിറായിയും ബേബിക്ക് 3 മിറായിയും ഉണ്ട്. രണ്ടുപേർക്കും കൂടി എത്ര മിറായികൾ ഉണ്ട്?
a) 7 b) 8 c) 9 d) 10
31. 6 എന്ന സംഖ്യ കിട്ടാൻ, കൂട്ടേണ്ടത്
a) 4+3 b) 3+4 c) 3+ 3 d)3+2
32. ഒരു സഞ്ചിയിൽ 9 ഓറഞ്ചുകൾ ഉണ്ട്. അതിൽനിന്നും 4 എണ്ണം അനിൽ എടുത്തു. ബാക്കി എത്ര ഓറഞ്ചുകൾ സഞ്ചിയിൽ ഉണ്ട്?
a) 3 b) 4 c) 5 d) 6
33. 7 - = 4
a) 6 b) 5 c) 4 d) 3

Appendix H6
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in Mathematics for Standard I
(For English Medium Students)
(Final)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

Name:..... Class:

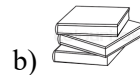
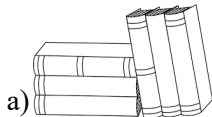
Read the instructions of each items carefully and mark the responses accordingly.

I. Circle the answers of the questions 1- 11.

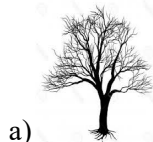
1. Find the numbers in the boxes

5	N	8	L	3	7	U	T	6	H
---	---	---	---	---	---	---	---	---	---

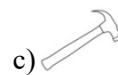
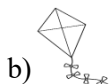
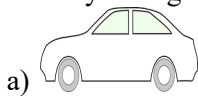
2. Identify more books



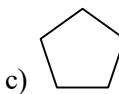
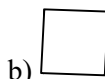
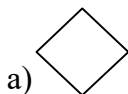
3. Select the tallest tree



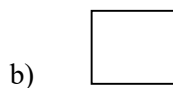
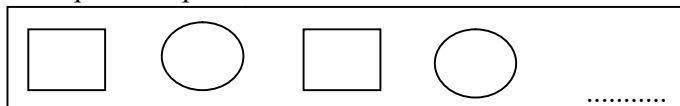
4. Identify the lightest thing



5. Find the odd one





6. Complete the pattern



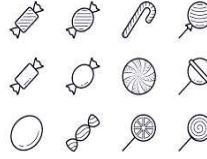
II. Count and write number names

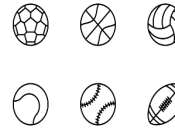
7. _____

8.  _____
9.  _____

III. Count the objects and match with its number







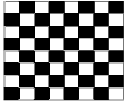

10.  a) 6

11.  b) 9

12.  c) 4

13.  d) 12

IV. Match the objects with the shapes

14.  a) 
15.  b) 
16.  c) 
17.  d) 

18. Write the following numbers in ascending order

15, 12, 17, 14

V. Write the missing numbers

19. 5 ____ 3 ____ 1
 20. 20 ____ 40 ____ 60 ____

VI. Match the food and its time

21. Breakfast a) Night
 22. Dinner b) Noon
 23. Lunch c) Morning

VII. Days and weeks

24. How many days in a week?
 a) 5 b) 6 c) 7 d) 8
 25. Which day comes between Tuesday and Thursday?
 a) Monday b) Wednesday c) Friday d) Saturday
 26. Which month comes before May?
 a) February b) March c) April d) May

VIII. Circle the answers

27. Find the biggest number.
 a) 19 b) 16 c) 13 d) 11
 28. Number which is greater than 46 is,
 a) 42 b) 44 c) 45 d) 49
 29. Number which is smaller than 73 is,
 a) 78 b) 77 c) 75 d) 71
 30. Manu has five sweets and Baby has three sweets. How many sweets are there altogether?
 a) 7 b) 8 c) 9 d) 10
 31. To get 6, we can add
 a) 4+3 b) 3+4 c) 3+ 3 d)3+2
 32. There are 9 oranges in a cover. Anil took 4 oranges from it. How many oranges are left in the cover?
 a) 3 b) 4 c) 5 d) 6
 33. $7 - \dots = 4$
 a) 6 b) 5 c) 4 d) 3

Appendix H7
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Scoring Key of Test of Achievement in
Mathematics for Standard I
(Final)

Item No.	Answer	Item No.	Answer
1	5,8,3,7,6	18	12,14,15,17
2	A	19	4,2
3	C	20	30,50,70
4	D	21	C
5	C	22	A
6	B	23	B
7	Three	24	C
8	One	25	B
9	Five	26	C
10	C	27	A
11	D	28	D
12	A	29	D
13	B	30	B
14	B	31	C
15	C	32	C
16	D	33	D
17	A		

Appendix II
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Blueprint of Test of Achievement in
Mathematics for Standard III

Draft								
Content	Objectives							Total number of items
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating		
Numbers	1,2, 8,9	5,6,7	3		4	10,11, 12	12	
Measures	38,39			37			3	
Shapes and Patterns		17,18,19, 20, 21,23				22,24	8	
Time, days, week & months			30	13,14,15 16,31,32			7	
Addition		26	25,46	36,48	40		6	
Subtraction			28,33,34, 44,47		29		6	
Multiplication			45	35			2	
Addition and Subtraction					27		1	
Addition & Multiplication			43	41			2	
Multiplication & Subtraction			42				1	
Total	6	10	12	11	4	5	48	

Note: Numbers in italics denotes item numbers in the draft test.

Final								
Content	Objectives							Total number of items
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating		
Numbers	2, 8,9	5,6,7	3		4	11,12	10	
Measures	38,39			37			3	
Shapes and Patterns		17,18,19, 20, 21,23				22	7	
Time, days, week & months			30,32	13,14,15, 16,31,32			8	
Addition		26	25,46	36			4	
Subtraction			28,33,34,47		29		5	
Multiplication			45	35			2	
Addition and Subtraction					27		1	
Addition & Multiplication				41			1	
Total	5	10	10	10	3	3	41	

Note: Numbers in italics denotes item numbers in the final test.

Appendix I2
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in Mathematics for Standard III
(For Malayalam Medium Students)
(Draft)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

പേര് :

ക്ലാസ്സ് :

വിദ്യാലയത്തിന്റെ പേര് :

മേൽവിലാസം :

താഴെ തന്നിരിക്കുന്ന നിർദ്ദേശങ്ങൾ ശ്രദ്ധാപൂർവ്വം വായിച്ച് ഉചിതമായി ഉത്തരങ്ങൾ അടയാളപ്പെടുത്തുക.

I. 1 മുതൽ 12 വരെയുള്ള ചോദ്യങ്ങളുടെ ഉത്തരങ്ങൾക്ക് വട്ടം വരയ്ക്കുക

1. ഏറ്റവും വലിയ സംഖ്യ കണ്ടെത്തുക
 a) 48 b) 84 c) 96 d) 69
2. ഒറ്റസംഖ്യ കണ്ടെത്തുക
 a) 24 b) 32 c) 48 d) 51
3. 50 മുതൽ 59 വരെ എത്ര സംഖ്യകൾ ഉണ്ട്?
 a) 9 b) 10 c) 11 d) 12
4. ആരോഹണക്രമത്തിലുള്ള ശ്രേണി തിരഞ്ഞെടുക്കുക
 a) 53, 81, 64, 72, 99 b) 53, 64, 72, 81, 99
 c) 99, 81, 72, 64, 53 d) 99, 81, 64, 72, 53

II. സംഖ്യകൾ കണ്ടെത്തുക

5. 3 പത്തുകൾ 2 ഒന്നുകൾ = _____
 a) 302 b) 203 c) 32 d) 23
6. 8 നൂറുകൾ 6 പത്തുകൾ 4 ഒന്നുകൾ = _____
 a) 468 b) 648 c) 846 d) 864
7. 10 പത്തുകൾ = _____
 a) 10 b) 100 c) 110 d) 1000

III. അക്ഷരത്തിലെഴുതിയതിൽനിന്നും ശരിയായത് കണ്ടെത്തുക.

8. 12 a) പന്ത്രണ്ട് b) ഇരുപത്
 c) ഇരുപത്തിരണ്ട് d) ഇരുപത്തി ഒന്ന്
9. 105 a) നൂറ്റി അഞ്ച് b) നൂറ്റി പതിനഞ്ച്
 c) നൂറ്റിഅൻപത് d) അഞ്ഞൂറ്റി ഒന്ന്

27. $500 + \underline{\hspace{2cm}} + 7 = 507$
 a) 100 b) 10 c) 1 d) 0
28. $80 = \underline{\hspace{2cm}}$
 a) 100-10 b) 100-20 c) 90- 30 d) 90 - 20
29. $52 = \underline{\hspace{2cm}}$
 a) 62 - 10 b) 72 - 10 c) 82 - 20 d) 92 - 30

VIII. ദിവസവും തിയതിയും കണ്ടെത്തുക

30. ഒരു മാസത്തിലെ ഒരു ഞായറാഴ്ച 10-ാം തിയതിയാണ്. എങ്കിൽ തൊട്ടടുത്ത ഞായർ ഏതു തിയതിയാണ്?
 a) 16 b) 17 c) 18 d) 19
31. ആഗസ്ത് 18 തിങ്കളാഴ്ചയാണ്. ആഗസ്ത് 25 ഉം 26 ഉം സ്കൂൾ കലോത്സവമാണ്. എങ്കിൽ കലോത്സവം ഏത് ദിവസങ്ങളിലായിരിക്കും?
 a) ഞായറും തിങ്കളും b) തിങ്കളും ചൊവ്വയും
 c) ചൊവ്വയും ബുധനും d) ശനിയും ഞായറും
32. കഴിഞ്ഞ വേനലവധി മുഴുവനായും (ഏപ്രിൽ-മേയ്) മിനി അവളുടെ മുത്തശ്ശിയുടെ കൂടെ ചിലവഴിച്ചു. എങ്കിൽ അവൾ എത്ര ദിവസം മുത്തശ്ശിയുടെ കൂടെ നിന്നു?
 a) 59 b) 60 c) 61 d) 62

IX. താഴെ തന്നിരിക്കുന്നവയിൽ ഉചിതമായ ഉത്തരങ്ങൾ കണ്ടെത്തുക.

33. സാജന്റെ ബാഗിൽ 12 ഗോലികൾ ഉണ്ട്. 4 എണ്ണം അവന്റെ കൂട്ടുകാരന് കൊടുത്തു. സാജന്റെ പക്കൽ എത്ര ഗോലികൾ ബാക്കി ഉണ്ടാകും?
 a) 7 b) 8 c) 9 d) 10
34. അമലിന്റെ ശേഖരണത്തിൽ 65 സ്റ്റാമ്പുകൾ ഉണ്ട്. സ്കൂൾ എക്സിബിഷനിൽ 15 എണ്ണം അതിൽനിന്നും നഷ്ടപ്പെട്ടു. ഇനി അമലിന്റെ പക്കൽ എത്ര സ്റ്റാമ്പുകൾ ഉണ്ട്?
 a) 40 b) 50 c) 60 d) 70
35. ഒരു 50 രൂപാ നോട്ട് എങ്ങനെ ചില്ലറയാക്കാം?
 a) 5 അഞ്ചുരൂപാ നോട്ടുകൾ b) 5 പത്തുരൂപാ നോട്ടുകൾ
 c) 5 ഇരുപതുരൂപാ നോട്ടുകൾ d) 10 പത്തു രൂപാ നോട്ടുകൾ
36. സനുവിന് അവളുടെ കൂട്ടുകാരിക്ക് 33 രൂപ കൊടുക്കുവാൻ നോട്ടുകളും നാണയങ്ങളും തിരഞ്ഞെടുക്കാൻ സഹായിക്കാമോ?
 a) Rs. 20 + Rs.10 +Rs.5 + Rs.3 b) Rs.20 + Rs.10 + Rs.3 + Rs.3
 c) Rs.20 + Rs.10 + Rs.3 + Rs.2 d) Rs.20 + Rs.10 + Rs.2 + Rs.1

X. അളവുകൾ കണ്ടെത്തുക

37. സജ്നയും രജ്നയും രേഷ്മയും ഒരു കൂടാരം ഉണ്ടാക്കുകയാണ്. സജ്ന 1.75 മീറ്റർ നീളമുള്ള തുണിയും രജ്ന 1.25 മീറ്റർ തുണിയും രേഷ്മ 2.15 മീറ്റർ നീളമുള്ള തുണിയും കൊണ്ടുവന്നു. ആരാണ് ഏറ്റവും നീളമുള്ള തുണി കൊണ്ടുവന്നത്?
 a) സജ്ന b) രജ്ന c) രേഷ്മ d) സജ്നയും രജ്നയും
38. 1 കിഗ്രാം = ----- ഗ്രാം
 a) 50 ഗ്രാം b) 100 ഗ്രാം c) 500 ഗ്രാം d) 1000 ഗ്രാം
39. 1 ഡസൻ എന്നത് ----- എണ്ണമാണ്
 a) 6 b) 8 c) 10 d) 12

XI. താഴെ തന്നിരിക്കുന്ന സന്ദർഭങ്ങൾ വായിച്ച് ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്തുക.

40. 100 ഗ്രാം തൂക്കമുള്ള 2 ആപ്പിളുകൾ ഉണ്ട്. രണ്ടിന്റെയും ആകെ തൂക്കം കാണാൻ ചെയ്യേണ്ടത്.

- a) $2 - 100$ b) $2 + 100$ c) $100 - 100$ d) $100 + 100$

A. നീനയും അവളുടെ ആറ് കുട്ടുകാരികളും മൂന്ന് ബലൂണുകൾ വീതം വാങ്ങി

41. ആകെ ബലൂണുകൾ എത്ര?

- a) 12 b) 14 c) 18 d) 21

42. ഒരു ബലൂണിന്റെ വില 2 രൂപയാണെങ്കിൽ അവർ ആകെ എത്ര രൂപക്കാണ് ബലൂൺ വാങ്ങിയത്?

- a) 21 b) 24 c) 36 d) 42

B. ജോൺ 55 രൂപ വീതം വിലയുള്ള 2 ശീതളപാനീയവും, 120 രൂപക്ക് പലഹാരങ്ങളും വാങ്ങിച്ചു. അവൻ മൂന്ന് 100 രൂപ നോട്ടുകൾ കൊടുത്തു.

43. രണ്ടിനും കൂടെ എത്ര രൂപ കൊടുക്കേണ്ടിവരും?

- a) 210 b) 220 c) 230 d) 240

44. എത്ര രൂപ തിരികെ കിട്ടിയിട്ടുണ്ടാകും?

- b) 40 b) 50 c) 60 d) 70

C. മീനയും ടീനയും ജീനയും കുറച്ച് സ്റ്റേഷനരികൾ വാങ്ങി. കണക്കു കൂട്ടാൻ അവരെ സഹായിക്കാമോ?

വിലവിവരപ്പട്ടിക	
നോട്ട്ബുക്ക്	35
പെൻസിൽ ബോക്സ്	30
കളർ പെൻസിൽ	20
പേന	12
പെൻസിൽ	5
സ്കെയിൾ	5
റബ്ബർ	5

45. ടീന 10 പെൻസിലുകൾ വാങ്ങി. അങ്ങനെയെങ്കിൽ എത്ര രൂപ കൊടുക്കണം?

- a) 25 b) 50 c) 75 d) 100

46. മീന ഒരു നോട്ട്ബുക്കും ഒരു പെൻസിൽ ബോക്സും ഒരു പെൻസിലും ഒരു റബ്ബറും വാങ്ങി. അവൾ എത്രരൂപ കൊടുക്കണം?

- a) 87 b) 82 c) 75 d) 70

47. മീന 100 രൂപ കൊടുത്തു. ഇനി എത്ര രൂപ തിരികെ കിട്ടും?

- a) 35 b) 25 c) 20 d) 15

48. ജീനയുടെ പക്കൽ 50 രൂപയുണ്ട്. അതിനു മുഴുവനായും എന്തെല്ലാം സാധനങ്ങൾ വാങ്ങാൻ കഴിയും?

- a) 1 നോട്ടുബുക്കും 1 പെൻസിൽ ബോക്സും
 b) 1 നോട്ടുബുക്കും 1 പേനയും
 c) 1 കളർപെൻസിലും 1 നോട്ടുബുക്കും
 d) 1 കളർപെൻസിലും 1 പെൻസിൽ ബോക്സും

Appendix I3**UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION****Test of Achievement in Mathematics for Standard III
(For English Medium Students)
(Draft)****Dr. K. Abdul Gafoor**
Professor**Kadeeja Sanam K.P.**
Research Scholar**I. Read each questions carefully and circle the answers.****Eg: If 'a' is the answer, circle (a) b c d**

1. Find the biggest number
a) 48 b) 84 c) 96 d) 69
2. Find the odd number
a) 24 b) 32 c) 48 d) 51
3. How many numbers are there from 50 to 59?
a) 9 b) 10 c) 11 d) 12
4. Choose the one in ascending order
a) 53, 81, 64, 72, 99 b) 53, 64, 72, 81, 99
c) 99, 81, 72, 64, 53 d) 99, 81, 64, 72, 53

II. Find the numbers

5. 3 tens and 2 ones = _____
a) 302 b) 203 c) 32 d) 23
6. 8 hundreds 6 tens and 4 ones = _____
a) 468 b) 648 c) 846 b) 864
7. 10 tens = _____
a) 10 b) 100 c) 110 d) 1000

III. Find the number names

8. 12
a) Twelve b) Twenty c) Twenty two d) Twenty one
9. 105
a) One hundred and five b) One hundred and fifteen
c) One hundred and fifty d) Five hundred and one

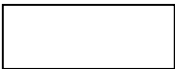
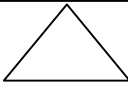


IV. Complete the number patterns

10. 11, 22, 33, _____
a) 55 b) 44 c) 66 d) 32
11. 3, 6, 9, _____
a) 10 b) 11 c) 12 d) 13
12. _____, 150, 175, 200
a) 75 b) 100 c) 125 d) 50

V. Match the daily activities and its time

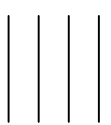
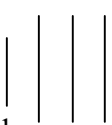
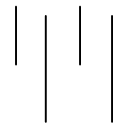
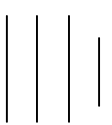

- | | |
|--------------------|-----------|
| 13. Wake up | a) 1 p.m. |
| 14. Goes to school | b) 8 p.m. |
| 15. Lunch | c) 8 a.m. |
| 16. Dinner | d) 7 a.m. |

VI. Match the following

- | <u>A</u> | <u>B</u> |
|---|--------------|
| 17.  | a) Circle |
| 18.  | b) Square |
| 19.  | c) Rectangle |
| 20.  | d) Triangle |
| | e) Oval |

Circle the answers of the questions from 21-45

VII. Fill the following using suitable options given below

21. A square has _____
 a) 2 equal sides b) 3 equal sides c) 4 equal sides d) No equal sides
22. is suitable to construct a rectangle
 a)  b)  c)  d) 
23. A _____ has no sides
 a) Triangle b) Square c) Rectangle d) Circle
24. can be made by using 
 a) square b) circle c) rectangle d) triangle
25. $60 =$ _____
 a) $30+40$ b) $30 + 20$ c) $20 + 40$ d) $20 + 30$
26. $100 + 20 + 5 =$ _____
 a) 125 b) 152 c) 1025 d) 1205
27. If sum of 2 numbers is 20 and their difference is '0'. The numbers are _____
 a) 15, 5 b) 14, 6 c) 12, 8 d) 10, 10
28. $80 =$ _____
 a) $100-10$ b) $100-20$ c) $90-30$ d) $90 - 20$
29. Which of the following is not suitable to $52 =$ _____
 a) $62 - 10$ b) $72 - 20$ c) $82 - 20$ d) $92 - 40$

VIII. Find the days and dates

30. One Sunday of a month is on 10th. What is the date of the next Sunday?
 a) 16 b) 17 c) 18 d) 19
31. August 18 is Monday. School youth festival is on 25th and 26th August. Choose the days of youth festival.
 a) Sunday and Monday b) Monday and Tuesday
 c) Tuesday and Wednesday d) Saturday and Sunday
32. Mini was with her grandmother during last summer vacation (whole of April and May). Tick the number of days she spent with grandmother.
 a) 59 b) 60 c) 61 d) 62

IX. Find the suitable answers for the following

33. Sajan has 12 marbles in his bag. He gave 4 marbles to his friend. How many marbles Sajan has now?
 a) 7 b) 8 c) 9 d) 10
34. Amal has 65 stamps in his collection. He has lost 15 stamps during school exhibition. How many stamps left with Amal now?
 a) 40 b) 50 c) 60 d) 70
35. A 50 rupee note is to be changed. In what ways you can change it?
 a) 5 five rupee notes b) 5 ten rupee notes
 c) 5 twenty rupee notes d) 10 ten rupee notes
36. Sanu wants to give 33 rupees to her friend. Help her to select the rupees.
 a) Rs. 20 + Rs.10 + Rs.5 + Rs.3 b) Rs.20 + Rs.10 + Rs.3 + Rs.3
 c) Rs.20 + Rs.10 + Rs.3 + Rs.2 d) Rs.20 + Rs.10 + Rs.2 + Rs.1

X. Find the measures

37. Sajna, Rajna and Reshma are making a tent to play. Sajna brought a cloth of 1.75m, Rajna brought cloth of 1.25m and Reshma brought the cloth of 2.15m. Who brought the longest cloth?
 a) Sajna b) Rajna c) Reshma d) Both Sajna and Rajna
38. 1 kg =gm
 a) 50 gm b) 100 gm c) 500 gm d) 1000 gm
39. 1 dozen is equal to
 a) 6 b) 8 c) 10 d) 12

XI. Read the following situations and answer the question.

40. There are 2 apples of 100gm each. To find the total weight of apples we can use
 a) 2 - 100 b) 2+ 100 c) 100 -100 d) 100 + 100

A. Nina and her six friends bought three balloons each.

41. How many balloons are there in all?
 a) 12 b) 14 c) 18 d) 21
42. The price of one balloon is two rupees. For how much did they buy balloons altogether?
 a) 21 b) 24 c) 36 d) 42

B. John brought two soft drinks for 55 rupees each and snacks for 120 rupees. He gave three 100 rupee notes.

43. How much should he pay for both?
 a) 210 b) 220 c) 230 d) 240
44. How much would he get back?
 a) 40 b) 50 c) 60 d) 70

C. Meena, Teena and Jeena bought some stationary. Help them to calculate.

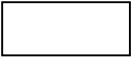



Price List	
Note book	35
Pencil box	30
Colour pencils	20
Pen	12
Pencil	5
Scale	5
Eraser	5

45. Teena bought 10 pencils. How much she want to pay?
 a) 25 b) 50 c) 75 d) 100
46. Meena bought 1 Notebook, 1 pencil box, 1 pencil and 1 eraser. How much must she pay?
 a) 87 b) 82 c) 75 d) 70
47. Meena gave Rs.100. How much would she get back?
 a) 35 b) 25 c) 20 d) 15
48. Jeena has 50 rupees. What are the things she can buy for it completely?
 a) 1 Notebook and 1 pencil box b) 1 Notebook and 1 pen
 c) 1 Colour pencil and 1 note book d) 1 Colour pencil and 1 pencil box

Appendix I4
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Data and Results of Item Analysis of Test of
Achievement in Mathematics for Standard III





Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)	Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)
1	0.16	0.92	Rejected	26	0.76	0.60	23
2	0.54	0.55	1	27	0.84	0.56	24
3	0.30	0.45	2	28	0.86	0.53	25
4	0.32	0.42	3	29	0.84	0.54	26
5	0.64	0.62	4	30	0.60	0.52	27
6	0.56	0.60	5	31	0.64	0.46	28
7	0.46	0.69	6	32	0.58	0.37	29
8	0.60	0.66	7	33	0.56	0.70	30
9	0.78	0.59	8	34	0.44	0.62	31
10	0.32	0.82	Rejected	35	0.62	0.57	32
11	0.54	0.65	9	36	0.62	0.61	33
12	0.46	0.39	10	37	0.50	0.45	34
13	0.54	0.67	11	38	0.38	0.29	35
14	0.70	0.59	12	39	0.30	0.27	36
15	0.62	0.67	13	40	0.26	0.23	Rejected
16	0.68	0.56	14	41	0.32	0.36	37
17	0.76	0.58	15	42	0.26	0.29	Rejected
18	0.60	0.70	16	43	0.20	0.24	Rejected
19	0.52	0.72	17	44	0.24	0.28	Rejected
20	0.64	0.64	18	45	0.66	0.53	38
21	0.72	0.56	19	46	0.52	0.46	39
22	0.68	0.40	20	47	0.38	0.37	40
23	0.70	0.53	21	48	0.54	0.41	41
24	0.34	0.81	Rejected				
25	0.52	0.72	22				

VI. താഴെ തന്നിരിക്കുന്നവ വരച്ച് യോജിപ്പിക്കുക

- | <u>A</u> | <u>B</u> |
|---|---------------|
| 15.  | a) വൃത്തം |
| 16.  | b) സമചതുരം |
| 17.  | c) ദീർഘചതുരം |
| 18.  | d) ത്രികോണം |
| | e) ദീർഘവൃത്തം |

21-43 വരെയുള്ള ചോദ്യങ്ങളുടെ ഉത്തരങ്ങൾക്ക് വട്ടം വരയ്ക്കുക

VII. താഴെ തന്നിരിക്കുന്നവയിൽനിന്നും ശരിയായത് തിരഞ്ഞെടുക്കുക.

19. ഒരു സമചതുരത്തിന് ആണുള്ളത്.
 a) 2 തുല്യ വശങ്ങൾ b) 3 തുല്യ വശങ്ങൾ
 c) 4 തുല്യ വശങ്ങൾ d) തുല്യ വശങ്ങൾ ഇല്ല
20. ഒരു ദീർഘചതുരം നിർമ്മിക്കാൻ ഉചിതമായത് അണ്.
 a)  b)  c)  d) 
21.ത്തിന് വശങ്ങളില്ല.
 a) ത്രികോണം b) സമചതുരം c) ദീർഘചതുരം d) വൃത്തം
22. $60 =$ _____ a) $30+40$ b) $30 + 20$ c) $20 + 40$ d) $20 + 30$
23. $100 + 20 + 5 =$ _____ a) 125 b) 152 c) 1025 d) 1205
24. $500 +$ _____ $+ 7 = 507$ a) 100 b) 10 c) 1 d) 0
25. $80 =$ _____ a) $100-10$ b) $100-20$ c) $90- 30$ d) $90 - 20$
26. $52 =$ _____ a) $62 - 10$ b) $72 - 10$ c) $82 - 20$ d) $92 - 30$

VIII. ദിവസവും തിയതിയും കണ്ടെത്തുക

27. ഒരു മാസത്തിലെ ഒരു ഞായറാഴ്ച 10-ാം തിയതിയാണ്. എങ്കിൽ തൊട്ടടുത്ത ഞായർ ഏതു തിയതിയാണ്?
 a) 16 b) 17 c) 18 d) 19
28. ആഗസ്ത് 18 തിങ്കളാഴ്ചയാണ്. ആഗസ്ത് 25 ഉം 26 ഉം സ്കൂൾ കലോത്സവമാണ്. എങ്കിൽ കലോത്സവം ഏത് ദിവസങ്ങളിലായിരിക്കും?
 a) ഞായറും തിങ്കളും b) തിങ്കളും ചൊവ്വയും
 c) ചൊവ്വയും ബുധനും d) ശനിയും ഞായറും
29. കഴിഞ്ഞ വേനലവധി മുഴുവനായും (ഏപ്രിൽ-മേയ്) മിനി അവളുടെ മുത്തശ്ശിയുടെ കൂടെ ചിലവഴിച്ചു. എങ്കിൽ അവൾ എത്ര ദിവസം മുത്തശ്ശിയുടെ കൂടെ നിന്നു?
 a) 59 b) 60 c) 61 d) 62

IX. താഴെ തിരിക്കുന്നവയിൽ ഉചിതമായ ഉത്തരങ്ങൾ കണ്ടെത്തുക.

30. സാജന്റെ ബാഗിൽ 12 ഗോലികൾ ഉണ്ട്. 4 എണ്ണം അവന്റെ കൂട്ടുകാരന് കൊടുത്തു. സാജന്റെ പക്കൽ എത്ര ഗോലികൾ ബാക്കി ഉണ്ടാകും?
 a) 7 b) 8 c) 9 d) 10
31. അമലിന്റെ ശേഖരണത്തിൽ 65 സ്റ്റാമ്പുകൾ ഉണ്ട്. സ്കൂൾ എക്സിബിഷനിൽ 15 എണ്ണം അതിൽനിന്നും നഷ്ടപ്പെട്ടു. ഇനി അമലിന്റെ പക്കൽ എത്ര സ്റ്റാമ്പുകൾ ഉണ്ട്?
 a) 40 b) 50 c) 60 d) 70

32. ഒരു 50 രൂപാ നോട്ട് എങ്ങനെ ചിലിറ്ററയാക്കാം?
 a) 5 അഞ്ചുരൂപാ നോട്ടുകൾ b) 5 പത്തുരൂപാ നോട്ടുകൾ
 c) 5 ഇരുപതുരൂപാ നോട്ടുകൾ d) 10 പത്തു രൂപാ നോട്ടുകൾ
33. സനുവിന് അവളുടെ കുട്ടുകാരിക്ക് 33 രൂപ കൊടുക്കുവാൻ നോട്ടുകളും നാണയങ്ങളും തെരഞ്ഞെടുക്കാൻ സഹായിക്കാമോ?
 a) Rs. 20 + Rs.10 +Rs.5 + Rs.3 b) Rs.20 + Rs.10 + Rs.3 + Rs.3
 c) Rs.20 + Rs.10 + Rs.3 + Rs.2 d) Rs.20 + Rs.10 + Rs.2 + Rs.1

X. അളവുകൾ കണ്ടെത്തുക

34. സജ്നയും രജ്നയും രേഷ്മയും ഒരു കൂടാരം ഉണ്ടാക്കുകയാണ്. സജ്ന 1.75 മീറ്റർ നീളമുള്ള തുണിയും രജ്ന 1.25 മീറ്റർ തുണിയും രേഷ്മ 2.15 മീറ്റർ നീളമുള്ള തുണിയും കൊണ്ടുവന്നു. ആരാണ് ഏറ്റവും നീളമുള്ള തുണി കൊണ്ടുവന്നത്?
 a) സജ്ന b) രജ്ന c) രേഷ്മ d) രണ്ടുപേരും
35. 1 കിഗ്രാം = ----- ഗ്രാം
 a) 50 ഗ്രാം b) 100 ഗ്രാം c) 500 ഗ്രാം d) 1000 ഗ്രാം
36. 1 ഡസൻ എന്നത് ----- എണ്ണമാണ്
 a) 6 b) 8 c) 10 d) 12

XI. താഴെ തന്നിരിക്കുന്ന സന്ദർഭങ്ങൾ വായിച്ച് ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്തുക.

A. നീനയും അവളുടെ ആറ് കുട്ടുകാരികളും മൂന്ന് ബലൂണുകൾ വീതം വാങ്ങി

37. ആകെ ബലൂണുകൾ എത്ര?
 a) 12 b) 14 c) 18 d) 21

B. മീനയും ടീനയും ജീനയും കുറച്ച് സ്റ്റേഷനറികൾ വാങ്ങി. കണക്കു കൂട്ടാൻ അവരെ സഹായിക്കാമോ?

വിലവിവരപ്പട്ടിക	
നോട്ട്ബുക്ക്	35
പെൻസിൽ ബോക്സ്	30
കളർ പെൻസിൽ	20
പേന	12
പെൻസിൽ	5
സ്കൈയിൽ	5
റബ്ബർ	5

38. ടീന 10 പെൻസിലുകൾ വാങ്ങി. അങ്ങനെയെങ്കിൽ എത്ര രൂപ കൊടുക്കണം?
 a) 25 b) 50 c) 75 d) 100
39. മീന ഒരു നോട്ട്ബുക്കും ഒരു പെൻസിൽ ബോക്സും ഒരു പെൻസിലും ഒരു റബ്ബറും വാങ്ങി. അവൾ എത്രരൂപ കൊടുക്കണം?
 a) 87 b) 82 c) 75 d) 70
40. മീന 100 രൂപ കൊടുത്തു. ഇനി എത്ര രൂപ തിരികെ കിട്ടും?
 a) 35 b) 25 c) 20 d) 15
41. ജീനയുടെ പക്കൽ 50 രൂപയുണ്ട്. അതിനു മുഴുവനായും എന്തെല്ലാം സാധനങ്ങൾ വാങ്ങാൻ കഴിയും?
 a) 1 നോട്ടുബുക്കും 1 പെൻസിൽ ബോക്സും b) 1 നോട്ടുബുക്കും 1 പേനയും
 c) 1 കളർപെൻസിലും 1 നോട്ടുബുക്കും d) 1 കളർപെൻസിലും 1 പെൻസിൽ ബോക്സും

Appendix I6**UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION****Test of Achievement in Mathematics for Standard III
(For English Medium Students)
(Final)****Dr. K. Abdul Gafoor**
Professor**Kadeeja Sanam K.P.**
Research Scholar**I. Read each questions carefully and circle the answers.****Eg: If 'a' is the answer, circle (a) b c d**

1. Find the odd number
a) 24 b) 32 c) 48 d) 51
2. How many numbers are there from 50 to 59?
a) 9 b) 10 c) 11 d) 12
3. Choose the one in ascending order
a) 53, 81, 64, 72, 99 b) 53, 64, 72, 81, 99
c) 99, 81, 72, 64, 53 d) 99, 81, 64, 72, 53

II. Find the numbers

4. 3 tens and 2 ones = _____
a) 302 b) 203 c) 32 d) 23
5. 8 hundreds 6 tens and 4 ones = _____
a) 468 b) 648 c) 846 b) 864
6. 10 tens = _____
a) 10 b) 100 c) 110 d) 1000

III. Find the number names

7. 12
a) Twelve b) Twenty c) Twenty two d) Twenty one
8. 105
a) One hundred and five b) One hundred and fifteen
c) One hundred and fifty d) Five hundred and one

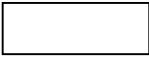



IV. Complete the number patterns

9. 3, 6, 9, _____
a) 10 b) 11 c) 12 d) 13
10. _____, 150, 175, 200
a) 75 b) 100 c) 125 d) 50

V. Match the daily activities and its time



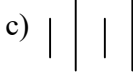
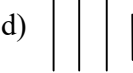
11. Wake up a) 1 p.m.
12. Goes to school b) 8 p.m.
13. Lunch c) 8 a.m.
14. Dinner d) 7 a.m.

VI. Match the following

- | <u>A</u> | <u>B</u> |
|---|--------------|
| 15.  | a) Circle |
| 16.  | b) Square |
| 17.  | c) Rectangle |
| 18.  | d) Triangle |
| | e) Oval |

Circle the answers of the questions from 19-41

VII. Fill the following using suitable options given below

19. A square has _____
 a) 2 equal sides b) 3 equal sides
 c) 4 equal sides d) No equal sides
20. is suitable to construct a rectangle
 a)  b)  c)  d) 
21. A _____ has no sides
 a) Triangle b) Square c) Rectangle d) Circle
22. $60 =$ _____
 a) $30+40$ b) $30 + 20$ c) $20 + 40$ d) $20 + 30$
23. $100 + 20 + 5 =$ _____
 a) 125 b) 152 c) 1025 d) 1205
24. If sum of 2 numbers is 20 and their difference is '0'. The numbers are _____
 a) 15, 5 b) 14, 6 c) 12, 8 d) 10, 10
25. $80 =$ _____
 a) $100-10$ b) $100-20$ c) $90-30$ d) $90 - 20$
26. Which of the following is not suitable to $52 =$ _____
 a) $62 - 10$ b) $72 - 20$ c) $82 - 20$ d) $92 - 40$

VIII. Find the days and dates

27. One Sunday of a month is on 10th. What is the date of the next Sunday?
 a) 16 b) 17 c) 18 d) 19
28. August 18 is Monday. School youth festival is on 25th and 26th August. Choose the days of youth festival.
 a) Sunday and Monday b) Monday and Tuesday
 c) Tuesday and Wednesday d) Saturday and Sunday
29. Mini was with her grandmother during last summer vacation (whole of April and May). Tick the number of days she spent with grandmother.
 a) 59 b) 60 c) 61 d) 62

Appendix I7
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Scoring Key of Test of Achievement in
Mathematics for Standard III
(Final)

Item No.	Answer	Item No.	Answer
1	D	22	C
2	B	23	A
3	B	24	D
4	C	25	B
5	D	26	A
6	B	27	B
7	A	28	B
8	A	29	A
9	C	30	B
10	C	31	B
11	D	32	B
12	C	33	D
13	A	34	C
14	B	35	D
15	C	36	D
16	D	37	D
17	A	38	B
18	B	39	C
19	C	40	B
20	C	41	D
21	D		

Appendix J1
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Blueprint of Test of Achievement in
Mathematics for Standard V

Draft							
Objectives	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	Total number of items
Content							
Numbers	2	3,6, 7,8,9	1			10,11,12	10
Measures	16,18,19		17			4	5
Shapes and Patterns		20,21,22,23,27		26		24,25	8
Time, days, week & months	13		14,28, 30	15,29			6
Addition (3 ,4 digits)			31,33 48, 44	32			5
Subtraction		37	35		36		3
Multiplication		5	38, 40	39	34		5
Division			42,43,45				3
Addition & Subtraction		41					1
Addition & Multiplication			47				1
Addition, multiplication, division				46			1
Total	5	13	16	6	2	6	48

Note: Numbers in italics denotes item numbers in the draft test.

Final							
Objectives	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	Total number of items
Content							
Numbers	2	3,6,7,8,9				10,11,12	9
Measures	16,18,19		17			4	5
Shapes and Patterns		20,21,22, 23, 27		26		24,25	8
Time, days, week & months	13		14,28,30				4
Addition (3,4 digits)			31,33,48,44				4
Subtraction		37	35,		36		3
Multiplication		5	38		34		3
Division			42, 43				2
Addition & Subtraction		41					1
Addition & Multiplication			47				1
Addition, multiplication, division				46			1
Total	5	13	13	2	2	6	41

Note: Numbers in italics denotes item numbers in the final test.

Appendix J2
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Test of Achievement in Mathematics for Standard V
(For Malayalam Medium Students)
(Draft)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

ഓരോ ചോദ്യങ്ങളും ശ്രദ്ധാപൂർവ്വം വായിച്ച് ഇതോടൊപ്പം പ്രത്യേകം തന്നിരിക്കുന്ന ഉത്തരക്കടലാസിൽ ശരിയുത്തരത്തെ സൂചിപ്പിക്കുന്ന അക്ഷരത്തെ വൃത്തം വരച്ച് അടയാളപ്പെടുത്തുക.

ഉദാ: ഉത്തരം 'a' എങ്കിൽ **(a) b c d**

I. സംഖ്യകൾ കണ്ടെത്തുക

1. 350 മുതൽ 359 വരെ എത്ര സംഖ്യകൾ ഉണ്ട്?
 a) 9 b) 10 c) 11 d) 12
2. ഇരട്ട സംഖ്യ കണ്ടെത്തുക
 a) 53 b) 71 c) 82 d) 95
3. ഏറ്റവും ചെറിയ സംഖ്യ കണ്ടെത്തുക
 a) 876 b) 901 c) 989 d) 899
4. താഴെ തന്നിരിക്കുന്നവയിൽ അവരോഹണക്രമത്തിലുള്ളത് തെരഞ്ഞെടുക്കുക
 a) 323, 232, 523, 325 b) 523, 325, 323, 232
 c) 232, 323, 325, 523 d) 232, 325, 323, 523
5. 10 പത്തുകൾ =-----
 a) 10 b) 100 c) 110 d) 1000
6. 9 നൂറുകൾ 6 പത്തുകൾ 4 ഒന്നുകൾ
 a) 469 b) 649 c) 946 d) 964
7. 2 ആയിരങ്ങൾ 2 പത്തുകൾ
 a) 2002 b) 2020 c) 2200 d) 2000

II. സംഖ്യയെ അക്ഷരത്തിൽ എഴുതിയതിൽനിന്നും ശരിയായത് തെരഞ്ഞെടുക്കുക.

8. 430 -----
 a) നാനൂറ്റി മൂന്ന് b) നാനൂറ്റിപതിമൂന്ന് c) നാനൂറ്റി മുപ്പത് d) മൂന്നൂറ്റി നാൽപ്പത്
9. 13456 -----
 a) പതിമൂവായിരത്തി നാനൂറ്റി അമ്പത്തിയാറ് b) പതിമൂവായിരത്തി അഞ്ഞൂറ്റി അമ്പത്തിയാറ്
 c) മൂപ്പതിനായിരത്തി നാനൂറ്റി അമ്പത്തിയാറ് d) മൂപ്പതിനായിരത്തി അഞ്ഞൂറ്റി അമ്പത്തിയാറ്

III. സംഖ്യാശ്രേണിയിൽ വിട്ടുപോയത് പൂരിപ്പിക്കുക

10. 9, _____, 27, 36
 a) 14 b) 16 c) 18 d) 20
11. 440, 490, _____, 590
 a) 530 b) 540 c) 550 d) 560
12. 1221, 1332, 1443, _____
 a) 1553 b) 1554 c) 1555 d) 1556

IV. സമയം കണ്ടെത്തുക

13. ഒരു മണിക്കൂർ എന്നത്
 a) 100 മിനുട്ടുകൾ b) 80 മിനുട്ടുകൾ c) 70 മിനുട്ടുകൾ d) 60 മിനുട്ടുകൾ
14. താഴെ തന്നിരിക്കുന്നവയിൽ ശരിയായ സമയം കണ്ടെത്തുക.
 സമയം 10.10 ആകുമ്പോൾ, ക്ലോക്കിൽ കാണിക്കുന്നത് -----
 a) മണിക്കൂർ സൂചി പത്തിലും മിനുട്ട് സൂചി ഒന്നിലും
 b) മണിക്കൂർ സൂചി പത്തിലും മിനുട്ട് സൂചി രണ്ടിലും
 c) മണിക്കൂർ സൂചി പത്തിലും മിനുട്ട് സൂചി അഞ്ചിലും
 d) മണിക്കൂർ സൂചി പത്തിലും മിനുട്ട് സൂചി പത്തിലും
15. സാധാരണ രാവിലെ 11 മണിക്ക് സ്റ്റേഷനിൽ എത്തുന്ന ട്രെയിൻ 80 മിനിറ്റുകൾ വൈകിയാണ് ഓടുന്നതെങ്കിൽ, ഏത് സമയത്തായിരിക്കും സ്റ്റേഷനിൽ എത്തുക?
 a) 11. 80 a.m. b) 11. 80 p.m. c) 12.20 a.m. d) 12.20 p.m.






V. അളവുകൾ കണ്ടെത്തുക

16. ഒരു മീറ്റർ ----- ന് തുല്യമാണ്.
 a) 1000 cm b) 100 cm c) 100 mm d) 1000 mm
17. 7 മീറ്റർ നീളമുള്ള ഒരു ഇരുമ്പ് ദണ്ഡിനെ 50 സെ.മീ. നീളമുള്ള കഷ്ണങ്ങളാക്കി മുറിച്ചാൽ, എത്ര കഷ്ണങ്ങൾ ലഭിക്കും?
 a) 12 b) 14 c) 16 d) 18
18. 1500 കിലോഗ്രാം =
 a) 15 കിന്റൽ b) 10 കിന്റൽ c) 50 കിന്റൽ d) 100 കിന്റൽ
19. ഒരു ഡസൻ എന്നാൽ ----- എണ്ണമാണ്.
 a) 6 b) 8 c) 10 d) 12

VI. താഴെ തന്നിരിക്കുന്ന രൂപങ്ങളും അവയുടെ പേരുകളും വരച്ച് യോജിപ്പിക്കുക

<u>A</u>	<u>B</u>
20. 	a) സമചതുരം
21. 	b) ദീർഘവൃത്തം
22. 	c) ദീർഘചതുരം
23. 	d) ത്രികോണം
	e) വൃത്തം

VII. രൂപങ്ങൾ കണ്ടെത്തുക

24. താഴെ തന്നിരിക്കുന്ന അളവുകളിൽ ഒരു ദീർഘചതുരം നിർമ്മിക്കാൻ അനുയോജ്യമായതേത്?
 a) 6 സെമി, 4 സെമി, 4 സെമി, 6 സെമി b) 5 സെമി, 8സെമി, 5 സെമി, 4സെമി
 c) 10 സെമി, 10സെമി, 10 സെമി, 10സെമി d) 3 സെമി, 5 സെമി, 6സെമി, 3 സെമി
25. ഒരു സമചതുരം നിർമ്മിക്കാൻ ഉചിതമായത് ----- ആണ്.
 a)  b)  c)  d) 
26. താഴെ തന്നിരിക്കുന്ന വൃത്തത്തിന്റെ എത്ര ഭാഗമാണ് നിറം നൽകിയിട്ടുള്ളത്?
 a) 1/2 b) 1/4 c) 4/1 d) 3/1

27. ഒരു ത്രികോണത്തിന് ----- വശങ്ങളാണ്.

- a) 2 b) 3 c) 4 d) 5

VIII. ദിവസവും തിയതിയും കണ്ടെത്തുക

28. മെയ് 10 തിങ്കളാഴ്ച ആണെങ്കിൽ മെയ് 17 ഏത് ദിവസമായിരിക്കും?

- a) ഞായർ b) തിങ്കൾ c) ചൊവ്വ d) ബുധൻ

29. വായനാദിനമായ മെയ് 23 വ്യാഴാഴ്ചയാണ് ആ ദിവസം മുതൽ വായനാവാദമായി ആചരിക്കാൻ നിങ്ങളുടെ സ്കൂൾ തീരുമാനിച്ചിരിക്കുന്നു എങ്കിൽ ഏതു തിയതിയിലാണ് വായനാവാദം അവസാനിക്കുക?

- a) 28 b) 29 c) 30 d) 31

IX. താഴെ തന്നിരിക്കുന്ന സന്ദർഭങ്ങൾ വായിച്ച് ശരിയായ ഉത്തരം തിരഞ്ഞെടുക്കുക

30. ഏപ്രിൽ, മെയ്, ജൂൺ മാസങ്ങളിൽ നിങ്ങളുടെ മുത്തശ്ശി നിങ്ങളുടെ കുടുംബത്തോടൊപ്പമായിരുന്നു. എങ്കിൽ എത്ര ദിവസമാണ് നിങ്ങളുടെ കുടുംബത്തോടൊപ്പം മുത്തശ്ശി ചിലവഴിച്ചത്?

- a) 89 b) 90 c) 91 d) 92

31. ജോൺ ഒരു ഷർട്ട് വാങ്ങിക്കാനായി നൂറുരൂപയുടെ 9 നോട്ടുകളും പത്ത് രൂപയുടെ 8 നോട്ടുകളും ഒരു 5 രൂപ നാണയവും നൽകി. എങ്കിൽ ഷർട്ടിന്റെ വിലയെത്ര?

- a) 589 b) 598 c) 895 d) 985

32. ശരത് 7000 രൂപ നൽകി ഗൃഹോപകരണങ്ങൾ വാങ്ങിച്ചു. വിവിധയിനങ്ങളുടെ വിലവിവരപ്പട്ടികയാണ് താഴെ നൽകിയിട്ടുള്ളത്. ഏതെല്ലാം ഉപകരണങ്ങളായിരിക്കും ശരത് വാങ്ങിയിരിക്കുക?

Sl. No	ITEM	PRICE
1.	ഫാൻ	2400
2.	മിക്സി	3150
3.	ഗ്യാസടുപ്പ്	3950
4.	ഇസ്തിരിപ്പെട്ടി	1250
5.	കുക്കർ	3350

- a) ഫാൻ, മിക്സി, ഗ്യാസടുപ്പ്
 b) ഫാൻ, ഇസ്തിരിപ്പെട്ടി, ഗ്യാസടുപ്പ്
 c) ഫാൻ, മിക്സി, ഇസ്തിരിപ്പെട്ടി
 d) ഫാൻ, കുക്കർ, ഇസ്തിരിപ്പെട്ടി

33. ബാബു 5 കിലോ 750 ഗ്രാം പഴങ്ങളും 3 കിലോ 500 ഗ്രാം പച്ചക്കറികളും വാങ്ങിച്ചു. ആകെ എത്ര തൂക്കമുണ്ടായിരിക്കും?

- a) 9 kg 100gm b) 9 kg 150 gm c) 9 kg 200gm d) 9 kg 250gm

34. അനുവിന് 500 ഗ്രാം തൂക്കമുള്ള 2 ബാഗുകൾ ഉണ്ട്. അതിന്റെ ആകെ തൂക്കം കാണാൻ അവൾ ഉപയോഗിക്കേണ്ടത്

- a) 500gm – 500gm b) 2 + 500gm c) 500gm X 500gm d) 2 X 500gm

35. നിങ്ങളുടെ സ്കൂളിൽ 500 പാഠപുസ്തകങ്ങൾ ഉണ്ടായിരുന്നു. അതിൽനിന്നും 435 എണ്ണം പ്രളയബാധിതപ്രദേശങ്ങളിൽ വിതരണം ചെയ്തു. ഇനി എത്ര പാഠപുസ്തകങ്ങൾ സ്കൂളിൽ ബാക്കിയുണ്ടാകും?

- a) 45 b) 55 c) 65 d) 75

36. ഒരു കുട്ടിയിൽ 85 ഓറഞ്ചുകളും മറ്റൊരു കുട്ടിയിൽ 62 ഓറഞ്ചുകളും ഉണ്ട്. ഒന്നാമത്തെ കുട്ടിയിൽ എത്ര ഓറഞ്ചുകൾ കുടുതലുണ്ടെന്നറിയാൻ താഴെ തന്നിരിക്കുന്നവയിൽ നിന്നും യോജിച്ചത് തിരഞ്ഞെടുക്കുക.

- a) 85 + 62 b) 85 – 62 c) 85 X 62 d) 62 + 85

37. 3900 – 2999 = _____

- a) 9001 b) 901 c) 199 d) 100

38. ഗ്രൗണ്ടിലെ 200 മീറ്റർ നീളമുള്ള ട്രാക്കിലൂടെ ഗിരി 5 തവണ ഓടിയെങ്കിൽ, ആകെ എത്ര ദൂരം ഗിരി ഓടിയിട്ടുണ്ടാകും?

- a) 1500 മീറ്റർ b) 1000 മീറ്റർ c) 500 മീറ്റർ d) 250 മീറ്റർ

39. സ്കൂൾ ഓഡിറ്റോറിയത്തിൽ ഓരോ നിരകളിലും 12 സീറ്റുകളായാണ് കസേരകൾ ക്രമീകരിച്ചിരിക്കുന്നത്. രണ്ട് വശങ്ങളുള്ള ഓഡിറ്റോറിയത്തിൽ ഒരു വശത്തായി മാത്രം 20 നിരകളുണ്ടെങ്കിൽ ആകെ എത്ര കുട്ടികൾക്ക് ഇരിക്കാനാകും?
 a) 240 b) 320 c) 400 d) 480
40. ഒരു വൈറ്റ്ബോർഡിന്റെ വില 1550 രൂപയാണ്. സ്കൂളിലേക്ക് 8 ബോർഡുകൾ വാങ്ങിക്കാനായി ഹെഡ് മാസ്റ്റർ എത്ര രൂപ നൽകണം?
 a) 12000 b) 120000 c) 12400 d) 12400
41. $1000 = 450 + 325 + \underline{\hspace{2cm}}$
 a) 125 b) 175 c) 225 d) 275
42. 6 ത്രികോണങ്ങൾ ഉപയോഗിച്ച് മനു ഒരു പാറ്റേൺ നിർമ്മിച്ചു, എങ്കിൽ 36 ത്രികോണങ്ങൾ ഉപയോഗിച്ച് മനു അതേപോലെയുള്ള എത്ര പാറ്റേണുകൾ നിർമ്മിക്കും?
 a) 4 b) 5 c) 6 d) 7
43. നൂറു രൂപയുടെ 7 നോട്ടുകൾ നൽകി അമ്പി 50 രൂപ നോട്ടുകളുടെ ചില്ലറയാക്കി മാറ്റി. അമ്പിയുടെ കയ്യിൽ എത്ര 50 രൂപ നോട്ടുകൾ കാണും?
 a) 13 b) 14 c) 15 d) 16
44. സിനുവിന് 725 രൂപ അവളുടെ കുട്ടുകാരിക്ക് കൊടുക്കണം. അതിനുവേണ്ടി നോട്ടുകൾ തെരഞ്ഞെടുക്കുവാൻ സഹായിക്കാമോ?
 a) അഞ്ഞൂറ് രൂപ+ ഇരുനൂറ് രൂപ + പത്ത് രൂപ + അഞ്ച് രൂപ
 b) അഞ്ഞൂറ് രൂപ+ ഇരുനൂറ് രൂപ + ഇരുപത് രൂപ + അഞ്ച് രൂപ
 c) അഞ്ഞൂറ് രൂപ+ നൂറ് രൂപ + ഇരുപത് രൂപ + അഞ്ച് രൂപ
 d) അഞ്ഞൂറ് രൂപ+ നൂറ് രൂപ + പത്ത് രൂപ + അഞ്ച് രൂപ
45. 420 രൂപ നൽകി അമ്മൽ 7 കിലോഗ്രാം പഴം വാങ്ങിച്ചു. എങ്കിൽ 1 കിലോഗ്രാം പഴത്തിന്റെ വിലയെന്തായിരിക്കും?
 a) Rs.50 b) Rs. 60 c) 70 d) 80

X. തന്നിരിക്കുന്ന പട്ടിക വായിച്ച് 48 മുതൽ 50 വരെയുള്ള ചോദ്യങ്ങൾക്ക് ഉത്തരങ്ങൾ കണ്ടെത്തുക

അരുണം മകനും വാങ്ങിയ സാധനങ്ങളുടെ വിലവിവരപ്പട്ടിക താഴെ നൽകിയിരിക്കുന്നു. ഇതിന്റെ അടിസ്ഥാനത്തിൽ താഴെയുള്ള ചോദ്യങ്ങൾക്ക് ഉത്തരം തെരഞ്ഞെടുക്കുക.

വിലവിവരപ്പട്ടിക	വില
അരി	45
പഞ്ചസാര	65
ഗോതമ്പ്	35
ഓയിൽ	90
ഓട്ട്സ്	70
ഹോർലിക്സ്	215
ബിസ്കറ്റ്	25

46. അരുൺ 5 കിലോ അരി, 1 കിലോ പഞ്ചസാര, 2 കിലോ ഗോതമ്പ്, 500 മില്ലി ലിറ്റർ ഓയിൽ എന്നീ സാധനങ്ങൾ വാങ്ങിച്ചു. ഇവക്കായി എത്ര രൂപ നൽകണം?
 a) 305 b) 355 c) 405 d) 455
47. അരുണിന്റെ മകൻ 1 കിലോ ഓട്ട്സും 1 കിലോ ഹോർലിക്സ്, 3 പാക്കറ്റ് ബിസ്കറ്റും വാങ്ങിച്ചു. ഇവർക്കായി എത്ര രൂപ നൽകണം?
 a) 310 b) 360 c) 410 d) 460
48. എല്ലാത്തിനും കൂടി അരുൺ എത്ര രൂപ നൽകണം?
 a) 715 b) 725 c) 735 d) 765

Appendix J3
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

Test of Achievement in Mathematics for Standard V
(For English Medium Students)
(Draft)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

Read the instructions of each questions carefully and choose the correct answer from the given below. Circle your answers in the answer sheet provided.

Eg: If 'a' is the answer Ⓐ b c d

I. Find the numbers

1. How many numbers are there from 350 to 359
 a) 9 b) 10 c) 11 d) 12
2. Find the even number
 a) 53 b) 71 c) 82 d) 95
3. Find the smallest number
 a) 876 b) 901 c) 989 d) 899
4. Choose the one in descending order
 a) 323, 232, 523, 325 b) 523, 325, 323, 232
 c) 232, 323, 325, 523 d) 232, 235, 323, 523
5. 10 tens = _____
 a) 10 b) 100 c) 110 d) 1000
6. 9 hundreds 6 tens 4 ones a) 469 b) 649 c) 946 d) 964
7. 2 thousands and 2 tens a) 2002 b) 2020 c) 2200 d) 2000

II. Select the number names

8. 430 is _____
 a) Four hundred and three
 b) Four hundred and thirteen
 c) Four hundred and thirty
 d) Three hundred and forty
9. 13456 is
 a) Thirteen Thousand Four Hundred and Fifty Six
 b) Thirteen Thousand Five Hundred and Fifty Six
 c) Thirty Thousand Four Hundred and Fifty Six
 d) Thirty Thousand Five Hundred and Fifty Six

III. Complete the number pattern

10. 9, _____, 27, 36
 a) 14 b) 16 c) 18 d) 20
11. 440, 490, _____, 590
 a) 530 b) 540 c) 550 d) 560
12. 1221, 1332, 1443, _____
 a) 1553 b) 1554 c) 1555 d) 1556

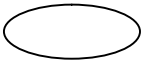



IV. Find the time

13. 1 hour is equal to
 a) 100 minutes b) 80 minutes c) 70 minutes d) 60 minutes
14. Choose the correct time from the option.
 At 10. 10, the clock shows _____
 a) Hour hand at 10 and minute hand at 1
 b) Hour hand at 10 and minute hand at 2
 c) Hour hand at 10 and minute hand at 5
 d) Hour hand at 10 and Minute hand at 10
15. A train reaches station at 11 a.m. But it runs 80 minutes late. At what time it will reach at the station?
 a) 11. 80 a.m. b) 11. 80 p.m. c) 12.20 a.m. d) 12.20 p.m.





V. Find the measures

16. 1 meter is equal to _____
 a) 1000 cm b) 100 cm c) 100 mm d) 1000 mm
17. An iron rode of 7 m has cut in to small pieces of 50 cm. How many pieces will get from it?
 a) 12 b) 14 c) 16 d) 18
18. 1500 kg = _____
 a) 15 quintal b) 10 quintal c) 50 quintal d) 100 quintal
19. 1 dozen is equal to _____ a) 6 b) 8 c) 10 d) 12

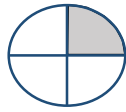
VI. Match the following

- | <u>A</u> | <u>B</u> |
|---|--------------|
| 20.  | a) Square |
| 21.  | b) Oval |
| 22.  | c) Rectangle |
| 23.  | d) Triangle |

VII. Find the shapes

24. Which of the following is suitable to make a rectangle?
 a) 6 cm, 4 cm, 4 cm, 6 cm b) 5 cm, 8cm, 5 cm, 4cm
 c) 10 cm, 10cm, 10 cm, 10cm d) 3cm, 5 cm, 6cm, 3 cm
25. Which one of the following is suitable to construct a square
 a)  b)  c)  d) 

26. The diagram shows



- a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) $\frac{4}{1}$ d) $\frac{2}{1}$

27. A triangle has _____ sides.

- a) 2 b) 3 c) 4 d) 5

VIII. Find the days and dates

28. If 10th May is Monday, 17th May is -----

- a) Sunday b) Monday c) Tuesday d) Wednesday

29. Reading day is on 23rd April which falls on Thursday. Your school has decided to observe it for a week from this date. Which will be the ending date of Reading week?

- a) 28 b) 29 c) 30 d) 31

30. Your grandmother was with your family during last April, May and June. Find the number of days she spend with your family.

- a) 89 b) 90 c) 91 d) 92

IX. Select the right answers for the following situation.

31. John gave 9 Hundred rupees notes, 8 ten rupees notes and 5 rupee coin to buy a shirt. What is the price of the shirt?

- a) 589 b) 598 c) 895 d) 985

32. Sarath bought different home appliances for Rs.7000. The price of items is given in a table. Find the items he bought.

Sl. No	ITEM	PRICE
1.	Fan	2400
2.	Mixer	3150
3.	Gas stove	3950
4.	Iron box	1250
5.	Cooker	3350

- a) Fan , mixer and gas stove
 b) Fan, iron box and gas stove
 c) Fan, mixer and iron box
 d) Fan, cooker and iron box

33. Babu bought 5 kg 750 gm fruits and 3 kg 350 gm vegetables. What is the total weight?

- a) 9 kg 100 gm b) 9 kg 150 gm c) 9 kg 200 gm d) 9 kg 250 gm

34. Anu has two bags containing 500 gm weight. To find the total weight she can use

- a) 500gm–500gm b) 2 + 500gm c) 500gm X 500gm d) 2 X 500gm

35. There was 500 textbooks in your school. Among them, 435 books are supplied in the flood hit areas. How many books are left in the school now?

- a) 45 b) 55 c) 65 d) 75

36. There are 85 oranges in a basket and 62 oranges in another basket. Select the suitable one from the following to find how many oranges are more in first basket.

- a) 85 + 62 b) 85 – 62 c) 85 X 62 d) 62 + 85

37. 3900 – 2999 = _____

- a) 9001 b) 901 c) 199 d) 100

38. A track in a ground has 200m. How many meters Giri covered when he completed the fifth round?

- a) 1500m b) 1000m c) 500m d) 250m

39. There are 12 seats in a row in school auditorium. If there are 20 rows in one side, how many students can sit in the auditorium?
a) 240 b) 320 c) 400 d) 480
40. The price of white board is Rs.1550. Principal bought 8 white boards for school. How many rupees he has to pay?
a) 12000 b) 120000 c) 12400 d) 12400
41. $1000 = 450 + 325 + \underline{\hspace{2cm}}$ a) 125 b) 175 c) 225 d) 275
42. Manu made a particular pattern using 6 triangles. How many similar patterns he can make using 36 triangles?
a) 4 b) 5 c) 6 d) 7
43. Abi changed his 7 hundred rupees notes to make it fifty rupees notes. How many fifty rupees notes he has now?
a) 13 b) 14 c) 15 d) 16
44. Sinu wants to give Rs. 725 to her friend. Help her to select rupees
a) Rs. 500 + Rs. 200 + Rs. 10 +Rs. 5
b) Rs. 500 + Rs. 200 + Rs. 20 +Rs. 5
c) Rs. 500 + Rs. 100 + Rs. 20 +Rs. 5
d) Rs. 500 + Rs. 100 + Rs. 10 +Rs. 5
45. Amal bought 7 kg Banana for Rs.420. What is the rate of 1kg banana?
a) Rs.50 b) Rs. 60 c) 70 d) 80

X. Read the table and answer the questions from 48 to 50 selecting the suitable options.

Arun and his son purchased some items and its price list is given below. Find the answers of the following answers.

PRICE LIST	
Rice	45
Sugar	65
Wheat	35
Oil	90
Oats	70
Horlicks	215
Biscuits	25

46. Arun bought 5kg rice, 1 kg sugar, 2 kg wheat, 500ml sunflower oil. How much rupees he has to pay?
a) 305 b) 355 c) 405 d) 455
47. His son bought 1 kg oats, 1 kg Horlicks and 3 packets of biscuits. How much Arun wants to pay?
a) 310 b) 360 c) 410 d) 460
48. How much money Arun has to pay altogether?
a) 715 b) 725 c) 735 d) 765

Appendix J4
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Data and Results of Item Analysis of Test of
Achievement in Mathematics for Standard V

Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)	Item no. (Draft tool)	DP (N=200)	DI (N=200)	Item no. (Final tool)
1	0.14	0.09	Rejected	25	0.68	0.62	23
2	0.50	0.67	1	26	0.62	0.59	24
3	0.52	0.74	2	27	0.60	0.60	25
4	0.30	0.43	3	28	0.60	0.58	26
5	0.66	0.61	4	29	-0.08	0.14	Rejected
6	0.64	0.64	5	30	0.36	0.40	27
7	0.46	0.61	6	31	0.74	0.43	28
8	0.58	0.61	7	32	-0.06	0.19	Rejected
9	0.50	0.65	8	33	0.38	0.39	29
10	0.70	0.61	9	34	0.46	0.33	30
11	0.66	0.59	10	35	0.40	0.40	31
12	0.66	0.57	11	36	0.46	0.37	32
13	0.64	0.60	12	37	0.30	0.39	33
14	0.30	0.31	13	38	0.60	0.42	34
15	0.24	0.26	Rejected	39	0.22	0.33	Rejected
16	0.50	0.45	14	40	0.12	0.16	Rejected
17	0.42	0.41	15	41	0.30	0.33	35
18	0.54	0.45	16	42	0.38	0.33	36
19	0.78	0.51	17	43	0.34	0.37	37
20	0.64	0.58	18	44	0.58	0.49	38
21	0.80	0.56	19	45	0.06	0.39	Rejected
22	0.72	0.64	20	46	0.34	0.31	39
23	0.80	0.58	21	47	0.32	0.30	40
24	0.76	0.54	22	48	0.30	0.25	41

Appendix J5

**UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION**

**Test of Achievement in Mathematics for Standard V
(For Malayalam Medium Students)
(Final)**

Dr. K. Abdul Gafoor
Professor

Kadeeja Sanam K.P.
Research Scholar

ഓരോ ചോദ്യങ്ങളും ശ്രദ്ധാപൂർവ്വം വായിച്ച് ഇതോടൊപ്പം പ്രത്യേകം തന്നിരിക്കുന്ന ഉത്തരക്കലാസിൽ ശരിയുത്തരത്തെ സൂചിപ്പിക്കുന്ന അക്ഷരത്തെ വൃത്തം വരച്ച് അടയാളപ്പെടുത്തുക.

ഉദാ: ഉത്തരം 'a' എങ്കിൽ a **(b)** c d

I. സംഖ്യകൾ കണ്ടെത്തുക

1. ഇരട്ട സംഖ്യ കണ്ടെത്തുക
a) 53 b) 71 c) 82 d) 95
2. ഏറ്റവും ചെറിയ സംഖ്യ കണ്ടെത്തുക
a) 876 b) 901 c) 989 d) 899
3. താഴെ തന്നിരിക്കുന്നവയിൽ അവരോഹണക്രമത്തിലുള്ളത് തിരഞ്ഞെടുക്കുക
a) 323, 232 , 523 , 325
b) 523, 325, 323, 232
c) 232, 323, 325, 523
d) 232, 325, 323, 523
4. 10 പത്തുകൾ =-----
a) 10 b) 100 c) 110 d) 1000
5. 9 നൂറുകൾ 6 പത്തുകൾ 4 ഒന്നുകൾ
a) 469 b) 649 c) 946 d) 964
6. 2 ആയിരങ്ങൾ 2 പത്തുകൾ
a) 2002 b) 2020 c) 2200 d) 2000

II. സംഖ്യയെ അക്ഷരത്തിൽ എഴുതിയതിൽനിന്നും ശരിയായത് തിരഞ്ഞെടുക്കുക.

7. 430 -----
a) നാനൂറ്റി മൂന്ന് b) നാനൂറ്റിപതിമൂന്ന് c) നാനൂറ്റി മുപ്പത് d) മൂന്നൂറ്റി നാല്പ്പത്
8. 13456 -----
a) പതിമൂപ്പായിരത്തി നാനൂറ്റി അമ്പത്തിയാറ്
b) പതിമൂപ്പായിരത്തി അഞ്ഞൂറ്റി അമ്പത്തിയാറ്
c) മുപ്പതിനായിരത്തി നാനൂറ്റി അമ്പത്തിയാറ്
d) മുപ്പതിനായിരത്തി അഞ്ഞൂറ്റി അമ്പത്തിയാറ്

III. സംഖ്യാശ്രേണിയിൽ വിട്ടുപോയത് പൂരിപ്പിക്കുക

9. 9, _____, 27, 36
a) 14 b) 16 c) 18 d) 20

10. 440, 490, _____, 590
 a) 530 b) 540 c) 550 d) 560
11. 1221, 1332, 1443, _____
 a) 1553 b) 1554 c) 1555 d) 1556





IV. സമയം കണ്ടെത്തുക

12. ഒരു മണിക്കൂർ എന്നത്
 a) 100 മിനുട്ടുകൾ b) 80 മിനുട്ടുകൾ c) 70 മിനുട്ടുകൾ d) 60 മിനുട്ടുകൾ
13. താഴെ തന്നിരിക്കുന്നവയിൽ ശരിയായ സമയം കണ്ടെത്തുക.
 സമയം 10.10 ആകുമ്പോൾ, ക്ലോക്കിൽ കാണിക്കുന്നത് -----
 a) മണിക്കൂർ സൂചി പത്തിലും മിനുട്ട് സൂചി ഒന്നിലും
 b) മണിക്കൂർ സൂചി പത്തിലും മിനുട്ട് സൂചി രണ്ടിലും
 c) മണിക്കൂർ സൂചി പത്തിലും മിനുട്ട് സൂചി അഞ്ചിലും
 d) മണിക്കൂർ സൂചി പത്തിലും മിനുട്ട് സൂചി പത്തിലും

V. അളവുകൾ കണ്ടെത്തുക

14. ഒരു മീറ്റർ ----- ന് തുല്യമാണ്.
 a) 1000 cm b) 100 cm c) 100 mm d) 1000 mm
15. 7 മീറ്റർ നീളമുള്ള ഒരു ഇരുമ്പ് ദണ്ഡിനെ 50 സെ.മീ. നീളമുള്ള കഷ്ണങ്ങളാക്കി മുറിച്ചാൽ, എത്ര കഷ്ണങ്ങൾ ലഭിക്കും?
 a) 12 b) 14 c) 16 d) 18
16. 1500 കിലോഗ്രാം =
 a) 15 കിന്റൽ b) 10 കിന്റൽ c) 50 കിന്റൽ d) 100 കിന്റൽ
17. ഒരു ഡസൻ എന്നാൽ ----- എണ്ണമാണ്.
 a) 6 b) 8 c) 10 d) 12

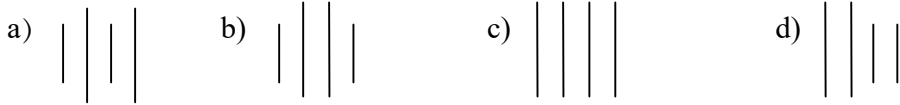
VI. താഴെ തന്നിരിക്കുന്ന രൂപങ്ങളും അവയുടെ പേരുകളും വരച്ച് യോജിപ്പിക്കുക

<p>18. </p> <p>19. </p> <p>20. </p> <p>21. </p>	<p>A</p> <p>B</p> <p>a) സമചതുരം</p> <p>b) ദീർഘവൃത്തം</p> <p>c) ദീർഘചതുരം</p> <p>d) ത്രികോണം</p> <p>e) വൃത്തം</p>
---	--

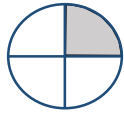
VII. രൂപങ്ങൾ കണ്ടെത്തുക

22. താഴെ തന്നിരിക്കുന്ന അളവുകളിൽ ഒരു ദീർഘചതുരം നിർമ്മിക്കാൻ അനുയോജ്യമായ തേത്?
 a) 6 സെമി, 4 സെമി, 4 സെമി, 6 സെമി
 b) 5 സെമി, 8സെമി, 5 സെമി, 4സെമി
 c) 10 സെമി, 10സെമി, 10 സെമി, 10സെമി
 d) 3 സെമി, 5 സെമി, 6സെമി, 3 സെമി

23. ഒരു സമചതുരം നിർമ്മിക്കാൻ ഉചിതമായത് ----- ആണ്.



24. താഴെ തന്നിരിക്കുന്ന വൃത്തത്തിന്റെ എത്ര ഭാഗമാണ് നിറം നൽകിയിട്ടുള്ളത്?



- a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) $\frac{4}{1}$ d) $\frac{2}{1}$

25. ഒരു ത്രികോണത്തിന് ----- വശങ്ങളാണ്.

- a) 2 b) 3 c) 4 d) 5

VIII. ദിവസവും തിയതിയും കണ്ടെത്തുക

26. മെയ് 10 തിങ്കളാഴ്ച ആണെങ്കിൽ മെയ് 17 ഏത് ദിവസമായിരിക്കും?

- a) ഞായർ b) തിങ്കൾ c) ചൊവ്വ d) ബുധൻ

IX. താഴെ തന്നിരിക്കുന്ന സന്ദർഭങ്ങൾ വായിച്ച് ശരിയായ ഉത്തരം തിരഞ്ഞെടുക്കുക

27. ഏപ്രിൽ, മെയ്, ജൂൺ മാസങ്ങളിൽ നിങ്ങളുടെ മുത്തശ്ശി നിങ്ങളുടെ കുടുംബത്തോടൊപ്പം മായിരുന്നു. എങ്കിൽ എത്ര ദിവസമാണ് നിങ്ങളുടെ കുടുംബത്തോടൊപ്പം മുത്തശ്ശി ചിലവഴിച്ചത്?

- a) 89 b) 90 c) 91 d) 92

28. ജോൺ ഒരു ഷർട്ട് വാങ്ങിക്കാനായി നൂറുരൂപയുടെ 9 നോട്ടുകളും പത്ത് രൂപയുടെ 8 നോട്ടുകളും ഒരു 5 രൂപ നാണയവും നൽകി. എങ്കിൽ ഷർട്ടിന്റെ വിലയെത്ര?

- a) 589 b) 598 c) 895 d) 985

29. ബാബു 5 കിലോ 750 ഗ്രാം പഴങ്ങളും 3 കിലോ 500 ഗ്രാം പച്ചക്കറികളും വാങ്ങിച്ചു. ആകെ എത്ര തൂക്കമുണ്ടായിരിക്കും?

- a) 9 kg 100gm b) 9 kg 150 gm c) 9 kg 200gm d) 9 kg 250gm

30. അനുവിന് 500 ഗ്രാം തൂക്കമുള്ള 2 ബാഗുകൾ ഉണ്ട്. അതിന്റെ ആകെ തൂക്കം കാണാൻ അവൾ ഉപയോഗിക്കേണ്ടത്

- a) 500gm – 500gm b) 2 + 500gm c) 500gm X 500gm d) 2 X 500gm

31. നിങ്ങളുടെ സ്കൂളിൽ 500 പാഠപുസ്തകങ്ങൾ ഉണ്ടായിരുന്നു. അതിൽനിന്നും 435 എണ്ണം പ്രളയബാധിതപ്രദേശങ്ങളിൽ വിതരണം ചെയ്തു. ഇനി എത്ര പാഠപുസ്തകങ്ങൾ സ്കൂളിൽ ബാക്കിയുണ്ടാകും?

- a) 45 b) 55 c) 65 d) 75

32. ഒരു കൂട്ടയിൽ 85 ഓറഞ്ചുകളും മറ്റൊരു കൂട്ടയിൽ 62 ഓറഞ്ചുകളും ഉണ്ട്. ഒന്നാമത്തെ കൂട്ടയിൽ എത്ര ഓറഞ്ചുകൾ കൂടുതലുണ്ടെന്നറിയാൻ താഴെ തന്നിരിക്കുന്നവയിൽ നിന്നും യോജിച്ചത് തിരഞ്ഞെടുക്കുക.

- a) 85 + 62 b) 85 – 62 c) 85 X 62 d) 62 + 85

33. $3900 - 2999 = \underline{\hspace{2cm}}$

- a) 9001 b) 901 c) 199 d) 100

34. ഗ്രൗണ്ടിലെ 200 മീറ്റർ നീളമുള്ള ട്രാക്കിലൂടെ ഗിരി 5 തവണ ഓടിയെങ്കിൽ, ആകെ എത്ര ദൂരം ഗിരി ഓടിയിട്ടുണ്ടാകും?

- a) 1500 മീറ്റർ b) 1000 മീറ്റർ c) 500 മീറ്റർ d) 250 മീറ്റർ

35. $1000 = 450 + 325 + \underline{\hspace{2cm}}$

- a) 125 b) 175 c) 225 d) 275

36. 6 ത്രികോണങ്ങൾ ഉപയോഗിച്ച് മനു ഒരു പാറ്റേൺ നിർമ്മിച്ചു, എങ്കിൽ 36 ത്രികോണങ്ങൾ ഉപയോഗിച്ച് മനു അതേപോലെയുള്ള എത്ര പാറ്റേണുകൾ നിർമ്മിക്കും?
 a) 4 b) 5 c) 6 d) 7
37. നൂറു രൂപയുടെ 7 നോട്ടുകൾ നൽകി അമ്പി 50 രൂപ നോട്ടുകളുടെ ചില്ലറയാക്കി മാറ്റി. അമ്പിയുടെ കയ്യിൽ എത്ര 50 രൂപ നോട്ടുകൾ കാണും?
 a) 13 b) 14 c) 15 d) 16
38. സിനുവിന് 725 രൂപ അവളുടെ കൂട്ടുകാരിക്ക് കൊടുക്കണം. അതിനുവേണ്ടി നോട്ടുകൾ തെരഞ്ഞെടുക്കുവാൻ സഹായിക്കാമോ?
 a) അഞ്ഞൂറ് രൂപ+ ഇരുനൂറ് രൂപ + പത്ത് രൂപ + അഞ്ച് രൂപ
 b) അഞ്ഞൂറ് രൂപ+ ഇരുനൂറ് രൂപ + ഇരുപത് രൂപ + അഞ്ച് രൂപ
 c) അഞ്ഞൂറ് രൂപ+ നൂറ് രൂപ + ഇരുപത് രൂപ + അഞ്ച് രൂപ
 d) അഞ്ഞൂറ് രൂപ+ നൂറ് രൂപ + പത്ത് രൂപ + അഞ്ച് രൂപ

X. തന്നിരിക്കുന്ന പട്ടിക വായിച്ച് 48 മുതൽ 50 വരെയുള്ള ചോദ്യങ്ങൾക്ക് ഉത്തരങ്ങൾ കണ്ടെത്തുക

അരുണം മകനും വാങ്ങിയ സാധനങ്ങളുടെ വിലവിവരപ്പട്ടിക താഴെ നൽകിയിരിക്കുന്നു. ഇതിന്റെ അടിസ്ഥാനത്തിൽ താഴെയുള്ള ചോദ്യങ്ങൾക്ക് ഉത്തരം തെരഞ്ഞെടുക്കുക.

വിലവിവരപ്പട്ടിക	വില
അരി	45
പഞ്ചസാര	65
ഗോതമ്പ്	35
ഓയിൽ	90
ഓട്ട്സ്	70
ഹോർലിക്സ്	215
ബിസ്കറ്റ്	25

39. അരുൺ 5 കിലോ അരി, 1 കിലോ പഞ്ചസാര, 2 കിലോ ഗോതമ്പ്, 500 മില്ലി ലിറ്റർ ഓയിൽ എന്നീ സാധനങ്ങൾ വാങ്ങിച്ചു. ഇവക്കായി എത്ര രൂപ നൽകണം?
 a) 305 b) 355 c) 405 d) 455
40. അരുണിന്റെ മകൻ 1 കിലോ ഓട്ട്സും 1 കിലോ ഹോർലിക്സ്, 3 പാക്കറ്റ് ബിസ്കറ്റും വാങ്ങിച്ചു. ഇവർക്കായി എത്ര രൂപ നൽകണം?
 a) 310 b) 360 c) 410 d) 460
41. എല്ലാത്തിനും കൂടി അരുൺ എത്ര രൂപ നൽകണം?
 a) 715 b) 725 c) 735 d) 765

Appendix J6**UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION****Test of Achievement in Mathematics for Standard V
(For English Medium Students)
(Final)****Dr. K. Abdul Gafoor**
Professor**Kadeeja Sanam K.P.**
Research Scholar

Read the instructions of each questions carefully and choose the correct answer from the given below. Circle your answers in the answer sheet provided.

Eg: If 'a' is the answer Ⓐ b c d

I. Find the numbers

1. Find the even number

- a) 53 b) 71 c) 82 d) 95

2. Find the smallest number

- a) 876 b) 901 c) 989 d) 899

3. Choose the one in descending order

- a) 323, 232, 523, 325 b) 523, 325, 323, 232
c) 232, 323, 325, 523 d) 232, 235, 323, 523

4. 10 tens = _____

- a) 10 b) 100 c) 110 d) 1000

5. 9 hundreds 6 tens 4 ones

- a) 469 b) 649 c) 946 d) 964

6. 2 thousands and 2 tens

- a) 2002 b) 2020 c) 2200 d) 2000

II. Select the number names

7. 430 is _____

- a) Four hundred and three b) Four hundred and thirteen
c) Four hundred and thirty d) Three hundred and forty

8. 13456 is

- a) Thirteen Thousand Four Hundred and Fifty Six
b) Thirteen Thousand Five Hundred and Fifty Six
c) Thirty Thousand Four Hundred and Fifty Six
d) Thirty Thousand Five Hundred and Fifty Six

III. Complete the number pattern

9. 9, _____, 27, 36

- a) 14 b) 16 c) 18 d) 20

10. 440, 490, _____, 590

- a) 530 b) 540 c) 550 d) 560

11. 1221, 1332, 1443, _____

- a) 1553 b) 1554 c) 1555 d) 1556

IV. Find the time

12. 1 hour is equal to

- a) 100 minutes b) 80 minutes c) 70 minutes d) 60 minutes

13. Choose the correct time from the option.





At 10. 10, the clock shows _____

- a) Hour hand at 10 and minute hand at 1 b) Hour hand at 10 and minute hand at 2
c) Hour hand at 10 and minute hand at 5 d) Hour hand at 10 and Minute hand at 10


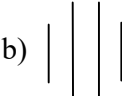
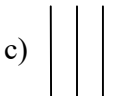
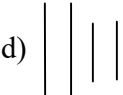
V. Find the measures

14. 1 meter is equal to ____ a) 1000 cm b) 100 cm c) 100 mm d) 1000 mm
 15. An iron rode of 7 m has cut in to small pieces of 50 cm. How many pieces will get from it?
 a) 12 b) 14 c) 16 d) 18
 16. 1500 kg = ____
 a) 15 quintal b) 10 quintal c) 50 quintal d) 100 quintal
 17. 1 dozen is equal to ____ a) 6 b) 8 c) 10 d) 12

VI. Match the following

- | <u>A</u> | <u>B</u> |
|---|--------------|
| 18.  | a) Square |
| 19.  | b) Oval |
| 20.  | c) Rectangle |
| 21.  | d) Triangle |

VII. Find the shapes

22. Which of the following is suitable to make a rectangle?
 a) 6 cm, 4 cm, 4 cm, 6 cm b) 5 cm, 8cm, 5 cm, 4cm
 c) 10 cm, 10cm, 10 cm, 10cm d) 3cm, 5 cm, 6cm, 3 cm
23. Which one of the following is suitable to construct a square
 a)  b)  c)  d) 

24. The diagram shows



- a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) $\frac{4}{1}$ d) $\frac{2}{1}$

25. A triangle has _____ sides. a) 2 b) 3 c) 4 d) 5

VIII. Find the days and dates

26. If 10th May is Monday, 17th May is -----
 a) Sunday b) Monday c) Tuesday d) Wednesday
27. Your grandmother was with your family during last April, May and June. Find the number of days she spend with your family.
 a) 89 b) 90 c) 91 d) 92

IX. Select the right answers for the following situation.

28. John gave 9 Hundred rupees notes, 8 ten rupees notes and 5 rupee coin to buy a shirt. What is the price of the shirt?
 a) 589 b) 598 c) 895 d) 985

29. Babu bought 5 kg 750 gm fruits and 3 kg 350gm vegetables. What is the total weight?
a) 9 kg 100gm b) 9 kg 150 gm c) 9 kg 200gm d) 9 kg 250gm
30. Anu has two bags containing 500gm weight. To find the total weight she can use
a) 500gm–500gm b) 2 + 500gm c) 500gm X 500gm d) 2 X 500gm
31. There was 500 textbooks in your school. Among them, 435 books are supplied in the flood hit areas. How many books are left in the school now?
a) 45 b) 55 c) 65 d) 75
32. There are 85 oranges in a basket and 62 oranges in another basket. Select the suitable one from the following to find how many oranges are more in first basket.
a) $85 + 62$ b) $85 - 62$ c) 85×62 d) $62 + 85$
33. $3900 - 2999 = \underline{\hspace{2cm}}$ a) 9001 b) 901 c) 199 d) 100
34. A track in a ground has 200m. How many meters Giri covered when he completed the fifth round?
a) 1500m b) 1000m c) 500m d) 250m
35. $1000 = 450 + 325 + \underline{\hspace{2cm}}$ a) 125 b) 175 c) 225 d) 275
36. Manu made a particular pattern using 6 triangles. How many similar patterns he can make using 36 triangles?
a) 4 b) 5 c) 6 d) 7
37. Abi changed his 7 hundred rupees notes to make it fifty rupees notes. How many fifty rupees notes he has now?
a) 13 b) 14 c) 15 d) 16

X. Read the table and answer the questions from 48 to 50 selecting the suitable options.

Arun and his son purchased some items and its price list is given below. Find the answers of the following answers.

PRICE LIST	
Rice	45
Sugar	65
Wheat	35
Oil	90
Oats	70
Horlicks	215
Biscuits	25

38. Sinu wants to give Rs. 725 to her friend. Help her to select rupees
a) Rs. 500 + Rs. 200 + Rs. 10 +Rs. 5 b) Rs. 500 + Rs. 200 + Rs. 20 +Rs. 5
c) Rs. 500 + Rs. 100 + Rs. 20 +Rs. 5 d) Rs. 500 + Rs. 100 + Rs. 10 +Rs. 5
39. Arun bought 5kg rice, 1 kg sugar, 2 kg wheat, 500ml sunflower oil. How much rupees he has to pay?
a) 305 b) 355 c) 405 d) 455
40. His son bought 1 kg oats, 1 kg Horlicks and 3 packets of biscuits. How much Arun wants to pay?
a) 310 b) 360 c) 410 d) 460
41. How much money Arun has to pay altogether?
a) 715 b) 725 c) 735 d) 765

Appendix J7
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Scoring Key of Test of Achievement in
Mathematics for Standard V
(Final)

Item No.	Answer	Item No.	Answer
1	C	22	A
2	A	23	C
3	B	24	A
4	B	25	B
5	D	26	C
6	B	27	C
7	C	28	D
8	A	29	A
9	C	30	D
10	B	31	C
11	B	32	B
12	D	33	B
13	B	34	B
14	B	35	C
15	B	36	C
16	A	37	B
17	D	38	B
18	B	39	C
19	C	40	B
20	A	41	D
21	C		

Appendix K1
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Scale on Socio-Emotional Development of
Children for Standard I, III & V (Draft)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

നിർദ്ദേശങ്ങൾ

കുട്ടികളുടെ വിവിധ തലങ്ങളിലുള്ള പെരുമാറ്റരീതിയുടെ വിവരങ്ങളാണ് ചുവടെ കൊടുത്തിരിക്കുന്നത്. ഓരോ വിവരങ്ങൾക്കും നാല് സാധ്യതകൾ (1. എല്ലായ്പ്പോഴും, 2. ചിലപ്പോഴൊക്കെ, 3. അപൂർവ്വമായി, 4. ഒരിക്കലുമില്ല) കൊടുത്തിരിക്കുന്നു. നിങ്ങളുടെ കുട്ടിക്ക് ഏറ്റവും അനുയോജ്യമായ ഒന്ന് തിരഞ്ഞെടുത്ത് ശരി (✓) അടയാളപ്പെടുത്തുക.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും	ചിലപ്പോഴൊക്കെ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
I.1					മറ്റുള്ളവരുമായി ഇടപഴകുന്നത് ഒഴിവാക്കുന്നു.
2					തനിച്ചിരിക്കാൻ ഇഷ്ടപ്പെടുന്നു.
3					കുടുംബാന്തരീക്ഷത്തിൽ സന്തുഷ്ടനാണ്.
4					മുതിർന്നവരോട് കൂട്ടുകൂടാനാണ് ഇഷ്ടം
5					സഹപാഠികളോട് താൽപര്യം കാണിക്കുന്നു.
6					ആൺപെൺ ഭേദമില്ലാതെ സംസാരിക്കുകയും കളിക്കുകയും ചെയ്യുന്നു.
7					വിശ്രമവേളകൾ സഹപാഠികളുമൊത്ത് ചെലവഴിക്കുന്നു.
II.1					ഉഴുത (അവസരം) കാത്തിരിക്കുന്നു.
2					മറ്റുള്ളവരുടെ കൂടെ പ്രവർത്തിക്കുവാൻ കഴിയുന്നില്ല.
3					മറ്റുള്ളവരുടെ സാധനങ്ങൾ സൂക്ഷിച്ചു കൈകാര്യം ചെയ്യുന്നു.
III.1					ആശയങ്ങൾ വ്യക്തമായി അവതരിപ്പിക്കുന്നു.
2					നിർദ്ദേശങ്ങൾ പെട്ടെന്ന് മനസ്സിലാക്കുന്നു.
3					ആദരവോടെ സംസാരിക്കുന്നു.
IV.1					കളികളിലും മറ്റും സഹപാഠികളോട് മേൽക്കോയ്മ കാണിക്കുന്നു.
2					കളികളിലും മറ്റും മികവ് കാണിക്കുന്നു.
3					പാഠ്യപ്രവർത്തനങ്ങളിൽ സജീവമാണ്
4					പാഠ്യേതര പ്രവർത്തനങ്ങളിൽ സജീവമാണ്.
5					പ്രായത്തിനനുസരിച്ച പ്രവർത്തനങ്ങൾക്ക് മുൻകൈ എടുക്കുന്നു.
6					പഠനങ്ങളിലും മറ്റും സഹപാഠികൾക്ക് നിർദ്ദേശം നൽകുന്നു.
7					ഉത്തരവാദിത്തങ്ങൾ ഏറ്റെടുക്കുന്നു.
8					പുറംലോകവുമായി കൂടുതൽ താൽപര്യം കാണിക്കുന്നു.
9					സഹപാഠികളുടെ പെരുമാറ്റത്തെ സ്വാധീനിക്കുന്നു.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും ചിലപ്പോഴൊക്കെ അപൂർവ്വമായി ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
10		സുഹൃത്തുക്കൾക്കിടയിലുള്ള പ്രശ്നങ്ങൾ പരിഹരിക്കുന്നു.
11		കൂട്ടുകാർക്കിടയിൽ ലീഡറാണ്.
12		കൂട്ടുകാർക്ക് പ്രിയപ്പെട്ടവനാണ്.
V.A		താഴെ കൊടുത്തിരിക്കുന്ന ദൈനംദിന പ്രവർത്തനങ്ങൾ പരസഹായം കൂടാതെ ചെയ്യുന്നു.
1		ഭക്ഷണം കഴിക്കുന്നു.
2		കൈ കഴുകുന്നു.
3		വസ്ത്രം ധരിക്കുന്നു.
4		മുടി ചീകുന്നു.
5		കുളിക്കുന്നു.
6		ഉറങ്ങാൻ കിടക്കുന്നു.
V.B		ഗൃഹപാഠങ്ങൾ സ്വന്തമായി ചെയ്യുന്നു.
1		വായിക്കുന്നു
2		എഴുതുന്നു.
3		വരക്കുന്നു.
4		മുറിക്കുകയും ഒട്ടിക്കുകയും ചെയ്യുന്നു.
5		സ്കൂൾ ബാഗ് തയ്യാറാക്കുന്നു.
6		സ്വന്തം സാധനങ്ങളിൽ വീട്ടിലും സ്കൂളിലും ശ്രദ്ധ ചെലുത്തുന്നു.
7		സാധനങ്ങൾ യഥാർത്ഥ സ്ഥലങ്ങളിൽ വെക്കുന്നു.
VI. 1		ചെറിയ കാര്യങ്ങളിൽ പോലും ദേഷ്യപ്പെടുന്നു.
2		വാശി കാണിക്കുന്നു.
3		അലാൽ, നിലവിളി തുടങ്ങിയവ കാണിക്കുന്നു.
4		മറ്റുള്ളവരെ ഉപദ്രവിക്കുന്നു.
5		വസ്തുക്കൾ കേടുവരുത്തുന്നു.
6		അപരിചിതരെ കാണുമ്പോൾ ഭയം പ്രകടിപ്പിക്കുന്നു.
7		മാതാപിതാക്കളെ പിരിഞ്ഞിരിക്കുമ്പോൾ ആധിയാണ്.
8		പരീക്ഷാപേടി ഉണ്ട്.
9		ഗ്രൂപ്പ് ചർച്ചകളിൽ ആശയം പ്രകടിപ്പിക്കാൻ മടിക്കുന്നു.
10		സംശയനിവാരണം നടത്താൻ മടി കാണിക്കുന്നു.
11		പുതിയ കാര്യങ്ങൾ ചെയ്യുമ്പോൾ വേവലാതി കാണിക്കുന്നു.
12		സ്കൂളിനോട് മടുപ്പ് കാണിക്കുന്നു.
13		കലാകായിക പ്രവർത്തനങ്ങളിൽ പങ്കെടുക്കുവാൻ നാണം കാണിക്കുന്നു.
14		മറ്റുള്ളവരെ ശല്യം ചെയ്യുന്നു.
15		അടങ്ങി ഇരിക്കാത്ത പ്രകൃതമാണ്.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും	ചിലപ്പോഴൊക്കെ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
16					എളുപ്പത്തിൽ ശ്രദ്ധ വ്യതിചലിക്കുന്നു.
17					തുടങ്ങുന്ന കാര്യങ്ങൾ പൂർത്തീകരിക്കുന്നില്ല.
18					കാര്യങ്ങൾ ചെയ്യാൻ മറക്കുന്നു.
19					അക്ഷമ കാണിക്കുന്നു.
20					ശ്ലാന്ത കാണിക്കുന്നു.
21					പെട്ടെന്ന് സങ്കടപ്പെടുന്നു.
22					സന്തോഷവാനാണ്.
23					ചെറിയ കാര്യങ്ങളിൽപോലും സന്തോഷം കണ്ടെത്തുന്നു.
24					ഉച്ചത്തിൽ സന്തോഷം പ്രകടിപ്പിക്കുന്നു (പൊട്ടിച്ചിരിക്കുന്നു).
25					ജിജ്ഞാസ കാണിക്കുന്നു.
26					കാര്യങ്ങൾ ചോദിച്ചു മനസ്സിലാക്കുന്നു.
27					അറിയാത്ത കാര്യങ്ങൾ കണ്ടുപിടിക്കുന്നു.
28					മോശമായി പെരുമാറുന്നു.
VII.1					അനുചിതമായി വികാരങ്ങൾ പ്രകടിപ്പിക്കുന്നു.
2					വികാരങ്ങളെ നിയന്ത്രിക്കാൻ ബുദ്ധിമുട്ടുന്നു.
3					ദേഷ്യം വന്നാൽ പെട്ടെന്ന് ശാന്തമാകുന്നു.
4					സമ്മർദ്ദങ്ങളുള്ള സാഹചര്യങ്ങളിൽ ശാന്തത (സമാധാനം) പാലിക്കുന്നു.
5					തർക്കിക്കുന്നു/എതിരു പറയുന്നു.
6					പെട്ടെന്ന് കരയുന്നു.
7					അസ്വസ്ഥനാകുന്നു.
8					ചിന്താകുലനാകുന്നു.
9					വേവലാതി കാണിക്കുന്നു.
10					വിമർശനങ്ങളെ നല്ല രീതിയിൽ കാണുന്നു.
11					ക്ഷമാപണം നടത്തുന്നു.
12					ഭയപ്പെടുത്തുന്ന സാഹചര്യങ്ങൾ ഒഴിവാക്കുന്നു.
13					ആത്മവിശ്വാസം കാണിക്കുന്നു.
VIII.1					ചെയ്യേണ്ട കാര്യങ്ങൾ നീട്ടിവെയ്ക്കുന്നു.
2					കാര്യങ്ങൾ സമയത്തിനു ചെയ്യുന്നു.
3					ചെയ്യേണ്ട കാര്യങ്ങൾ ഓർത്തുവെക്കുന്നു.
4					ഒരു കാര്യം പൂർത്തീകരിക്കാതെ മറ്റൊന്നിലേക്ക് കടക്കുന്നു.
5					ചിന്തിക്കാതെ പ്രവർത്തിക്കുന്നു.
6					കാര്യങ്ങൾ ചെയ്യാൻ മറക്കുന്നു.
7					സ്കൂളിലേക്കുള്ള പ്രവർത്തനങ്ങളൊന്നും ചെയ്യുന്നില്ല.

Appendix K2

UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION**Result of Component-wise Item Analysis of Scale on Socio-Emotional Development of the Children of Standard I**

Item No.	M ₁	M ₂	SD ₁	SD ₂	MD/ SQRT	Final Item No.	Item No.	M ₁	M ₂	SD ₁	SD ₂	MD/ SQRT	Final Item No.
I.1	2.80	1.33	0.66	1.15	6.03	I.1	VI.6	2.13	0.97	1.11	1.10	4.10	VI.6
I.2	1.77	0.90	1.14	0.88	3.30	I.2	VI.7	3.27	1.80	0.58	1.63	4.65	VI.7
I.3	3.93	2.50	0.25	1.78	4.38	I.3	VI.8	2.60	1.43	1.16	1.33	3.62	VI.8
I.4	3.27	1.10	0.45	1.09	10.03	I.4	VI.9	2.90	1.03	0.96	1.22	6.60	VI.9
I.5	3.97	2.40	0.18	1.77	4.81	I.5	VI.10	2.93	0.93	1.01	1.05	7.51	VI.10
I.6	3.93	2.10	0.25	1.77	5.62	I.6	VI.11	2.77	1.00	1.04	1.05	6.55	VI.11
I.7	3.87	2.17	0.35	1.62	5.62	I.7	VI.12	2.23	0.70	1.01	0.70	6.84	VI.12
II.1	3.47	0.70	0.57	1.24	11.13	II.1	VI.13	2.53	0.97	1.20	0.96	5.59	VI.13
II.2	2.87	0.57	0.90	0.94	9.71	II.2	VI.14	3.00	0.73	5.39	0.74	2.28	Rejected
II.3	3.60	1.53	0.67	1.70	6.20	II.3	VI.15	3.17	1.70	1.02	1.37	4.71	VI.14
III.1	3.93	1.13	0.37	1.36	10.91	III.1	VI.16	3.17	1.27	0.65	1.39	6.79	VI.15
III.2	3.97	1.90	0.18	1.52	7.41	III.2	VI.17	2.83	1.30	0.83	1.18	5.82	VI.16
III.3	4.57	2.10	3.10	1.65	3.84	III.3	VI.18	2.93	1.03	0.64	1.03	8.56	VI.17
IV.1	2.93	1.07	0.94	1.11	7.01	IV.1	VI.19	2.80	1.20	0.85	1.21	5.92	VI.18
IV.2	3.53	1.73	0.57	1.46	6.29	IV.2	VI.20	2.63	0.77	0.85	0.94	8.09	VI.19
IV.3	3.97	2.37	0.18	1.54	5.64	IV.3	VI.21	3.27	1.83	0.74	1.44	4.85	VI.20
IV.4	3.90	2.03	0.31	1.56	6.41	IV.4	VI.22	3.60	2.83	0.50	1.70	2.37	Rejected
IV.5	3.93	1.40	0.25	1.40	9.72	IV.5	VI.23	3.33	2.73	0.61	1.55	1.97	Rejected
IV.6	3.53	1.30	0.51	1.32	8.67	IV.6	VI.24	3.33	2.10	0.80	1.56	3.85	VI.21
IV.7	3.40	1.17	0.50	1.12	10.00	IV.7	VI.25	3.17	1.83	0.95	1.66	3.81	VI.22
IV.8	3.53	1.27	0.51	1.23	9.33	IV.8	VI.26	3.47	3.07	0.78	1.28	1.46	Rejected
IV.9	3.30	1.07	0.84	1.11	8.79	IV.9	VI.27	3.13	2.23	0.78	1.65	2.70	VI.23
IV.10	3.40	1.17	0.56	1.23	9.02	IV.10	VI.28	2.27	0.87	1.01	0.68	6.27	VI.24
IV.11	3.30	1.10	0.84	1.16	8.45	IV.11	VII.1	2.80	0.83	1.24	1.18	6.29	VII.1
IV.12	3.93	2.70	0.25	1.64	4.06	IV.12	VII.2	2.37	0.67	1.16	0.80	6.60	VII.2
V. A.1	4.00	2.83	0.00	1.32	4.86	V. A. 1	VII.3	3.13	1.60	0.90	1.50	4.80	VII.3
V. A.2	4.00	2.97	0.00	1.38	4.11	V. A. 2	VII.4	3.37	0.87	0.67	1.25	9.65	VII.4
V. A.3	4.00	2.70	0.00	1.26	5.64	V. A. 3	VII.5	2.67	1.23	0.80	1.25	5.28	VII.5
V. A.4	4.00	2.13	0.00	1.31	7.83	V. A. 4	VII.6	3.27	1.67	0.83	1.35	5.54	VII.6
V. A.5	4.00	2.20	0.00	1.27	7.76	V. A. 5	VII.7	2.83	1.00	0.91	0.98	7.49	VII.7
V. A.6	4.00	2.40	0.00	1.35	6.47	V. A. 6	VII.8	2.33	0.87	1.30	1.14	4.66	VII.8
V.B.1	3.93	2.60	0.25	1.30	5.50	V.B.1	VII.9	2.47	1.03	1.28	1.16	4.55	VII.9
V.B.2	4.00	2.70	0.00	1.32	5.41	V.B.2	VII.10	2.87	0.57	0.94	0.90	9.71	VII.10
V.B.3	4.00	2.50	0.00	1.36	6.05	V.B.3	VII.11	3.17	1.07	0.99	1.44	6.60	VII.11
V.B.4	3.73	2.27	0.45	1.39	5.51	V.B.4	VII.12	3.47	0.77	0.73	1.28	10.05	VII.12
V.B.5	3.97	2.00	0.18	1.51	7.09	V.B.5	VII.13	3.33	1.87	0.96	1.72	4.09	VII.13
V.B.6	4.00	1.70	0.45	1.39	8.59	V.B.6	VIII.1	3.17	0.87	0.46	0.97	11.70	VIII.1
V.B.7	3.73	1.73	0.45	1.23	8.36	V.B.7	VIII.2	3.37	2.47	0.72	1.70	2.68	VIII.2
VI.1	2.93	1.57	0.87	1.28	4.84	VI.1	VIII.3	3.47	2.43	0.78	1.68	3.07	VIII.3
VI.2	2.87	1.93	1.04	1.23	3.17	VI.2	VIII.4	3.23	0.77	0.50	0.68	15.98	VIII.4
VI.3	2.67	0.80	1.03	0.89	7.53	VI.3	VIII.5	4.13	0.80	5.48	0.76	3.30	VIII.5
VI.4	2.20	0.73	1.13	0.69	6.08	VI.4	VIII.6	3.00	1.07	0.59	0.94	9.52	VIII.6
VI.5	2.53	0.87	1.01	0.90	6.76	VI.5	VIII.7	2.23	0.77	1.17	0.68	5.96	VIII.7

Appendix K3
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Scale on Socio-Emotional Development of
Children for Standard I
(Final)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

നിർദ്ദേശങ്ങൾ

കുട്ടികളുടെ വിവിധ തലങ്ങളിലുള്ള പെരുമാറ്റരീതിയുടെ വിവരങ്ങളാണ് ചുവടെ കൊടുത്തിരിക്കുന്നത്. ഓരോ വിവരങ്ങൾക്കും നാല് സാധ്യതകൾ (1. എല്ലായ്പ്പോഴും, 2. ചിലപ്പോഴൊക്കെ, 3. അപൂർവ്വമായി, 4. ഒരിക്കലുമില്ല) കൊടുത്തിരിക്കുന്നു. നിങ്ങളുടെ കുട്ടിക്ക് ഏറ്റവും അനുയോജ്യമായ ഒന്ന് തിരഞ്ഞെടുത്ത് ശരി (✓) അടയാളപ്പെടുത്തുക.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും	ചിലപ്പോഴൊക്കെ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
I.1					മറ്റുള്ളവരുമായി ഇടപഴകുന്നത് ഒഴിവാക്കുന്നു.
2					തനിച്ച്രിക്കാൻ ഇഷ്ടപ്പെടുന്നു.
3					കുടുംബാന്തരീക്ഷത്തിൽ സന്തുഷ്ടനാണ്.
4					മുതിർന്നവരോട് കൂട്ടുകൂടാനാണ് ഇഷ്ടം
5					സഹപാഠികളോട് താൽപര്യം കാണിക്കുന്നു.
6					ആൺപെൺ ഭേദമില്ലാതെ സംസാരിക്കുകയും കളിക്കുകയും ചെയ്യുന്നു.
7					വിശ്രമവേളകൾ സഹപാഠികളുമൊത്ത് ചെലവഴിക്കുന്നു.
II.1					ഉഴഘം (അവസരം) കാത്തിരിക്കുന്നു.
2					മറ്റുള്ളവരുടെ കൂടെ പ്രവർത്തിക്കുവാൻ കഴിയുന്നില്ല.
3					മറ്റുള്ളവരുടെ സാധനങ്ങൾ സൂക്ഷിച്ചു കൈകാര്യം ചെയ്യുന്നു.
III.1					ആശയങ്ങൾ വ്യക്തമായി അവതരിപ്പിക്കുന്നു.
2					നിർദ്ദേശങ്ങൾ പെട്ടെന്ന് മനസ്സിലാക്കുന്നു.
3					ആദരവോടെ സംസാരിക്കുന്നു.
IV.1					കളികളിലും മറ്റും സഹപാഠികളോട് മേൽക്കോയ്മ കാണിക്കുന്നു.
2					കളികളിലും മറ്റും മികവ് കാണിക്കുന്നു.
3					പാഠ്യപ്രവർത്തനങ്ങളിൽ സജീവമാണ്
4					പാഠ്യേതര പ്രവർത്തനങ്ങളിൽ സജീവമാണ്.
5					പ്രായത്തിനനുസരിച്ച പ്രവർത്തനങ്ങൾക്ക് മുൻകൈ എടുക്കുന്നു.
6					പഠനങ്ങളിലും മറ്റും സഹപാഠികൾക്ക് നിർദ്ദേശം നൽകുന്നു.
7					ഉത്തരവാദിത്തങ്ങൾ ഏറ്റെടുക്കുന്നു.
8					പുറംലോകവുമായി കൂടുതൽ താൽപര്യം കാണിക്കുന്നു.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും	ചിലപ്പോഴൊക്കെ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
9					സഹപാഠികളുടെ പെരുമാറ്റത്തെ സ്വാധീനിക്കുന്നു.
10					സുഹൃത്തുക്കൾക്കിടയിലുള്ള പ്രശ്നങ്ങൾ പരിഹരിക്കുന്നു.
11					കൂട്ടുകാർക്കിടയിൽ ലീഡറാണ്.
12					കൂട്ടുകാർക്ക് പ്രിയപ്പെട്ടവനാണ്.
V.A	താഴെ കൊടുത്തിരിക്കുന്ന ദൈനംദിന പ്രവർത്തനങ്ങൾ പരസഹായം കൂടാതെ ചെയ്യുന്നു.				
1					ഭക്ഷണം കഴിക്കുന്നു.
2					കൈ കഴുകുന്നു.
3					വസ്ത്രം ധരിക്കുന്നു.
4					മുടി ചീകുന്നു.
5					കുളിക്കുന്നു.
6					ഉറങ്ങാൻ കിടക്കുന്നു.
V.B	ഗൃഹപാഠങ്ങൾ സ്വന്തമായി ചെയ്യുന്നു.				
1					വായിക്കുന്നു
2					എഴുതുന്നു.
3					വരക്കുന്നു.
4					മുറിക്കുകയും ഒട്ടിക്കുകയും ചെയ്യുന്നു.
5					സ്കൂൾ ബാഗ് തയ്യാറാക്കുന്നു.
6					സ്വന്തം സാധനങ്ങളിൽ വീട്ടിലും സ്കൂളിലും ശ്രദ്ധ ചെലുത്തുന്നു.
7					സാധനങ്ങൾ യഥാർത്ഥ സ്ഥലങ്ങളിൽ വെക്കുന്നു.
VI. 1					ചെറിയ കാര്യങ്ങളിൽ പോലും ദേഷ്യപ്പെടുന്നു.
2					വാശി കാണിക്കുന്നു.
3					അലറൽ, നിലവിളി തുടങ്ങിയവ കാണിക്കുന്നു.
4					മറ്റുള്ളവരെ ഉപദ്രവിക്കുന്നു.
5					വസ്തുക്കൾ കേടുവരുത്തുന്നു.
6					അപരിചിതരെ കാണുമ്പോൾ ഭയം പ്രകടിപ്പിക്കുന്നു.
7					മാതാപിതാക്കളെ പിരിഞ്ഞിരിക്കുമ്പോൾ ആധിയാണ്.
8					പരീക്ഷാപേടി ഉണ്ട്.
9					ഗ്രൂപ്പ് ചർച്ചകളിൽ ആശയം പ്രകടിപ്പിക്കാൻ മടിക്കുന്നു.
10					സംശയനിവാരണം നടത്താൻ മടി കാണിക്കുന്നു.
11					പുതിയ കാര്യങ്ങൾ ചെയ്യുമ്പോൾ വേവലാതി കാണിക്കുന്നു.
12					സ്കൂളിനോട് മടുപ്പ് കാണിക്കുന്നു.
13					കലാകായിക പ്രവർത്തനങ്ങളിൽ പങ്കെടുക്കുവാൻ നാണം കാണിക്കുന്നു.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും	ചിലപ്പോഴൊക്കെ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
14					അടങ്ങി ഇരിക്കാത്ത പ്രകൃതമാണ്.
15					എളുപ്പത്തിൽ ശ്രദ്ധ വ്യതിചലിക്കുന്നു.
16					തുടങ്ങുന്ന കാര്യങ്ങൾ പൂർത്തീകരിക്കുന്നില്ല.
17					കാര്യങ്ങൾ ചെയ്യാൻ മറക്കുന്നു.
18					അക്ഷമ കാണിക്കുന്നു.
19					മ്ലാനത കാണിക്കുന്നു.
20					പെട്ടെന്ന് സങ്കടപ്പെടുന്നു.
21					ഉച്ചത്തിൽ സന്തോഷം പ്രകടിപ്പിക്കുന്നു (പൊട്ടിച്ചിരിക്കുന്നു).
22					ജിജ്ഞാസ കാണിക്കുന്നു.
23					അറിയാത്ത കാര്യങ്ങൾ കണ്ടുപിടിക്കുന്നു.
24					മോശമായി പെരുമാറുന്നു.
VII.1					അനുചിതമായി വികാരങ്ങൾ പ്രകടിപ്പിക്കുന്നു.
2					വികാരങ്ങളെ നിയന്ത്രിക്കാൻ ബുദ്ധിമുട്ടുന്നു.
3					ദേഷ്യം വന്നാൽ പെട്ടെന്ന് ശാന്തമാകുന്നു.
4					സമ്മർദ്ദങ്ങളുള്ള സാഹചര്യങ്ങളിൽ ശാന്തത (സമാധാനം) പാലിക്കുന്നു.
5					തർക്കിക്കുന്നു/എതിരു പറയുന്നു.
6					പെട്ടെന്ന് കരയുന്നു.
7					അസ്വസ്ഥനാകുന്നു.
8					ചിന്താകുലനാകുന്നു.
9					വേവലാതി കാണിക്കുന്നു.
10					വിമർശനങ്ങളെ നല്ല രീതിയിൽ കാണുന്നു.
11					ക്ഷമാപണം നടത്തുന്നു.
12					ഭയപ്പെടുത്തുന്ന സാഹചര്യങ്ങൾ ഒഴിവാക്കുന്നു.
13					ആത്മവിശ്വാസം കാണിക്കുന്നു.
VIII.1					ചെയ്യേണ്ട കാര്യങ്ങൾ നീട്ടിവെയ്ക്കുന്നു.
2					കാര്യങ്ങൾ സമയത്തിനു ചെയ്യുന്നു.
3					ചെയ്യേണ്ട കാര്യങ്ങൾ ഓർത്തുവെക്കുന്നു.
4					ഒരു കാര്യം പൂർത്തീകരിക്കാതെ മറ്റൊന്നിലേക്ക് കടക്കുന്നു.
5					ചിന്തിക്കാതെ പ്രവർത്തിക്കുന്നു.
6					കാര്യങ്ങൾ ചെയ്യാൻ മറക്കുന്നു.
7					സ്കൂളിലേക്കുള്ള പ്രവർത്തനങ്ങളൊന്നും ചെയ്യുന്നില്ല.

Appendix K4
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
**Result of Component-wise Item Analysis of Scale on Socio-
 Emotional Development of the Children of Standard III**

Item No.	M ₁	M ₂	SD ₁	SD ₂	MD/SQRT	Final Item No.	Item No.	M ₁	M ₂	SD ₁	SD ₂	MD/SQRT	Final Item No.
I.1	2.60	0.90	1.04	1.16	6.00	I.1	VI.6	2.17	1.07	1.12	1.28	3.54	VI.6
I.2	1.87	0.67	1.22	0.80	4.49	I.2	VI.7	3.53	1.87	0.78	1.66	4.99	VI.7
I.3	3.83	1.93	0.59	1.78	5.55	I.3	VI.8	2.97	0.97	1.10	1.13	6.96	VI.8
I.4	3.07	0.80	0.94	0.96	9.21	I.4	VI.9	2.47	0.80	1.28	1.13	5.36	VI.9
I.5	3.80	1.90	0.48	1.86	5.41	I.5	VI.10	2.80	0.77	1.00	1.01	7.86	VI.10
I.6	3.77	1.80	0.43	1.67	6.25	I.6	VI.11	2.93	0.47	0.78	0.63	13.43	VI.11
I.7	3.70	1.67	0.65	1.81	5.80	I.7	VI.12	1.97	0.53	1.13	0.57	6.20	VI.12
II.1	3.30	0.53	0.84	1.01	11.57	II.1	VI.13	2.03	0.80	1.10	1.10	4.36	VI.13
II.2	2.40	0.47	1.04	0.94	7.58	II.2	VI.14	1.67	0.53	0.96	0.63	5.41	VI.14
II.3	3.70	1.23	0.60	1.68	7.60	II.3	VI.15	3.07	1.57	0.98	1.45	4.68	VI.15
III.1	4.00	0.77	0.00	1.07	16.51	III.1	VI.16	3.17	1.47	0.59	1.57	5.55	VI.16
III.2	4.00	1.33	0.00	1.54	9.49	III.2	VI.17	2.83	0.93	0.87	1.14	7.23	VI.17
III.3	4.00	1.57	0.00	1.52	8.74	III.3	VI.18	2.70	1.17	0.84	1.29	5.47	VI.18
IV.1	2.67	0.63	1.32	1.19	6.27	IV.1	VI.19	3.07	1.00	0.58	1.29	8.01	VI.19
IV.2	3.53	1.13	0.82	1.50	7.68	IV.2	VI.20	2.47	0.70	1.04	0.79	7.39	VI.20
IV.3	3.93	1.70	0.25	1.76	6.86	IV.3	VI.21	3.17	1.40	0.70	1.35	6.35	VI.21
IV.4	3.90	1.50	0.31	1.55	8.33	IV.4	VI.22	3.67	2.50	0.55	1.83	3.34	VI.22
IV.5	3.93	1.77	0.25	1.77	6.62	IV.5	VI.23	3.53	2.23	0.63	1.81	3.71	VI.23
IV.6	3.63	1.17	0.49	1.46	8.75	IV.6	VI.24	3.33	1.77	1.12	1.65	4.29	VI.24
IV.7	3.60	1.07	0.50	1.26	10.26	IV.7	VI.25	3.10	1.40	0.76	1.59	5.29	VI.25
IV.8	3.37	1.30	0.72	1.53	6.68	IV.8	VI.26	3.30	2.53	0.84	1.76	2.16	Rejected
IV.9	3.37	1.17	0.85	1.44	7.20	IV.9	VI.27	2.80	2.47	0.85	1.72	0.95	Rejected
IV.10	3.30	1.07	0.65	1.48	7.55	IV.10	VI.28	1.87	0.80	0.82	1.03	4.44	VI.26
IV.11	3.20	0.60	0.85	0.97	11.07	IV.11	VII.1	2.33	0.23	1.37	0.50	7.86	VII.1
IV.12	3.80	1.60	0.48	1.71	6.77	IV.12	VII.2	2.00	0.43	1.08	0.73	6.58	VII.2
V. A. 1	4.00	2.27	0.00	1.60	5.95	V. A. 1	VII.3	3.03	1.47	1.07	1.59	4.48	VII.3
V. A. 2	4.00	2.37	0.00	1.75	5.11	V. A. 2	VII.4	2.93	0.57	0.98	1.10	8.78	VII.4
V. A. 3	4.00	2.40	0.00	1.75	5.00	V. A. 3	VII.5	2.40	1.17	0.97	1.23	4.31	VII.5
V. A. 4	4.00	1.50	0.00	1.48	9.25	V. A. 4	VII.6	3.33	1.47	0.76	1.46	6.23	VII.6
V. A. 5	4.00	1.97	0.00	1.73	6.43	V. A. 5	VII.7	2.27	0.93	1.01	1.11	4.85	VII.7
V. A. 6	4.00	1.87	0.00	1.66	7.06	V. A. 6	VII.8	2.10	0.50	0.99	0.94	6.41	VII.8
V. B. 1	4.00	2.17	0.00	1.44	6.97	V. B. 1	VII.9	2.07	0.53	0.98	0.94	6.19	VII.9
V. B. 2	4.00	2.20	0.00	1.52	6.50	V. B. 2	VII.10	3.33	0.63	0.84	1.25	9.83	VII.10
V. B. 3	4.00	2.00	0.00	1.55	7.05	V. B. 3	VII.11	3.50	0.90	0.63	1.32	9.72	VII.11
V. B. 4	3.97	1.83	0.18	1.51	7.68	V. B. 4	VII.12	3.63	0.40	0.56	0.86	17.36	VII.12
V. B. 5	4.00	2.00	0.00	1.46	7.49	V. B. 5	VII.13	3.70	1.23	0.47	1.70	7.68	VII.13
V. B. 6	4.00	1.87	0.00	1.50	7.78	V. B. 6	VIII.1	2.87	0.83	1.01	1.21	7.09	VIII.1
V. B. 7	3.97	1.33	0.18	1.21	11.76	V. B. 7	VIII.2	3.20	1.47	0.71	1.85	4.78	VIII.2
VI.1	3.17	0.77	0.65	1.01	10.98	VI.1	VIII.3	3.23	1.67	0.77	1.83	4.33	VIII.3
VI.2	3.23	1.33	0.57	1.35	7.12	VI.2	VIII.4	3.03	0.57	0.72	0.94	11.46	VIII.4
VI.3	2.73	0.97	1.01	1.22	6.11	VI.3	VIII.5	3.03	0.70	0.67	1.02	10.46	VIII.5
VI.4	2.10	0.57	0.96	0.73	6.97	VI.4	VIII.6	3.10	0.63	0.61	0.89	12.54	VIII.6
VI.5	2.30	0.57	0.95	0.63	8.33	VI.5	VIII.7	2.37	0.53	1.10	0.57	8.11	VIII.7

Appendix K5
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Scale on Socio-Emotional Development of
Children for Standard III
(Final)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

നിർദ്ദേശങ്ങൾ

കുട്ടികളുടെ വിവിധ തലങ്ങളിലുള്ള പെരുമാറ്റരീതിയുടെ വിവരങ്ങളാണ് ചുവടെ കൊടുത്തിരിക്കുന്നത്. ഓരോ വിവരങ്ങൾക്കും നാല് സാധ്യതകൾ (1. എല്ലായ്പ്പോഴും, 2. ചിലപ്പോഴൊക്കെ, 3. അപൂർവ്വമായി, 4. ഒരിക്കലുമില്ല) കൊടുത്തിരിക്കുന്നു. നിങ്ങളുടെ കുട്ടിക്ക് ഏറ്റവും അനുയോജ്യമായ ഒന്ന് തിരഞ്ഞെടുത്ത് ശരി (✓) അടയാളപ്പെടുത്തുക.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും	ചിലപ്പോഴൊക്കെ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
I.1					മറ്റുള്ളവരുമായി ഇടപഴകുന്നത് ഒഴിവാക്കുന്നു.
2					തനിച്ചിരിക്കാൻ ഇഷ്ടപ്പെടുന്നു.
3					കുടുംബാന്തരീക്ഷത്തിൽ സന്തുഷ്ടനാണ്.
4					മുതിർന്നവരോട് കൂട്ടുകൂടാനാണ് ഇഷ്ടം
5					സഹപാഠികളോട് താൽപര്യം കാണിക്കുന്നു.
6					ആൺപെൺ ഭേദമില്ലാതെ സംസാരിക്കുകയും കളിക്കുകയും ചെയ്യുന്നു.
7					വിശ്രമവേളകൾ സഹപാഠികളുമൊത്ത് ചെലവഴിക്കുന്നു.
II.1					ഉഴുപ്പം (അവസരം) കാത്തിരിക്കുന്നു.
2					മറ്റുള്ളവരുടെ കൂടെ പ്രവർത്തിക്കുവാൻ കഴിയുന്നില്ല.
3					മറ്റുള്ളവരുടെ സാധനങ്ങൾ സൂക്ഷിച്ചു കൈകാര്യം ചെയ്യുന്നു.
III.1					ആശയങ്ങൾ വ്യക്തമായി അവതരിപ്പിക്കുന്നു.
2					നിർദ്ദേശങ്ങൾ പെട്ടെന്ന് മനസ്സിലാക്കുന്നു.
3					ആദരവോടെ സംസാരിക്കുന്നു.
IV.1					കളികളിലും മറ്റും സഹപാഠികളോട് മേൽക്കോയ്മ കാണിക്കുന്നു.
2					കളികളിലും മറ്റും മികവ് കാണിക്കുന്നു.
3					പാഠ്യപ്രവർത്തനങ്ങളിൽ സജീവമാണ്
4					പാഠ്യേതര പ്രവർത്തനങ്ങളിൽ സജീവമാണ്.
5					പ്രായത്തിനനുസരിച്ച പ്രവർത്തനങ്ങൾക്ക് മുൻകൈ എടുക്കുന്നു.
6					പഠനങ്ങളിലും മറ്റും സഹപാഠികൾക്ക് നിർദ്ദേശം നൽകുന്നു.
7					ഉത്തരവാദിത്തങ്ങൾ ഏറ്റെടുക്കുന്നു.
8					പുറംലോകവുമായി കൂടുതൽ താൽപര്യം കാണിക്കുന്നു.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും	ചിലപ്പോഴൊക്കെ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
9					സഹപാഠികളുടെ പെരുമാറ്റത്തെ സ്വാധീനിക്കുന്നു.
10					സുഹൃത്തുക്കൾക്കിടയിലുള്ള പ്രശ്നങ്ങൾ പരിഹരിക്കുന്നു.
11					കൂട്ടുകാർക്കിടയിൽ ലീഡറാണ്.
12					കൂട്ടുകാർക്ക് പ്രിയപ്പെട്ടവനാണ്.
V.A	താഴെ കൊടുത്തിരിക്കുന്ന ദൈനംദിന പ്രവർത്തനങ്ങൾ പരസഹായം കൂടാതെ ചെയ്യുന്നു.				
1					ഭക്ഷണം കഴിക്കുന്നു.
2					കൈ കഴുകുന്നു.
3					വസ്ത്രം ധരിക്കുന്നു.
4					മുടി ചീകുന്നു.
5					കുളിക്കുന്നു.
6					ഉറങ്ങാൻ കിടക്കുന്നു.
V.B	ഗൃഹപാഠങ്ങൾ സ്വന്തമായി ചെയ്യുന്നു.				
1					വായിക്കുന്നു
2					എഴുതുന്നു.
3					വരക്കുന്നു.
4					മുറിക്കുകയും ഒട്ടിക്കുകയും ചെയ്യുന്നു.
5					സ്കൂൾ ബാഗ് തയ്യാറാക്കുന്നു.
6					സ്വന്തം സാധനങ്ങളിൽ വീട്ടിലും സ്കൂളിലും ശ്രദ്ധ ചെലുത്തുന്നു.
7					സാധനങ്ങൾ യഥാർത്ഥ സ്ഥലങ്ങളിൽ വെക്കുന്നു.
VI. 1	ചെറിയ കാര്യങ്ങളിൽ പോലും ദേഷ്യപ്പെടുന്നു.				
2					വാശി കാണിക്കുന്നു.
3					അലറൽ, നിലവിളി തുടങ്ങിയവ കാണിക്കുന്നു.
4					മറ്റുള്ളവരെ ഉപദ്രവിക്കുന്നു.
5					വസ്തുക്കൾ കേടുവരുത്തുന്നു.
6					അപരിചിതരെ കാണുമ്പോൾ ഭയം പ്രകടിപ്പിക്കുന്നു.
7					മാതാപിതാക്കളെ പിരിഞ്ഞിരിക്കുമ്പോൾ ആധിയാണ്.
8					പരീക്ഷാപേടി ഉണ്ട്.
9					ഗ്രൂപ്പ് ചർച്ചകളിൽ ആശയം പ്രകടിപ്പിക്കാൻ മടിക്കുന്നു.
10					സംശയനിവാരണം നടത്താൻ മടി കാണിക്കുന്നു.
11					പുതിയ കാര്യങ്ങൾ ചെയ്യുമ്പോൾ വേവലാതി കാണിക്കുന്നു.
12					സ്കൂളിനോട് മടുപ്പ് കാണിക്കുന്നു.
13					കലാകായിക പ്രവർത്തനങ്ങളിൽ പങ്കെടുക്കുവാൻ നാണം കാണിക്കുന്നു.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും	ചിലപ്പോഴൊക്കെ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
14					മറ്റുള്ളവരെ ശല്യം ചെയ്യുന്നു.
15					അടങ്ങി ഇരിക്കാത്ത പ്രകൃതമാണ്.
16					എളുപ്പത്തിൽ ശ്രദ്ധ വ്യതിചലിക്കുന്നു.
17					തുടങ്ങുന്ന കാര്യങ്ങൾ പൂർത്തീകരിക്കുന്നില്ല.
18					കാര്യങ്ങൾ ചെയ്യാൻ മറക്കുന്നു.
19					അക്ഷമ കാണിക്കുന്നു.
20					മ്ലാനത കാണിക്കുന്നു.
21					പെട്ടെന്ന് സങ്കടപ്പെടുന്നു.
22					സന്തോഷവാനാണ്.
23					ചെറിയ കാര്യങ്ങളിൽപ്പോലും സന്തോഷം കണ്ടെത്തുന്നു.
24					ഉച്ചത്തിൽ സന്തോഷം പ്രകടിപ്പിക്കുന്നു (പൊട്ടിച്ചിരിക്കുന്നു).
25					ജിജ്ഞാസ കാണിക്കുന്നു.
26					മോശമായി പെരുമാറുന്നു.
VII.1					അനുചിതമായി വികാരങ്ങൾ പ്രകടിപ്പിക്കുന്നു.
2					വികാരങ്ങളെ നിയന്ത്രിക്കാൻ ബുദ്ധിമുട്ടുന്നു.
3					ദേഷ്യം വന്നാൽ പെട്ടെന്ന് ശാന്തമാകുന്നു.
4					സമ്മർദ്ദങ്ങളുള്ള സാഹചര്യങ്ങളിൽ ശാന്തത (സമാധാനം) പാലിക്കുന്നു.
5					തർക്കിക്കുന്നു/എതിരു പറയുന്നു.
6					പെട്ടെന്ന് കരയുന്നു.
7					അസ്വസ്ഥനാകുന്നു.
8					ചിന്താകുലനാകുന്നു.
9					വേവലാതി കാണിക്കുന്നു.
10					വിമർശനങ്ങളെ നല്ല രീതിയിൽ കാണുന്നു.
11					ക്ഷമാപണം നടത്തുന്നു.
12					ഭയപ്പെടുത്തുന്ന സാഹചര്യങ്ങൾ ഒഴിവാക്കുന്നു.
13					ആത്മവിശ്വാസം കാണിക്കുന്നു.
VIII.1					ചെയ്യേണ്ട കാര്യങ്ങൾ നീട്ടിവെയ്ക്കുന്നു.
2					കാര്യങ്ങൾ സമയത്തിനു ചെയ്യുന്നു.
3					ചെയ്യേണ്ട കാര്യങ്ങൾ ഓർത്തുവെക്കുന്നു.
4					ഒരു കാര്യം പൂർത്തീകരിക്കാതെ മറ്റൊന്നിലേക്ക് കടക്കുന്നു.
5					ചിന്തിക്കാതെ പ്രവർത്തിക്കുന്നു.
6					കാര്യങ്ങൾ ചെയ്യാൻ മറക്കുന്നു.
7					സ്കൂളിലേക്കുള്ള പ്രവർത്തനങ്ങളൊന്നും ചെയ്യുന്നില്ല.

Appendix K6
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION

**Result of Component-wise Item Analysis of Scale on
Socio-Emotional Development of the Children of Standard V**

Item No.	M ₁	M ₂	SD ₁	SD ₂	MD/SQRT	Final Item No.	Item No.	M ₁	M ₂	SD ₁	SD ₂	MD/SQRT	Final Item No.
I.1	3.17	1.77	0.38	0.94	7.60	I.1	VI.6	2.13	1.50	1.25	0.82	2.32	Rejected
I.2	1.77	1.53	1.01	1.04	0.88	Rejected	VI.7	3.30	2.60	0.99	1.25	2.41	Rejected
I.3	3.97	3.47	0.18	0.97	2.77	I.2	VI.8	3.20	1.73	1.03	0.98	5.65	VI.6
I.4	3.43	2.27	0.50	1.05	5.49	I.3	VI.9	2.97	1.20	1.16	0.48	7.70	VI.7
I.5	4.00	3.37	0.00	0.89	3.90	I.4	VI.10	2.73	1.47	1.11	0.86	4.93	VI.8
I.6	3.87	2.40	0.35	1.04	7.35	I.5	VI.11	2.97	1.23	1.00	0.57	8.26	VI.9
I.7	3.87	3.10	0.35	0.99	3.99	I.6	VI.12	2.50	1.27	1.14	0.69	5.08	VI.10
II.1	3.40	2.23	0.50	0.90	6.22	II.1	VI.13	2.40	1.23	1.10	0.57	5.15	VI.11
II.2	3.07	1.90	0.52	0.80	6.68	II.2	VI.14	2.00	1.00	1.11	0.00	4.92	VI.12
II.3	4.00	3.13	0.00	0.97	4.88	II.3	VI.15	3.03	1.70	0.89	0.95	5.60	VI.13
III.1	4.00	2.53	0.00	0.68	11.79	III.1	VI.16	3.20	2.07	0.76	1.05	4.79	VI.14
III.2	4.00	2.63	0.00	0.81	9.26	III.2	VI.17	2.83	1.67	0.91	0.92	4.92	VI.15
III.3	4.00	3.03	0.00	0.72	7.37	III.3	VI.18	2.90	1.63	0.92	0.76	5.79	VI.16
IV.1	2.57	1.73	1.07	0.83	3.37	IV.1	VI.19	2.90	1.33	0.96	0.71	7.18	VI.17
IV.2	3.40	2.77	0.77	0.82	3.09	IV.2	VI.20	2.47	1.17	0.90	0.46	7.04	VI.18
IV.3	3.77	2.97	0.43	0.67	5.51	IV.3	VI.21	3.63	2.03	0.56	0.93	8.10	VI.19
IV.4	3.77	2.93	0.50	0.83	4.71	IV.4	VI.22	3.77	3.57	0.43	0.63	1.44	Rejected
IV.5	3.93	2.67	0.25	0.92	7.25	IV.5	VI.23	3.43	3.23	0.82	0.90	0.90	Rejected
IV.6	3.67	2.37	0.48	0.67	8.65	IV.6	VI.24	3.53	2.43	0.73	1.04	4.74	VI.20
IV.7	3.53	2.33	0.78	0.80	5.89	IV.7	VI.25	3.40	2.67	0.72	0.96	3.34	VI.21
IV.8	3.47	2.73	0.68	0.91	3.54	IV.8	VI.26	3.70	3.33	0.53	0.88	1.94	Rejected
IV.9	3.23	2.43	0.90	0.97	3.31	IV.9	VI.27	3.30	3.00	0.60	0.95	1.47	Rejected
IV.10	3.60	2.00	0.56	0.87	8.45	IV.10	VI.28	2.30	1.33	0.95	0.76	4.35	VI.22
IV.11	3.43	1.57	0.68	0.82	9.62	IV.11	VII.1	2.87	1.23	1.01	0.57	7.73	VII.1
IV.12	5.30	3.20	7.31	0.76	1.56	Rejected	VII.2	2.23	1.20	0.97	0.55	5.07	VII.2
V. A. 1	4.00	3.10	0.00	0.99	4.96	V. A. 1	VII.3	3.53	2.27	0.73	1.08	5.32	VII.3
V. A. 2	4.00	3.50	0.00	1.07	2.55	Rejected	VII.4	3.17	2.53	0.75	0.73	3.32	VII.4
V. A. 3	4.00	3.47	0.00	1.07	2.72	V. A. 2	VII.5	2.90	1.97	0.80	0.89	4.26	VII.5
V. A. 4	4.00	3.20	0.00	1.06	4.12	V. A. 3	VII.6	3.43	2.10	0.68	0.92	6.37	VII.6
V. A. 5	4.00	3.37	0.00	1.07	3.25	V. A. 4	VII.7	2.87	1.83	0.68	0.87	5.11	VII.7
V. A. 6	4.00	3.03	0.00	1.03	5.12	V. A. 5	VII.8	2.50	1.33	0.97	0.61	5.57	VII.8
V. B. 1	4.00	2.80	0.00	1.00	6.60	V. B. 1	VII.9	2.47	1.43	0.94	0.82	4.55	VII.9
V. B. 2	4.00	2.83	0.00	0.95	6.73	V. B. 2	VII.10	2.97	2.50	0.85	0.73	2.28	Rejected
V. B. 3	4.00	2.47	0.00	1.04	8.06	V. B. 3	VII.11	3.37	2.67	0.49	0.96	3.56	VII.10
V. B. 4	4.00	2.20	0.00	0.92	10.66	V. B. 4	VII.12	3.23	2.77	0.77	0.82	2.27	Rejected
V. B. 5	4.00	2.80	0.00	1.03	6.38	V. B. 5	VII.13	3.27	3.07	0.87	0.94	0.85	Rejected
V. B. 6	4.00	2.50	0.00	0.94	8.76	V. B. 6	VIII.1	3.20	1.77	0.61	1.04	6.51	VIII.1
V. B. 7	3.97	2.50	0.18	1.22	6.49	V. B. 7	VII.2	3.30	3.40	0.70	0.81	-0.51	Rejected
VI.1	3.30	1.90	0.79	0.99	6.02	VI.1	VII.3	3.60	3.23	0.56	1.07	1.66	Rejected
VI.2	3.20	1.83	0.76	0.99	6.01	VI.2	VII.4	3.17	1.37	0.53	0.76	10.59	VIII.2
VI.3	2.60	1.33	1.00	0.66	5.77	VI.3	VII.5	3.13	1.47	0.51	0.73	10.27	VIII.3
VI.4	2.17	1.03	1.02	0.18	5.99	VI.4	VII.6	3.10	1.43	0.40	0.63	12.26	VIII.4
VI.5	1.97	1.10	1.00	0.31	4.54	VI.5	VII.7	2.53	1.07	1.14	0.25	6.90	VIII.5

Appendix K7
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Scale on Socio-Emotional Development of
Children for Standard V
(Final)

Dr. K. Abdul Gafoor
 Professor

Kadeeja Sanam K.P.
 Research Scholar

നിർദ്ദേശങ്ങൾ

കുട്ടികളുടെ വിവിധ തലങ്ങളിലുള്ള പെരുമാറ്റരീതിയുടെ വിവരങ്ങളാണ് ചുവടെ കൊടുത്തിരിക്കുന്നത്. ഓരോ വിവരങ്ങൾക്കും നാല് സാധ്യതകൾ (1. എല്ലായ്പ്പോഴും, 2. ചിലപ്പോഴൊക്കെ, 3. അപൂർവ്വമായി, 4. ഒരിക്കലുമില്ല) കൊടുത്തിരിക്കുന്നു. നിങ്ങളുടെ കുട്ടിക്ക് ഏറ്റവും അനുയോജ്യമായ ഒന്ന് തിരഞ്ഞെടുത്ത് ശരി (✓) അടയാളപ്പെടുത്തുക.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും	ചിലപ്പോഴൊക്കെ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
I.1					മറ്റുള്ളവരുമായി ഇടപഴകുന്നത് ഒഴിവാക്കുന്നു.
2					കുടുംബാന്തരീക്ഷത്തിൽ സന്തുഷ്ടനാണ്.
3					മുതിർന്നവരോട് കൂട്ടുകൂടാനാണ് ഇഷ്ടം
4					സഹപാഠികളോട് താൽപര്യം കാണിക്കുന്നു.
5					ആൺപെൺ ഭേദമില്ലാതെ സംസാരിക്കുകയും കളിക്കുകയും ചെയ്യുന്നു.
6					വിശ്രമവേളകൾ സഹപാഠികളുമൊത്ത് ചെലവഴിക്കുന്നു.
II.1					ഊഴം (അവസരം) കാത്തിരിക്കുന്നു.
2					മറ്റുള്ളവരുടെ കൂടെ പ്രവർത്തിക്കുവാൻ കഴിയുന്നില്ല.
3					മറ്റുള്ളവരുടെ സാധനങ്ങൾ സൂക്ഷിച്ചു കൈകാര്യം ചെയ്യുന്നു.
III.1					ആശയങ്ങൾ വ്യക്തമായി അവതരിപ്പിക്കുന്നു.
2					നിർദ്ദേശങ്ങൾ പെട്ടെന്ന് മനസ്സിലാക്കുന്നു.
3					ആദരവോടെ സംസാരിക്കുന്നു.
IV.1					കളികളിലും മറ്റും സഹപാഠികളോട് മേൽക്കോയ്മ കാണിക്കുന്നു.
2					കളികളിലും മറ്റും മികവ് കാണിക്കുന്നു.
3					പാഠ്യപ്രവർത്തനങ്ങളിൽ സജീവമാണ്
4					പാഠ്യേതര പ്രവർത്തനങ്ങളിൽ സജീവമാണ്.
5					പ്രായത്തിനനുസരിച്ച പ്രവർത്തനങ്ങൾക്ക് മുൻകൈ എടുക്കുന്നു.
6					പഠനങ്ങളിലും മറ്റും സഹപാഠികൾക്ക് നിർദ്ദേശം നൽകുന്നു.
7					ഉത്തരവാദിത്തങ്ങൾ ഏറ്റെടുക്കുന്നു.
8					പുറംലോകവുമായി കൂടുതൽ താൽപര്യം കാണിക്കുന്നു.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും	ചിലപ്പോഴൊക്കെ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
9					സഹപാഠികളുടെ പെരുമാറ്റത്തെ സ്വാധീനിക്കുന്നു.
10					സുഹൃത്തുക്കൾക്കിടയിലുള്ള പ്രശ്നങ്ങൾ പരിഹരിക്കുന്നു.
11					കുട്ടുകാർക്കിടയിൽ ലീഡറാണ്.
V.A	താഴെ കൊടുത്തിരിക്കുന്ന ദൈനംദിന പ്രവർത്തനങ്ങൾ പരസഹായം കൂടാതെ ചെയ്യുന്നു.				
1					ഭക്ഷണം കഴിക്കുന്നു.
2					വസ്ത്രം ധരിക്കുന്നു.
3					മുടി ചീകുന്നു.
4					കുളിക്കുന്നു.
5					ഉറങ്ങാൻ കിടക്കുന്നു.
V.B	ശുഹപാഠങ്ങൾ സ്വന്തമായി ചെയ്യുന്നു.				
1					വായിക്കുന്നു
2					എഴുതുന്നു.
3					വരക്കുന്നു.
4					മുറിക്കുകയും ഒട്ടിക്കുകയും ചെയ്യുന്നു.
5					സ്കൂൾ ബാഗ് തയ്യാറാക്കുന്നു.
6					സ്വന്തം സാധനങ്ങളിൽ വീട്ടിലും സ്കൂളിലും ശ്രദ്ധ ചെലുത്തുന്നു.
7					സാധനങ്ങൾ യഥാർത്ഥ സ്ഥലങ്ങളിൽ വെക്കുന്നു.
VI. 1	ചെറിയ കാര്യങ്ങളിൽ പോലും ദേഷ്യപ്പെടുന്നു.				
2					വാശി കാണിക്കുന്നു.
3					അലറൽ, നിലവിളി തുടങ്ങിയവ കാണിക്കുന്നു.
4					മറ്റുള്ളവരെ ഉപദ്രവിക്കുന്നു.
5					വസ്തുക്കൾ കേടുവരുത്തുന്നു.
6					പരീക്ഷാപേടി ഉണ്ട്.
7					ഗ്രൂപ്പ് ചർച്ചകളിൽ ആശയം പ്രകടിപ്പിക്കാൻ മടിക്കുന്നു.
8					സംശയനിവാരണം നടത്താൻ മടി കാണിക്കുന്നു.
9					പുതിയ കാര്യങ്ങൾ ചെയ്യുമ്പോൾ വേവലാതി കാണിക്കുന്നു.
10					സ്കൂളിനോട് മടുപ്പ് കാണിക്കുന്നു.
11					കലാകായിക പ്രവർത്തനങ്ങളിൽ പങ്കെടുക്കുവാൻ നാണം കാണിക്കുന്നു.
12					മറ്റുള്ളവരെ ശല്യം ചെയ്യുന്നു.
13					അടങ്ങി ഇരിക്കാത്ത പ്രകൃതമാണ്.
14					എളുപ്പത്തിൽ ശ്രദ്ധ വ്യതിചലിക്കുന്നു.
15					തുടങ്ങുന്ന കാര്യങ്ങൾ പൂർത്തീകരിക്കുന്നില്ല.

ക്രമ നമ്പർ	എല്ലായ്പ്പോഴും	ചിലപ്പോഴൊക്കെ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല	സാമൂഹികവും വൈകാരികവുമായ ഘടകങ്ങൾ
16					കാര്യങ്ങൾ ചെയ്യാൻ മറക്കുന്നു.
17					അക്ഷമ കാണിക്കുന്നു.
18					മൂന്നുത കാണിക്കുന്നു.
19					പെട്ടെന്ന് സങ്കടപ്പെടുന്നു.
20					ഉച്ചത്തിൽ സന്തോഷം പ്രകടിപ്പിക്കുന്നു (പൊട്ടിച്ചിരിക്കുന്നു).
21					ജിജ്ഞാസ കാണിക്കുന്നു.
22					മോശമായി പെരുമാറുന്നു.
VII.1					അനുചിതമായി വികാരങ്ങൾ പ്രകടിപ്പിക്കുന്നു.
2					വികാരങ്ങളെ നിയന്ത്രിക്കാൻ ബുദ്ധിമുട്ടുന്നു.
3					ദേഷ്യം വന്നാൽ പെട്ടെന്ന് ശാന്തമാകുന്നു.
4					സമ്മർദ്ദങ്ങളുള്ള സാഹചര്യങ്ങളിൽ ശാന്തത (സമാധാനം) പാലിക്കുന്നു.
5					തർക്കിക്കുന്നു/എതിരു പറയുന്നു.
6					പെട്ടെന്ന് കരയുന്നു.
7					അസ്വസ്ഥനാകുന്നു.
8					ചിന്താകുലനാകുന്നു.
9					വേവലാതി കാണിക്കുന്നു.
10					ക്ഷമാപണം നടത്തുന്നു.
VIII.1					ചെയ്യേണ്ട കാര്യങ്ങൾ നീട്ടിവെയ്ക്കുന്നു.
2					ഒരു കാര്യം പൂർത്തീകരിക്കാതെ മറ്റൊന്നിലേക്ക് കടക്കുന്നു.
3					ചിന്തിക്കാതെ പ്രവർത്തിക്കുന്നു.
4					കാര്യങ്ങൾ ചെയ്യാൻ മറക്കുന്നു.
5					സ്കൂളിലേക്കുള്ള പ്രവർത്തനങ്ങളൊന്നും ചെയ്യുന്നില്ല.

Appendix L1
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
Tabular Summary of Findings on Objectives and
Practices of Three Types of Pre-schools

Aspects of Curriculum

Aspects of Curriculum	Preschools		
	Anganwadi	Kindergarten	Montessori
Prescribed Curriculum & syllabi	Thematic Calendar(ICDS)	No common Curriculum	No common Curriculum
% of preschools following the curriculum	30(100%)	8 (26.66%) (own curriculum)	17(100%)
% of institutions following the Syllabus	4 (13.33%)	8 (26.66%) (own syllabus)	17 (100%)
Curricular objectives	Development of physical, cognitive, social, emotional and creative aspects of the child	All-round development	All-round development
% of institutions following Curricular Objectives	21 (70%)	11 (36.33%)	17 (100%)
Consider Developmental aspects equally	21 teachers (70%)	11 teachers (36.33%)	17 (100%)
Subjects/Areas intended	Malayalam, basic Mathematics, Environmental studies and General Knowledge through 30 themes (Teach English also)	Malayalam, English, Mathematics, Environmental Studies and General Knowledge Hindi (4) (13.33%) Arabic (6) (20%)	Malayalam, English, Mathematics, Environmental Studies and General Knowledge through Practical life exercises, Sensorial exercises, Arithmetic, Language and Cultural
Timetable	Given in thematic calendar -flexible	Own and rigid timetable	Own and flexible timetable
Follows strictly	4 (13.33%) 6 (20%) do not aware	25 (83.33%)	7 (41.17%) 8 (47.05%) (auto learning)
Subjects taught per day	Flexible	2 subjects-1(3.33%) 3 subjects -18(60%) 4 subjects-11(36.66%)	3 subjects -8(47.05%) 4 subjects-7(41.17%)

Teaching –learning Materials

Teaching learning materials	Pre-schools		
	Anganwadi	Kindergarten	Montessori
<u>Text book</u> And % of preschools provide textbooks	No	30(100%) Activity based textbooks	9 (52.94%) Activity based textbooks
Activity book/ activity sheets	<i>Anganapoomazha</i> 30 (100%) 13 (43.33%) consider as colouring book	No	17 (100%)

764 INFLUENCE OF PRESCHOOL EDUCATION ON SCHOOL OUTCOMES

Teaching learning materials		Pre-schools		
		Anganwadi	Kindergarten	Montessori
Hand book		Handbook of <i>Anganapoomazha</i>	Handbook of different publishers	Handbook of different publishers
% of preschools having handbook		26(86.66%)	7 (23.33%)	1(5.88%)
Teaching aids		Charts and pictures are common to all		
% of institutions having sufficient teaching aids and use daily		4 (13.33%) Prepare teaching aids based on the Thematic calendar	5 (16.66%)	Montessori apparatuses 17 (100%) Fully equipped Montessori lab 8 (47.05%)
Technology		1(3.33%)	17(56.33%)	12(70.58%)
Computer		1(3.33%)	5 (16.66%)	4(23.52%)
Projector /smart class			8 (26.66%)	6(35.29%)
Television			4 (13.33%)	2(11.76%)
Frequency of usage	Daily	1(3.33%)	2 (6.66%)	3(17.64%)
	Alternate days		5 (16.66%)	4(23.52%)
	Weekly		10 (33.33%)	5 (29.41%)

Curricular Activities

Curricular Activities		Pre-schools		
		Anganwadi	Kindergarten	Montessori
Medium of instruction		Malayalam	English (29) Malayalam (1)	English
Textual Activities Done	Good		12 (40%)	4 (23.52%)
	Average	No	16 (53.33%)	2 (11.76%)
	Poor		2 (6.66%)	2 (11.76%)
Frequency			Daily	Daily
Activity sheets/activity books		30(100%)		17(100%)
Practices	Good	4 (13.33%)	No	8 (47.5%)
	Average	11(26.66%)		5 (29.41%)
	Poor	15 (50%)		4 (23.52%)
Frequency		Alternate days		Daily/Alternate days
Note book		10 (33.33%) (5+years)	30 (100%)	12(70.58%)
Practices	Good	4	25 (83.33%hi)	12(70.58%)
	Average	4	5 (16.66%)	5 (29.41%)
	Poor	2		7(23.33%)
Frequency		Weekly/Rarely	Daily	Daily
Slate		18 (60%) (4+years)		
Practices	Good	4	No	No
	Average	7		
	Poor	6		
Frequency		Alternate days/weekly		
Cursive writing		No	25 (83.33%)	12 (70.58%)

Curricular Activities		Pre-schools		
		Anganwadi	Kindergarten	Montessori
Frequency			Alternate days/ weekly	Daily/ Alternate days
Activities for Language development		Conversation, rhymes, storytelling, reading and writing		
Role play, Group activity/ Doing more activities		4 (13.33%)	10 (33.33%)	14 (82.35%)
Activities using apparatuses				17 (100%)
Activities for Physical development				
Provide food		30 (100%)	No	No
Exercises		6 (20%)	8 (26.66%)	12(70.58%)
Games		9 (30%)	13 (43.33%)	11(64.70%)
activities using apparatuses				8 (47.5%)
Activities for Social and Emotional development		Advice and timely intervention		
Thematic calendar activities		8 (26.66%)		
Moral studies			6 (20%)	4 (23.52%)
Practical life and cultural experiences				12 (70.58%)
Provision of Home works and frequency		11 (36.66%)	29 (96.66%)	17 (100%)
Frequency	Daily		7 (23.33%)	
	Alternate days		15(50%)	4(23.52%)
	Weekly	5 (16.66%)	7 (23.33%)	13(76.47%)
	Rarely	6 (20%)		

Co-curricular Activities

Co-curricular Activities		Pre-schools		
		Anganwadi	Kindergarten	Montessori
Indoor play		18 (60%)	7 (23.33%)	17 (100%)
Adequate space		10 (33.33%)	5 (16.66%)	15 (88.23%)
Adequate materials		9 (30%)	5 (16.66%)	14(82.35%)
Frequency	Daily	12 (40%)		5 (29.41%)
	Alternate	6 (20%)	2 (6.66%)	7 (41.17%)
	Weekly		5(16.66%)	5(29.41%)
Outdoor play		7 (21.33%)	15 (50%)	17 (100%)
Adequate Play Ground		9 (30%)	13 (43.33%)	11 (64.70%)
Adequate materials		2 (6.66%)	8 (26.66%)	9(52.94%)
Frequency	Daily	3 (9.99%)		4 (23.52%)
	Alternate	2 (6.66%)	6 (20%)	7 (41.17%)
	Weekly	2(6.66%)	9 (30%)	6(35.29%)
Creativity				
Art		19 (63.33%)	22 (73.33%)	17 (100%)
Frequency	Daily	8 (26.66%)		5 (29.41%)
	Alternate	11 (36.66%)	4 (13.33%)	10 (58.82%)
	Weekly		18 (60%)	2 (11.76%)
Craft		4 (13.33%)	8 (26.66%)	13(76.47%)

Co-curricular Activities		Pre-schools		
		Anganwadi	Kindergarten	Montessori
Frequency	Daily			2 (11.76%)
	Alternate	3 (9.99%)		5 (29.41%)
	Weekly	1 (3.33%)	8 (26.66%)	6 (35.29%)
Arts festival		22 (73.33%)	30 (100%)	17 (100%)
Participation in all items		11 (50%)	18 (60%)	16 (94.11%)
Criteria on selection		No	4 (13.33%)	3 (17.64%)
Competition		16 (53.33%)	26 (86.66%)	10(58.82%)
Sports festival		7 (23.33%)	24 (80%)	17(100%)
Participation in all items		7(23.33%)	24 (80%)	17 (100%)
Criteria on selection		No	No	No
Competition		7(23.33%)	21(70%)	12 (70.58%)

Special Day Celebrations
Celebrate all important days
Celebrate colour day, fruits day, vegetable day, toy day, etc.

Field trip	11 (36.66%)	27 (90%)	17 (100%)
------------	-------------	----------	-----------

Assessment

Assessment	Anganwadi	Kindergarten	Montessori
% of institutions Conducting assessment	2 (6.66%)	30(100%)	17(100%)
Tools and Methods of Assessment			
Observation schedule	No	4 (13.33%)	11 (64.70%)
Activity sheets	No	No	17 (100%)
Dictation	No	26(86.66%)	4 (23.52%)
Mid-term	No	12(40%)	7 (41.17%)
Terminal Examination (oral & written)	2(6.66%)	30 (100%)	17(100%)
Progress Report	2(6.66%)	30 (100%)	17 (100%)

Material and Human Resources

<i>Material and Human Resources</i>	Anganwadi	Kindergarten	Montessori
Building			
Own	19 (63.33%)	26 (86.66%)	16 (94.11%)
Rented	11 (36.66%)	4 (13.33%)	1 (5.88%)
Spacious classrooms	11 (36.66%)	14 (46.66%)	12 (70.55%)
No. of students in a class	(Min- 10 and Max 30) median	(Max-20) median	(Max -10) median
Recommended	13	30	15
Observed	10-28	15- 50	30- 45
More than recommended	No	13 (43.33%)	15 (88.23%)
No. of Differently abled students	2 (6.66%)	11(36.66%)	1 (5.88%)
Special educator	No	2	1
Special facilities	No	No	apparatuses
No. of teachers	30	67	81
Teacher per institution	1	2.23	4

<i>Material and Human Resources</i>	Anganwadi	Kindergarten	Montessori
Demographic details	Anganwadi	Kindergarten	Montessori
Teacher –Pupil Ratio			
Recommended	1:30	1:20	1:10
More than recommended	No	13(43.33%)	15 (88.23%)
Qualification of Teachers			
Academic			
PG	1	2	9
UG	5	34	43
HSSC	24	29	29
SSLC			
Professional	1	2	68
PPTTC (Approved)	2	47	13
PPTTC /MMTTC(Unapproved)	27	20	
Untrained			
% of teachers attended In-service Training			
Monthly	30 (100%)	14 (46.66%)	15 (88.23%)
Half yearly	21 (70%)	3 (9.99%)	4 (23.52%)
Yearly	5 (16.66%)	6 (20%)	6 (35.29%)
2 year	4 (13.33%)	5 (16.66%)	5 (29.41%)
Working days	Mon–Sat	Mon–Fri	Mon–Fri
Working hours	6 hrs.	No common working hours	No common working hours.