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Annexure – I

Institutional Human Ethical Committee Clearance Certificate

INSTITUTIONAL HUMAN ETHICS COMMITTEE

Avinashilingam
Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956) Re-accredited with 'A++' Grade by NAAC.
Recognised by UGC Under Section 12 B
Coimbatore-641 043, Tamil Nadu, India

20th April 2022

To
Ms. Karishma Begum
Department of Human Development
Avinashilingam Institute for Home Science and
Higher Education for Women
Coimbatore – 641 043

Dear Karishma Begum,

Ref: Your proposal No. IHEC/21-22/HD-25 entitled "Impact of Traditional and Modern Play on Socio-Cognitive Development of Primary School Children (6-8Years)" resubmitted for approval to IHEC on 18.03.2021.

The Institutional Human Ethics Committee of our University hereby grants approval to your research proposal No. IHEC/21-22/ HD-25 entitled "Impact of Traditional and Modern Play on Socio-Cognitive Development of Primary School Children (6-8Years)" resubmitted by you. The Approval number for the same is AUW/IHEC/HD-21-22/XPD-25.

We wish you all the best in your research endeavours.

Regards,

S. Uma Mageshwari
Dr.S.Uma Mageshwari
Member Secretary

Annexure – II

Ethical Clearance Certificate from study area

GOVT.OF ASSAM

OFFICE OF THE DEPUTY INSPECTOR OF SCHOOL::::BISWANATH SUB-DIVISION

(HUMAN ETHICS COMMITTEE, BISWANATH, ASSAM)

No. III-28/Misc/2019-20/881 Date :- 01/12/2021

Chairman
Dr. Amal Saikia
President, Rural Health
And We, Org.

Member Secretary,
Mr. Karuna Kanta Bhatta
Dy. Inspector of Schools

Members
Md. Rahmat Ali (Legal Expert)
Dr. Jogen Ch. Bey (Medical Officer)
Mrs. Mayuri Borah
Pranjit Borah
Malabika Sharma
Debajit Nath
Bijoy Kr. Das
Dhrubajyoti Das

To,

Ms Karishma Begum,
Department of Human Development,
Avinashilingam Institute for Home Science and
Higher Education for Women,
Coimbatore – 641043

Dear Ms. Karishma Begum,

Ref: Your proposal No. BND-2/2016/pt-I/293 impact of Traditional and Modern Play on Socio-Cognitive Development of Primary School Children (6-8 Years)" submitted for approval of IHEC.

The Human Ethics Committee of Biswanath, Assam hereby grants approval to your research proposal No. BND-2/2016/pt-I/293 entitled "Impact of Traditional and Modern Play on Socio-Cognitive Development of Primary School Children (6-8 Years)" submitted by you. The approval No. for the same is No. III-28/Misc/2019-20/881 dated 01/12/2021.

We Wish you all the best in your research endeavours.

Regards

Dy. Inspector of Schools,
Biswanath, Assam

Deputy Inspector of Schools : Biswanath

Annexure – III

Permission letter from District Collector

GOVT. OF ASSAM.
OFFICE OF THE DEPUTY COMMISSIONER ::: BISWANATH
BISWANATH CHARIALI.

No. BND-2/2016/pt-I/ 293 Dtd. 23 /07/2021

TO WHOM IT MAY CONCERN

This is to certify that Ms. Karishma Begum, D/O: Late Samsul Haque PhD Scholar,(19PHHDF001), Department of Human Development, Avinashilingam Institute for Home Science and Higher Education for women, Coimbatore,Tamil Nadu is hereby allowed to carry her research in relation of her ensuing PhD work "Impact of Traditional and Modern Play on Socio- Cognitive Development of Primary School children (6- 8 Years)" in the Biswanath District of Assam with the understanding that she will abide by all established rules and regulations governing the district from time to time and her research will in no way cause disruption in the regular functioning of the schools.

It is hereby mentioned that this document will act as a pass for her movement within the district solely for the conduct of her research and no other purpose whatever.

This Certificate will remain valid till 30/07/2022.

(Pranab Kumar Sarmah, ACS)
Deputy Commissioner,
Biswanath

No. BND-2/2016/pt-I/293 (A) Dtd. 23 /07/2021
Copy to :-

1. The Superintendent of Police, Biswanath for information.
2. The DEEO, Biswanath for information.
3. Ms. Karishma Begum for information and necessary action
4. Office file.

(Pranab Kumar Sarmah, ACS)
Deputy Commissioner,
Biswanath

Deputy Commissioner
Biswanath

Annexure – IV

Questionnaire for Socio-Demographic profile and background information

Name of the Child:

Age: 6/7/8 Years **Gender:** Male/Female

Class: 1st std. /2nd std. /3rd std.

Education of Mother:

Education of Father:

Occupation of Father: Government Employee/Private Employee/Business/daily Wages

Occupation of Mother: Government Employee/Private Employee/Business/daily Wages/ Housewife

Family Income:

Family Type: Nuclear/ Joint

No. of Children:

Type of living area: Rural/ Semi-urban/Urban

Questions:

1. What does your child do with most of their spare time?
2. When does your child enjoy playing?
3. With whom does he/she like to play?
4. Whether your child likes to play inside or outside the home?
5. How did play make them feel?
6. Who/what determines when children play – adults/children/materials?
7. Where children play – outside/inside the home/at school/other places.
8. Who children play with – on their own/family adults/family children/school friends/other people in school.
9. What kind of activities does your child prefer most – traditional rough & tumble play, educational play, constructive play, or video game/mobile game?
10. What are the activities your child enjoys most?

- Running/Jumping
- Hopscotch
- Playing Ball
- Board Game
- Matching/sorting objects
- Puzzle board
- Memory game
- Riding tricycle
- Clay modelling
- Cooking game
- Mobile game
- Computer game
- Drawing/colouring pictures
- Large sets of blocks/ construction game
- Remote control cars
- Music/ dance
- Story telling
- Pretend play
- Dress-up clothes and make-up
- Dolls with many accessories
- House and equipments play
- Other(if mention)

11. What kind of traditional game your chid plays?

- Muthi Khel (Game of fist)
- Hai Gudu/ Kopoti khel
- Luka bhaku
- Dora Koina khel
- Raja Rani Khel)
- Kochu Guti khel
- Ghila Khel
- Gollā
- kabaddi

- ghai pokua khel
- Marble Game
- Rosi Tona Khel (Tug of War)
- Rumaal sur Khel (Hiding the Handkerchief)
- Poisa Ghurua Khel (Spin the coin)
- Pithu Khel (Strike & Run)
- Olong dolong game
- Tangguti
- Tekeli bhonga Khel
- Lathi khel
- Other (if mention)
- Ganga rani

Annexures – V

Vineland Social Maturity Scale (VSMS)

VINELAND SOCIAL MATURITY SCALE

Name :	D.O.B. :	Reg. No. :
Sex :	Age :	Date :
Education :	Occupation :	Address :

RESULTS

Total Score :
Social Age (SA) :
Social Quotient (SQ) = SA/CAX 100 =

SOCIAL MATURITY CONSTELLATION

S.No.	Social Areas	SA	SQ
1.	Self-Help General		
2.	Self-Help Eating		
3.	Self-Help Dressing		
4.	Self Direction		
5.	Occupation		
6.	Communication		
7.	Locomotion		
8.	Socialization		

Remarks :

Signature of the Psychologist

VINELAND SOCIAL MATURITY SCALE
RECORD SHEET

0 - 1 YEAR

1. "Coos"; Laughs*
2. Balances head
3. Grasps object within reach
4. Reaches for familiar persons
5. Rolls over (unassisted)
6. Reaches for nearby objects*
7. Occupies self unattended*
8. Sits unsupported
9. Pulls self upright
10. "Talks"; imitates sounds
11. Drinks from cup or glass assisted
12. Moves about on floor (Creeping, crawling)
13. Grasps with thumb and finger
14. Demands personal attention*
15. Stands alone
16. Does not drool*
17. Follows simple instructions*

1 - 2 YEARS

18. Walks about room unattended
19. Marks with pencil or crayon or chalk
20. Masticates (chews) solid or semi-solid food
21. Pulls off clothes
22. Transfers objects*
23. Overcomes simple obstacles*

24. Fetches or carries familiar objects

25. Drinks from cup or glass unassisted

26. Walks without support*

27. Plays with other children*

28. Eats with own hands (biscuits, bread, etc.)*

29. Goes about house or yard

30. Discriminates edible substances from non-edibles

31. Uses names of familiar objects

32. Walks upstairs unassisted

33. Unwraps sweets, chocolates

34. Talks in short sentences

2 - 3 YEARS

35. Signals to go to toilet*

36. Initiates own play activities*

37. Removes shirt or frock if unbuttoned

38. Eats with spoon/hands (food)

39. Gets drink (water) unassisted

40. Dries own hands

41. Avoids simple hazards*

42. Puts on shirt or frock unassisted (need not button)

43. Can do paper folding

44. Relates experiences*

3 - 4 YEARS

45. Walks downstairs, one step, at a time

46. Plays cooperatively at Kindergarten level*

47. Buttons shirt or frock

48. Helps at little household tasks

49. "Performs" for others*

50. Washes hands unaided

4 - 5 YEARS

51. Cares for self at toilet

52. Washes face unassisted

53. Goes about neighbourhood unattended

54. Dresses self except for tying

55. Uses pencil or crayon or chalk for drawing*

56. Plays competitive exercise games*

5 - 6 YEARS

57. Uses hoops, flies kites, or uses knife*

58. Prints (writes) simple words

59. Plays simple games which require taking turns*

60. Is trusted with money*

61. Goes to school unattended

6 - 7 YEARS

62. Mixes rice "properly" unassisted

63. Uses pencil or chalk for writing*

64. Bathes self assisted

65. Goes to bed unassisted*

7 - 8 YEARS

66. Can differentiate between AM & PM

67. Helps himself during meals*

68. Understands and keeps family secrets*

69. Participates in pre-adolescent play*

70. Combs or brushes hair

8 - 9 YEARS

71. Uses tools or utensils*

72. Does routine household tasks*

73. Reads on own initiative*

74. Bathes self unaided

9 - 10 YEARS

75. Cares for self at meals

76. Makes minor purchases*

77. Goes about home town freely

10 - 11 YEARS

78. Distinguishes between friends and play mates

79. Makes independent choice of shops*

80. Does small remunerative work; makes articles*

81. Follows local current events*

11 - 12 YEARS

82. Does simple creative work*

83. Is left to care for self or others*

84. Enjoys reading, books, newspapers, magazines

12 - 15 YEARS

85. Plays difficult games*

86. Exercises complete care of dress*

87. Buys own clothing accessories*

88. Engages in adolescent group activities*

89. Performs responsible routine chores*

DEPARTMENT OF PSYCHOLOGY

VINELAND SOCIAL MATURITY SCALE

PATTERN ANALYSIS

(Adapted from Doll's Classification. Ref. Rothstain J.H. (1971) Mental Retardation. pp. 96-103)

Maturity Levels Years	Months	SHG	SHE	SHD	SD	OCC	COM	LOC	SOC
XII-XV	180.0					89			
	168.0				87				88
	156.0			86					85
XI-XII	144.0				83	82	84		
	140.0								
	136.0								
X-XI	132.0					80	81		
	128.0				79				
	124.0						78		
IX-X	120.0								
	116.0		75		76			77	
	112.0								
VIII-IX	108.0			74					
	104.0					72	73		
	100.0					71			
VII-VIII	96.0			70					
	92.0								69
	88.0	66	67						68
VI-VII	84.0			65					
	80.0			64			63		
	76.0		62						
V-VI	72.0							61	
	68.0				60				59
	64.0					57	58		
IV-V	60.0			54		55			56
	56.0			52					
	52.0	51		50				53	
III-IV	48.0								
	44.0					48			49
	40.0			47			44	45	46
II-III	36.0			42		43			
	32.0	41	39	40		36			
	28.0		38	37			35		
I-II	24.0		33				34	32	
	21.6		30			24	31	29	27
	19.2	23	28			22		26	
	16.8		25	21		19		18	
	14.4		20				17		
O-I	12.0	15							
	10.5	13							
	9.0	9	16			7	10	12	14
	7.5	8	11				1		4
	6.0	6							
	4.5	5							
	3.0	3							
	1.5	2							

VINELAND SOCIAL MATURITY SCORING SCALE

SOCIAL AGE (SA) TABLE

(Note 1/10 of a month is equal to 3 days)

0 TO 1 YEAR

1. 0.7 months
2. 1.4 months
3. 2.1 months
4. 2.8 months
5. 3.5 months
6. 4.2 months
7. 4.9 months
8. 5.6 months
9. 6.3 months
10. 7.0 months
11. 7.7 months
12. 8.4 months
13. 9.1 months
14. 9.8 months
15. 10.6 months
16. 11.3 months
17. 12.0 months

I YEAR

18. 0.7 months
19 1.4 months
20 2.1 months
21. 2.8 months
22. 3.5 months
23. 4.2 months
24. 4.9 months
25. 5.6 months
26 6.3 months
27. 7.0 months
28. 7.7 months
29. 8.4 months
30. 9.2 months
31. 9.8 months
32. 10.6 months
33. 11.3 months
34. 12.0 months

II YEAR

35. 1.2 months
36. 2.4 months
37. 3.6 months
38. 4.8 months
39. 6.0 months
40. 7.2 months
41. 8.4 months
42. 9.6 months
43. 10.8 months
44. 12.0 months

III YEAR

45. 2 months
46. 4 months
47. 6 months
48. 8 months
49. 10 months
50. 12 months

IV YEAR

51. 2 months
52. 4 months
53. 6 months
54. 8 months
55. 10 months
56. 12 months

V YEAR

57. 2.4 months
58. 4.8 months
59. 7.2 months
60. 9.6 months
61. 12.0 months

VI YEAR

62. 3 months
63. 6 months
64. 9 months
65. 12 months

VII YEAR

66. 2.4 months
67. 4.8 months
68. 7.2 months
69. 9.6 months
70. 12.0 months

VIII YEAR

71. 3 months
72. 6 months
73. 9 months
74. 12 months

IX YEAR

75. 4 months
76. 8 months
77. 12 months

X YEAR

78. 3 months
79. 6 months
80. 9 months
81. 12 months

XI YEAR

82. 4 months
83. 8 months
84. 12 months

XII YEAR

85. 7.2 months
86. 14.4 months
87. 21.6 months
88. 28.8 months
89. 36.0 months

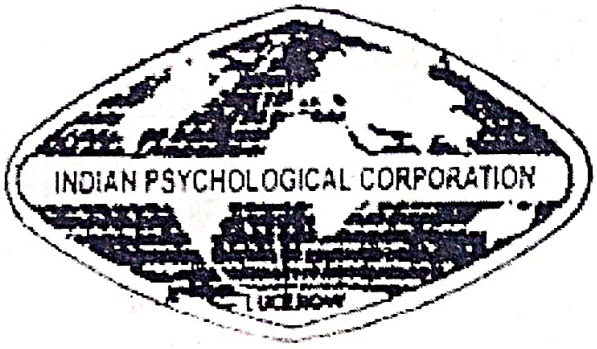
Annexure – VI

Malins Intelligence Scale for Indian Children (MISIC)

MANUAL
MALIN'S INTELLIGENCE SCALE FOR INDIAN CHILDREN

(Indian Adaptation of W.I.S.C.)

By
Dr. Arthur J. Malin



Published By :
Indian Psychological Corporation
Shanti Sadan, Rai Behari Lal Road
Lucknow-226 007

6 YEARS

CONVERSION OF RAW SCORES TO PERCENTILE I.Q.'s or T.Q.'s.

VERBAL

Infor.		Comp.		Arith		Simil.		Vocab.		Digit	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	60	1	65	1	65	1	75	1-2	55-57	1	62
2	65	2	75	2	75	2	85	3-4	60-62	2	68
3	70	3	80	3	80	3	91	5-6	65-67	3	75
4	75	4	85	4	85	4	98	7-8	70-72	4	80
5	85	5	93	5	95	5	105	9-10	75-78	5	85
6	93	6	100	6	105	6	112	11-12	80-83	6	93
7	100	7	106	7	115	7	119	13-14	85-88	7	100
8	108	8	113	8	125	8	125	15	90	8	110
9	115	9	119	9	135	9	133	16	93	9	119
10	123	10	136	10	145	10	140	17	95	10	129
11	130	11	132	11	155	11	147	18	98	11	139
12	130	12	139	12	165	12	155	19	100	12	148
13	138	13	145				162	20	103	13	158
14	145	14	152					21	106		
15	165							22	109		
								23	112		
								24	115		
								25	118		
								26-27	120-123		
								28-29	125-127		
								30-31	130-132		
								32-33	134-137		
								34-35	139-141		
								36-37	143-146		
								38-39	148-150		
								40-41	153-155		

PERFORMANCE

Picture		Block		Object		Coding		Maze	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1		1		1		1-2	55-57	1	75
2		2		2		3-4	59-61	2	80
3		3		3		5-6	63-65	3	85
4		4		4		7-8	67-69	4	89
5		5		5		9-10	71-73	5	93
6		6		6		11-12	75-76	6	96
7		7		7		13-14	77-78	7	100
8		8		8		15-16	79-80	8	104
9		9		9		17-18	81-82	9	107
10		10		10		19-20	83-84	10	111
11		11		11		21-22	85-87	11	115
12		12		12		23-24	89-91	12	119
13		13		13		25-26	93-94	13	123
14		14		14		27-28	96-98	14	126
15		15		15		29-30	100-102	15	130
		16		16		31-32	103-104	16	135
		17		17		33-34	105-107	17	140
				18		35-36	108-109	18	145
						37-38	111-112	19	150
						39-40	114-115	20	155
						41-42	117-120		
						43-44	122-125		
						45-46	127-130		
						47-48	132-135		
						49-50	137-140		
						51-52	142-145		
						53-54	147-150		
						55-56	152-155		

7 YEARS

CONVERSION OF RAW SCORES TO PERCENTILE I.Q.'s or T.Q.'s.

VERBAL

Infor.		Comp.		Arith		Simil.		Vocab.		Digit	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	59	1	62	1	62	1	65	1-2	55-57	1	60
2	63	2	68	2	68	2	75	3-4	59-61	2	65
3	67	3	75	3	75	3	85	5-6	63-64	3	70
4	71	4	80	4	81	4	93	7-8	66-68	4	75
5	75	5	85	5	87	5	100	9-10	70-72	5	80
6	85	6	90	6	100	6	105	11-12	73-75	6	85
7	91	7	96	7	110	7	111	13-14	80-82	7	91
8	98	8	101	8	120	8	117	15-16	82-85	8	97
9	104	9	106	9	129	9	123	17	87	9	103
10	111	10	111	10	139	10	128	18	90	10	110
11	118	11	116	11	149	11	134	19	93	11	117
12	123	12	121	12	159	12	140	20	95	12	125
13	129	13	125			13	146	21	98	13	132
14	135	14	130			14	152	22	100	14	139
15	140	15	135			15	158	23	103	15	147
16	145	16	140			16	165	24	106	16	155
17	152	17	145					25	109	17	162
18	158	18	150					26-27	112-115		
		19	155					28-29	117-120		
		20	161					30-31	123-125		
								32-33	128-131		
								34-35	134-136		
								36-37	139-142		
								38-39	145-148		
								40-41	152-155		

PERFORMANCE

Picture		Block		Object		Coding		Maze	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	60	1	65	1	59	1-6	55-60	1	65
2	65	2	75	2	63	7-11	62-66	2	75
3	70	3	80	3	67	12-15	67-70	3	78
4	75	4	85	4	71	16-17	72-73	4	81
5	85	5	93	5	75	18-19	74-75	5	84
6	90	6	100	6	92	20-21	78-80	6	87
7	95	7	104	7	100	22-23	83-85	7	91
8	100	8	108	8	104	24-25	86-88	8	95
9	106	9	113	9	112	26-28	89-91	9	100
10	112	10	117	10	118	29-32	93-96	10	103
11	118	11	121	11	124	33.36	98-101	11	106
12	124	12	126	12	130	37-40	103-107	12	109
13	130	13	130	13	136	41-42	109-111	13	112
14	136	14	135	14	142	43-44	112-114	14	115
15	143	15	139	15	148	45-46	115-117	15	122
16	149	16	143	16	155	47-48	118-120	16	128
17	155	17	148			49-50	122-124	17	135
		18	153			51-52	125-127	18	141
		19	160			53-54	129-131	19	147
						55-56	133-135	20	154
						57-58	137-139	21	160
						59-60	141-143		
						61-62	145-147		
						63-64	149-155		

8 YEARS

CONVERSION OF RAW SCORES TO PERCENTILE I.Q.'s or T.Q.'s.

VERBAL

Infor.		Comp.		Arith		Simil.		Vocab.		Digit	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	58	1	60	1	60	1	65	1-2	55-57	1	60
2	62	2	65	2	65	2	75	3-4	59-60	2	64
3	65	3	70	3	70	3	80	5-6	62-63	3	67
4	68	4	75	4	75	4	85	7-8	65-67	4	71
5	72	5	78	5	80	5	90	9-10	69-70	5	75
6	75	6	81	6	85	6	95	11-12	72-73	6	80
7	80	7	85	7	92	7	100	13-14	75-77	7	85
8	85	8	90	8	100	8	105	15-16	80-82	8	92
9	90	9	95	9	107	9	110	17-18	84-86	9	100
10	95	10	100	10	115	10	115	19-20	89-91	10	106
11	100	11	105	11	123	11	121	21	93	11	113
12	106	12	110	12	131	12	126	22	96	12	119
13	111	13	115	13	139	13	132	23	98	13	125
14	117	14	120	14	147	14	138	24	100	14	132
15	122	15	125	15	155	15	143	25	103	15	139
16	128	16	130			16	149	26	105	16	145
17	133	17	135			17	155	27	107	17	151
18	139	18	140					28	109	18	158
19	145	19	145					29-30	111-114		
20	150	20	150					31-32	117-120		
21	155	21	155					33-34	123-126		
								35-36	129-132		
								37-38	135-138		
								39-40	140-143		
								41-42	146-149		
								43-44	152-155		

PERFORMANCE

Picture		Block		Object		Coding		Maze	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	55	1	55	1	55	1-2	55-57	1	55
2	60	2	57	2	58	3-4	58-59	2	57
3	65	3	68	3	62	5-6	61-62	3	68
4	70	4	75	4	65	7-8	64-65	4	75
5	75	5	85	5	68	9-10	67-68	5	78
6	85	6	100	6	72	11-12	70-71	6	82
7	90	7	104	7	75	13-14	72-74	7	85
8	95	8	109	8	89	15-16	75-77	8	88
9	100	9	113	9	92	17-18	79-82	9	91
10	105	10	117	10	96	19-20	84-86	10	94
11	110	11	121	11	100	21-22	88-91	11	97
12	115	12	125	12	103	23-24	93-96	12	100
13	122	13	130	13	106	25	98	13	107
14	128	14	135	14	109	26	100	14	113
15	135	15	140	15	112	27	102	15	119
16	142	16	146	16	115	28	103	16	125
17	148	17	152	17	119	29	105	17	126
18	155	18	159	18	124	30	107	18	137
				19	128	31	108	19	143
				20	132	32-33	110-111	20	149
				21	136	34-35	113-115	21	155
				22	141	36-37	118-121		
				23	145	38-39	123-126		
				24	150	40-41	129-132		
				25	155	42-43	135-138		
						44-45	141-143		
						46-47	146-149		
						48-49	152-155		

9 YEARS

CONVERSION OF RAW SCORES TO PERCENTILE I.Q.'s or T.Q.'s.

VERBAL

Infor.		Comp.		Arith		Simil.		Vocab.		Digit	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	55	1	55	1	55	1	55	1-2	55-57	1	55
2	57	2	59	2	60	2	60	3-4	58-59	2	59
3	62	3	63	3	65	3	65	5-6	61-62	3	63
4	65	4	67	4	70	4	70	7-8	63-65	4	67
5	68	5	71	5	75	5	75	9-10	66-67	5	71
6	72	6	75	6	82	6	82	11-12	68-70	6	75
7	75	7	78	7	88	7	88	13-14	71-72	7	78
8	79	8	82	8	94	8	94	15-16	74-75	8	89
9	83	9	85	9	100	9	100	17-18	77-78	9	100
10	89	10	89	10	110	10	108	19-20	80-82	10	110
11	97	11	93	11	119	11	115	21-22	83-85	11	120
12	103	12	97	12	128	12	122	23	87	12	130
13	109	13	102	13	137	13	129	24	90	13	140
14	115	14	109	14	146	14	136	25	93	14	150
15	120	15	115	15	155	15	144	26	95	15	160
16	126	16	122			16	146	27	98		
17	132	17	128			17	152	28	100		
18	137	18	133					29	103		
19	143	19	142					30	107		
20	144	20	148					31	110		
21	155	21	155					32-33	113-116		
								34-35	120-124		
								36-37	128-131		
								38-39	135-139		
								40-41	143-146		
								42-43	150-154		

PERFORMANCE

Picture		Block		Object		Coding		Maze	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	55	1-2	55	1	55	1-3	55-57	1	55
2	59	3	65	2	57	4-7	59-62	2	65
3	63	4	70	3	60	8-11	63-66	3	75
4	67	5	75	4	63	12-13	67-68	4	78
5	71	6	85	5	65	14-17	70-73	5	82
6	75	7	89	6	68	18-19	74-75	6	85
7	85	8	92	7	70	20-21	77-79	7	88
8	91	9	96	8	73	22-23	82-84	8	90
9	97	10	100	9	75	24-25	86-89	9	93
10	103	11	101	10	87	26-27	92-95	10	95
11	109	12	102	11	93	28-29	97-100	11	98
12	115	13	103	12	100	30-31	102-103	12	100
13	120	14	105	13	104	32-33	104-106	13	104
14	125	15	106	14	109	34-35	107-109	14	108
15	130	16	107	15	114	36-37	110-112	15	111
16	135	17	108	16	118	38-39	113-115	16	121
17	140	18	109	17	123	40-41	117-118	17	127
18	145	19	110	18	129	42-43	121-122	18	133
19	150	20	111	19	135	44-45	126-128	19	139
20	155	21	113	20	140	46-47	130-132	20	144
		22	115	21	145	48-49	134-136	21	150
		23	119	22	151	50-51	138-140		
		24	123	23	156	52-53	143-145		
		25	126	24	162	54-55	147-150		
		26	130	25	168	56-57	153-155		
		27	134	26	174	58-59	157-160		
		28	137			60-61	163-165		
		29-30	142-45			62-64	167-170		

10 YEARS

CONVERSION OF RAW SCORES TO PERCENTILE I.Q.'s or T.Q.'s.

VERBAL

Infor		Comp.		Arith		Simil.		Vocab.		Digit	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	55	1	55	1	55	1	55	1-2	55-56	1	55
2	57	2	59	2	59	2	62	3-4	57-58	2	59
3	60	3	63	3	63	3	68	5-6	60-61	3	63
4	63	4	67	4	67	4	75	7-8	62-63	4	67
5	66	5	71	5	71	5	85	9-10	64-65	5	71
6	68	6	75	6	75	6	88	11-12	67-68	6	75
7	71	7	79	7	80	7	91	13-14	69-70	7	80
8	74	8	83	8	85	8	94	15-16	71-73	8	85
9	78	9	87	9	92	9	97	17-18	74-75	9	92
10	85	10	90	10	100	10	100	19-20	78-80	10	100
11	89	11	93	11	107	11	105	21-22	82-85	11	107
12	93	12	96	12	115	12	110	23-24	87-89	12	115
13	96	13	99	13	123	13	115	25-26	91-93	13	123
14	100	14	103	14	130	14	119	27-28	94-96	14	130
15	105	15	109	15	138	15	123	29-30	98-100	15	138
16	110	16	116	16	145	16	127	31-32	103-106	16	145
17	115	17	122	17	153	17	132	33-34	109-112	17	153
18	120	18	128	18	160	18	136	35-36	115-118	18	160
19	125	19	134			19	140	37-38	121-124		
20	130	20	141			20	145	35-36	115-118		
21	135	21	147			21	149	41-42	133-136		
22	140	22	153			22	153	43-44	139-142		
23	145					23	158	47-48	151-154		
24	150							49	162		
25	155										

PERFORMANCE

Picture		Block		Object		Coding		Maze	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	55	1-2	55-59	1	55	1-5	55-59	1	55
2	59	3-4	63-67	2	57	6-10	60-64	2	58
3	63	5-6	71-75	3	59	11-12	65-66	3	61
4	67	7-8	80-85	4	61	13-14	67-68	4	64
5	71	9-10	87-90	5	63	15-16	68-69	5	67
6	75	11-12	92-95	6	64	17.18	70-71	6	70
7	80	13-14	97-100	7	66	19-20	72-73	7	73
8	85	15	102	8	68	21-22	74-75	8	76
9	90	16	104	9	70	23-24	78-82	9	78
10	95	17	105	10	72	25-26	85-87	10	80
11	100	18	107	11	74	27-28	88-90	11	83
12	107	19	1-9	12	78	29-30	92-93	12	85
13	115	20	111	13	85	31-32	95-97	13	91
14	122	21	113	14	89	33-34	99-100	14	95
15	129	22	115	15	93	35-36	102-104	15	102
16	136	23	117	16	96	37-38	106-108	16	108
17	143	24	119	17	100	39-40	109-111	17	115
18	150	25	120	18	103	41-42	113-115	18	124
19	157	26-27	122-24	19	106	43-44	117-119	19	132
		28-29	126-28	20	108	45-46	122-124	20	141
		30-31	130-31	21	111	47-48	126-128	21	150
		32-33	133-35	22	113	49-50	130-132		
		34-35	137-39	23	117	51-52	135-137		
		36-37	141-43	24	122	53-54	139-141		
		38-39	144-46	25	126	55-56	143-145		
		40-41	148-50	26-27	131-36	57-58	148-150		
		42-43	153-55	28-29	141-45	59-60	152-155		
				30-31	150-55				

11 YEARS

CONVERSION OF RAW SCORES TO PERCENTILE I.Q.'s or T.Q.'s.

VERBAL

Infor		Comp.		Arith		Simil.		Vocab.		Digit	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	55	1	55	1	55	1	55	1-2	55-57	1	55
2	58	2	59	2	59	2	60	3-4	58-58	2	59
3	60	3	62	3	63	3	65	5-7	59-61	3	62
4	62	4	65	4	67	4	70	8-10	62-64	4	65
5	65	5	69	5	71	5	75	11-13	64-66	5	69
6	67	6	72	6	75	6	78	14-15	67-68	6	72
7	70	7	75	7	80	7	82	16-18	68-70	7	75
8	72	8	78	8	85	8	85	19-20	71-72	8	85
9	75	9	82	9	90	9	89	21-22	73-73	9	93
10	82	10	85	10	95	10	92	23-24	74-75	10	102
11	87	11	89	11	100	11	96	25-26	80-85	11	111
12	90	12	92	12	105	12	100	27-28	87-89	12	120
13	93	13	96	13	111	13	104	29-30	91-92	13	129
14	97	14	100	14	117	14	107	31-32	94-96	14	138
15	100	15	104	15	123	15	111	33-34	98-100	15	147
16	103	16	108	16	128	16	115	35-36	102-104	16	155
17	106	17	112	17	134	17	120	37-38	106-108		
18	109	18	117	18	140	18	125	39-40	110-108		
19	112	19	122	19	145	19	130	41-42	115-117		
20	115	20	126	20	152	20	135	43-44	119-122		
21	119	21	131	21	158	21	140	45-46	124-27		
22	123	22	136			22	145	47-48	129-31		
23	128	23	140			23	150	49-50	133-36		
24	132	24	145			24	155	51-52	138-40		
25	136	25	150					53-54	143-45		
26	141	26	155					55-56	148-50		
27	145							57-58	152-55		
28	149										
29	154										
30	158										

PERFORMANCE

Picture		Block		Object		Coding		Maze	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	55	1-2	55-60	1-2	55-56	1-2	55-56	1	55
2	58	3-4	64-68	3-4	58-61	3-5	56-58	2	58
3	62	5-6	72-75	5	63	6-9	58-61	3	62
4	65	7-8	87-89	6	65	10-13	61-64	4	65
5	68	9-10	91-93	7	67	14-18	64-68	5	69
6	72	11-12	95-96	8	69	19-24	68-73	6	72
7	75	13-14	98-100	9	71	25-27	73-75	7	75
8	81	15-16	102-103	10	73	28-29	78-81	8	77
9	89	17-18	104-106	11	75	30-31	85-87	9	79
10	100	19-20	107-108	12	81	32-33	88-90	10	81
11	106	21-22	110-111	13	86	34-35	92-93	11	83
12	113	23-24	113-114	14	90	36-37	95-97	12	85
13	119	25-26	115-17	15	93	38-39	98-100	13	90
14	126	27-28	120-22	16	96	40-41	102-103	14	95
15	132	29-30	125-28	17	100	42-43	105-106	15	100
16	139	31-32	130-32	18	103	44-45	108-110	16	107
17	145	33-34	135-37	19	106	46-47	111-13	17	115
18	152	35-36	140-43	20	109	48-49	115-17	18	121
19	158	37-38	145-47	21	112	50-51	118-20	19	128
		39-40	150-52	22	115	52-53	122-24	20	135
		41-42	155-57	23	119	54-55	126-27	21	141
		43-44	160-62	24	123	56-57	129-31		
		45	165	25	127	58-59	133-35		
				26	131	60-61	137-38		
				27-28	134-38	62-63	140-42		
				29-30	141-45	64-65	144-46		
				31-32	149-54	66-70	147-55		

12 YEARS

CONVERSION OF RAW SCORES TO PERCENTILE I.Q.'s or T.Q.'s.

VERBAL

Infor		Comp.		Arith		Simil.		Vocab.		Digit	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1-2	55-57	1	53	1	55	1	55	1-4	55-58	1	55
3-4	59-62	2	55	2	59	2	59	5-9	58-62	2	59
5-6	64-66	3	61	3	62	3	63	10-13	62-65	3	62
7	69	4	64	4	66	4	67	14-17	65-68	4	66
8	71	5	67	5	69	5	71	18-22	68-72	5	69
9	73	6	70	6	73	6	75	23-26	72.75	6	73
10	75	7	72	7	75	7	79	27-28	78-80	7	75
11	80	8	75	8	79	8	83	29-30	82-85	8	80
12	85	9	77	9	82	9	87	31-32	87-89	9	85
13	87	10	79	10	85	10	90	33-34	90-92	10	93
14	90	11	81	11	94	11	93	35-36	93-95	11	100
15	92	12	83	12	104	12	97	37-38	97-98	12	107
16	95	13	85	13	115	13	100	39-40	100-102	13	115
17	97	14	89	14	125	14	104	41-42	103-105	14	121
18	100	15	92	15	135	15	108	43-44	106-108	15	129
19	104	16	96	16	145	16	111	45-46	109-110	16	136
20	108	17	100	17	155	17	115	47-48	112-14	17	145
21	111	18	105	18		18	119	49-50	115-17	18	153
22	115	19	110			19	123	51-52	119-20	19	160
23	119	20	115			20	127	53-54	123-25		
24	122	21	120			21	132	55-56	128-30		
25	126	22	125			22	135	57-58	132-34		
26	130	23	129			23	139	59-60	136-39		
27	133	24	134			24	143	61-62	141-43		
28-29	137-41	25	138			25	147	63-64	145-47		
30-31	145-48	26	143			26	151				
32-33	152-56	27-28	148-54			27	155				

PERFORMANCE

Picture		Block		Object		Coding		Maze	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	55	1-2	55-58	1-2	55-56	1-4	55-58	1	55
2	58	3-4	62-65	3-4	57-59	5-8	59-62	2	57
3	62	5-6	68-72	5	60	9-12	63-66	3	59
4	65	7-8	75-77	6	62	13-16	67-70	4	61
5	68	9-10	78-80	7	63	17-20	71-74	5	63
6	72	11-12	82-83	8	65	21-22	75-76	6	65
7	75	13-15	85-87	9	67	23-24	77-78	7	67
8	85	16-18	89-91	10	68	25-26	79-80	8	69
9	90	19-20	92-94	11	70	27-28	81-82	9	71
10	95	21-22	95-96	12	72	29-30	83-84	10	73
11	100	23-24	98-99	13	73	31-32	85-86	11	75
12	107	25-26	100-101	14	75	33-34	88-89	12	78
13	115	27-28	103-104	15	80	35-36	90-91	13	81
14	121	29-30	105-107	16	85	37-38	93-94	14	85
15	127	31-32	108-109	17	88	39-40	95-96	15	91
16	133	33-34	111-12	18	91	41-42	98-99	16	97
17	139	35-36	114-15	19	94	43-44	101-103	17	104
18	145	37-38	117-18	20	97	45-46	105-107	18	111
19	152	39-40	120-22	21	100	47-48	109-111	19	119
20	158	41-42	124-26	22	104	49-50	113-15	20	127
		43-44	127-29	23	108	51-52	117-19	21	135
		45-46	131-33	24	112	53-54	121-23		
		47-48	134-36	25	116	55-56	125-27		
		49-50	138-40	26	121	57-58	130-33		
		51-52	141-43	27-28	126-31	59-60	135-37		
		53-54	145-48	29-30	135-40	61-62	140-42		
		55-56	149-51			63	145		
		57-58	153-55						

13 YEARS

CONVERSION OF RAW SCORES TO PERCENTILE I.Q.'s or T.Q.'s.

VERBAL

Infor		Comp.		Arith		Simil.		Vocab.		Digit	
R.S.	T.Q.	R.S.	T.Q.	R.S.	T.Q.	R.S.	T.Q.	R.S.	T.Q.	R.S.	T.Q.
1-2	55-57	1	55	1	55	1	55	1-3	55-57	1	55
3-4	58-61	2	58	2	58	2	59	4-5	57-58	2	58
5	62	3	60	3	61	3	63	6-9	58-61	3	62
6	64	4	63	4	64	4	67	10-12	61-63	4	65
7	66	5	65	5	67	5	71	13-16	63-66	5	68
8	68	6	68	6	70	6	75	17-19	66-68	6	72
9	69	7	70	7	73	7	78	20-23	68-71	7	75
10	72	8	73	8	77	8	82	24-28	71-75	8	80
11	74	9	75	9	81	9	85	29-30	80-85	9	85
12	75	10	77	10	85	10	88	31-32	87-89	10	92
13	79	11	80	11	92	11	91	33-34	90-92	11	100
14	83	12	83	12	100	12	94	35-36	94-96	12	107
15	87	13	85	13	107	13	97	37	98	13	115
16	90	14	88	14	115	14	100	38	99	14	121
17	93	15	91	15	122	15	104	39-43	101-105	15	128
18	96	16	94	16	129	16	107	44	107	16	135
19	99	17	97	17	136	17	111	45	109	17	142
20	102	18	100	18	144	18	115	46-48	110-12	18	150
21	106	19	105	19	150	19	119	49-50	114-15	19	156
22	109	20	111	20	157	20	124	51-52	117-19		
23	114	21	116			21	128	53-54	121-23		
24	117	22	122			22	132	55-56	125-27		
25	121	23	127			23	137	57-58	130-32		
26	125	24	133			24	141	59-60	134-36		
27	129	25	139			25	146	61-62	136-40		
28-29	132-35	26	145			26	150	63-64	142-44		
30-31	140-45	27	150			27	155	67-68	150-52		
32-33	150-55	28	156					69	155		

PERFORMANCE

Picture		Block		Object		Coding		Maze	
R.S.	T.Q.	R.S.	T.Q.	R.S.	T.Q.	R.S.	T.Q.	R.S.	T.Q.
1	55	1-2	55-58	1-3	55-57	1-2	55-57	1	55
2	58	3-4	60-63	4-7	57-60	3-4	58-59	2	57
3	62	5-6	65-68	8-9	60-61	5-6	60-62	3	59
4	65	7-8	70-73	10-11	62-63	7-8	63-64	4	61
5	68	9-10	75-77	12-14	63-65	9-10	65-66	5	63
6	72	11-12	80-83	15-17	65-67	11	68	6	65
7	75	13-15	85-87	18-20	67-69	12	69	7	67
8	80	16-20	88-92	21-23	69-71	13	70	8	69
9	85	21-23	94-96	24-25	72-73	14	71	9	71
10	90	24-26	97-99	26-28	73-75	15	73	10	73
11	95	27-29	100-101	29-30	77-79	16	74	11	75
12	100	29-31	103-105	31-32	80-82	17	75	12	80
13	106	32-33	107-108	33-36	84-87	18	87	13	84
14	112	34-37	110-13	37-40	88-91	19	89	14	88
15	117	38-39	115-16	41-42	92-93	20	92	15	92
16	123	40-41	118-20	43-44	94-95	21	95	16	96
17	129	42-43	122-24	45-47	96-98	22	97	17	100
18	134	44-45	126-28	48-49	99-100	23	100	18	104
19	139	46-47	130-31	50-51	102-104	24	104	19	115
20	145	48-49	134-35	52-53	106-108	25	107	20	122
21	151	50-51	137-39	54-55	110-112	26	111	21	130
22	156	52-53	141-43	56-58	113-117	27	115		
		54-55	145-47	59-60	120-122	28	120		
		56-57	150-52	61-63	124-128	29	125		
		58	155	64-66	131-135	30	130		
				67-68	137-140	31-32	135-140		
						33-34	145-150		

14 YEARS

CONVERSION OF RAW SCORES TO PERCENTILE I.Q.'s or T.Q.'s.

VERBAL

Infor		Comp.		Arith		Simil.		Vocab.		Digit	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1-2	55-57	1	55	1	55	1	55	1-3	55-57	1	55
3-4	59-60	2	57	2	58	2	59	4-6	57-59	2	58
5	62	3	59	3	61	3	62	7-9	59-61	3	61
6	64	4	62	4	63	4	65	10-12	61-63	4	63
7	66	5	64	5	66	5	68	13-15	63-65	5	66
8	68	6	66	6	69	6	72	16-18	65-67	6	69
9	70	7	68	7	72	7	75	19-21	67-69	7	72
10	71	8	71	8	75	8	78	22-24	69-71	8	75
11	73	9	73	9	79	9	82	25-26	71-72	9	85
12	75	10	75	10	83	10	85	27-28	72-73	10	92
13	77	11	77	11	89	11	89	29-31	73-75	11	100
14	79	12	79	12	97	12	93	32-33	78-82	12	108
15	81	13	81	13	104	13	96	34-35	85-87	13	115
16	83	14	83	14	112	14	100	36-37	89-91	14	122
17	85	15	85	15	120	15	104	38-39	93-94	15	130
18	89	16	89	16	129	16	107	40-41	95-96	16	138
19	92	17	94	17	136	17	111	42-43	100-101	17	145
20	96	18	98	18	144	18	115	44-45	103-104	18	153
21	100	19	103	19	152	19	119	45-47	106-107	19	161
22	105	20	110	20	160	20	123	48-49	109-110		
23	111	21	116			21	128	50-51	112-113		
24	116	22	122			22	132	52-54	115-119		
25	122	23	129			23	136	55-60	120-132		
26	127	24	135			24	140	61-63	132-136		
27	132	25	141			25	145	64-69	137-147		
28-29	138-43	26	148			26	150	70-71	150-152		
30-31	149-45	27-28	154-60			27-28	155-160	72	155		

PERFORMANCE

Picture		Block		Object		Coding		Maze	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	55	1-3	55-59	1-2	55-56	9-10	59-60	1	55
2	58	4-7	62-68	3-4	58-59	11-12	60-61	2	57
3	62	8-10	71-75	5-6	60-61	13-14	61-62	3	59
4	65	11-12	76-77	7-8	62-63	15-16	62-63	4	60
5	68	13-16	79-82	9	65	17-18	63-64	5	62
6	72	17-19	84-86	10	66	19-20	64-65	6	64
7	75	20-21	88-89	11	67	21-22	65-66	7	65
8	78	22-24	91-93	12	68	23-24	66-67	8	67
9	82	25-26	95-96	13	69	25-26	67-78	9	68
10	85	27-28	98-99	14	71	27-29	68-70	10	70
11	90	29-32	101-104	15	72	30-31	70-71	11	72
12	95	33-38	106-111	16	73	32-33	71-72	12	73
13	100	39-41	113-115	17	75	34-35	72-73	13	75
14	105	42-43	117-118	18	78	36-37	73-75	14	80
15	111	44-45	120-121	19	82	38-44	77-89	15	85
16	117	46-47	123-124	20	85	45-46	90-92	16	92
17	122	48-50	126-128	21	88	47-49	93-97	17	100
18	128	51-52	130-131	22	92	50-51	98-100	18	107
19	134	53-54	133-134	23	96	52-53	101-103	19	115
20	139	55-56	136-137	24	100	54-55	104-105	20	122
21	145	57-58	139-140	25	105	56-57	107-108	21	130
22	151	59-60	142-143	26	110	58-59	110-111	22	137
23	157	61-62	145-150	27	115	60-62	113-115	23	145
				28	121	63-64	117-119	24	152
				29	127	65-68	122-128	25	160
				30	134	69-71	131-135		
				31-32	140-145	72-73	138-140		
				33-34	151-157				

15 YEARS

CONVERSION OF RAW SCORES TO PERCENTILE I.Q.'s or T.Q.'s.

VERBAL

Infor.		Comp.		Arith		Simil.		Vocab.		Digit	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1-2	55-57	1	55-57	1	55	1	55	1-3	55-57	1	55
3-4	59-60	3-4	59-60	2	58	2	58	4-6	57-59	2	58
5-6	62-63	5-6	62-63	3	61	3	61	7-10	59-62	3	61
7-8	65-67	7	65	4	63	4	63	11-13	62-64	4	63
9-10	68-70	8	67	5	66	5	66	14-17	64-67	5	66
11	72	9	68	6	69	6	69	18-20	67-69	6	69
12	73	10	70	7	72	7	72	21-24	69-72	7	72
13	75	11	72	8	75	8	75	25-28	72-75	8	75
14	78	12	73	9	80	9	78	29-30	77-78	9	83
15	82	13	75	10	85	10	82	31-33	80-82	10	90
16	85	14	80	11	90	11	85	34-36	84-88	11	98
17	88	15	85	12	95	12	89	37-40	91-97	12	104
18	90	16	89	13	100	13		41-44	100-103	13	112
19	92	17	93	14	106	14	98	45-48	105-108	14	118
20	95	18	96	15	114	15	102	49-52	109-112	15	125
21	97	19	100	16	121	16	106	53-56	113-116	16	132
22	100	20	105	17	129	17	111	57-58	118-119	17	139
23	103	21	111	18	136	18	115	59-60	120-121	18	146
24	107	22	116	19	143	19	120			19	153
25	110	23	122	20	151	20	125			20	160
26	113	24	127	21	158	21	130				
27	117	25	133			22	135				
28-29	120-24	26	138			23	140				
30-31	128-31	27	144			24	145				
32-33	135-38	28	149			25	150				
34-35	142-46	29	155			26	155				
36-37	150-54					27	160				

PERFORMANCE

Picture		Block		Object		Coding		Maze	
R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.	R. S.	T. Q.
1	55	1-2	55-57	1-2	55-56	15-16	62-63	1	55
2	58	3-4	58-60	3-4	58-59	17-18	63-64	2	57
3	61	5-6	61-63	5-6	60-61	19-20	64-65	3	59
4	64	7-8	64-66	7-8	63-64	21-22	65-66	4	60
5	66	9-10	67-69	9-10	65-66	23-24	66-67	5	62
6	69	11-12	70-72	11-12	67-69	25-26	67-68	6	64
7	72	13-14	73-75	13	70	27-29	68-70	7	65
8	75	15-17	77-79	14	71	30-31	70-71	8	67
9	85	18-19	81-82	15	72	32-33	71-72	9	69
10	89	20-22	84-86	16	74	34-35	72-73	10	70
11	92	23-25	88-90	17	75	36-38	73-75	11	72
12	96	26-27	92-93	18	86	39-43	77-85	12	74
13	100	28-29	95-96	19	91	44-45	86-88	13	75
14	105	30-31	98-99	20	95	46-47	89-90	14	80
15	110	32-35	101-104	21	100	48-49	92-93	15	85
16	115	36	106	22	103	50-51	95-96	16	92
17	120	37	107	23	106	52-53	98-99	17	100
18	125	38	108	24	110	54-58	101-105	18	107
19	130	39-42	110-113	25	113	59-62	107-110	19	115
20	135	43-44	115-116	26	116	63-65	112-114	20	122
21	143	45-47	118-120	27	120	66-67	116-117	21	130
22	146	48-59	122-123	28	123	68-69	119-120	22	138
23	151	50-51	125-126	29-30	126-130	70-72	122-124	23	146
24	157	52-54	128-130	31-32	133-136	73-74	126-127	24	154
		55-58	132-138	33-34	140-143	75-76	129-130		
		59-62	140-146	35-36	146-150	77-78	132-133		
		63-64	149-151	37-38	153-156	79-80	135-137		
		65-66	152-155			81-90	138-156		
		67-68	158-160						

INTELLIGENCE SCALE FOR INDIAN CHILDREN (ISIC)

Dr. A. J. Malin M. A., M.Ed. Ph.D.

ADAPTATION OF WISC

DIRECTOR FOR ADMINISTRATION OF THE ISIC

I. INFORMATION TEST

Directions : Read each question as stated and in the order given, If responses are not clear it is permissible to say: Explain more : tell me more about it : or some such neutral non-leading questions. Question 1-5 are used for those below 8 years or suspected mental; defectives. Acceptable answers are indicated in Parentheses.

Scoring : Discontinue after five consecutive failures and credit with items 1-5 if subject passes 6-7 and 8. Each item is scored 1 or 0.

TEST QUESTIONS

1. How many ears have you ?
2. What do you call this finger (show thumb)?
3. How many legs has a dog ?
4. What animal gives us milk ?
5. How do we make boil ? (Apply heat, etc.)
6. Where will you go to buy sugar (ribbons-girls) ? (market, kirana, local shop's name etc.)
7. How many paise in a rupee?
8. How many days in a week ?
9. Where does the sun set ?
10. Which are the seasons of the year (in India) ? (at least cold, hot, rainy)
11. Which is the top or upper colour of the Flag of our country (read, orange etc.)
12. When do we celebrate (keep) Independence Day ? (if too close, substitute)

    What is the colour on January 26 ?
13. What is the colour of the pearl? (white)
14. What is the work of the stomach? (mixes, grinds, digests).
15. Why do we honour Gandhiji as the Father of India ? (Independence labour.)

16. Why does oil float on water? (lighter)
17. What was the capital of old Mogul empire. (Agra, Delhi)
18. What is Sanskrit ? (imply ancient or sacred Indian language)
19. How tall is the average (ordinary) indian man ? (5ft. 4 inches-3" leeway)
20. In what part of the world do we find India ? (Asia; Northern or Eastern Hemisphere).
21. Who composed the national anthem (Jana gana mana) ?
22. Where is Singapore ? (Malaya : S. E. Asia; near Borneo, Australia, etc.)
23. How many thousands are there in a lakh ?
24. Who was the first European or foriegn invader to come into India ?

    (Alexander, Vasco da Gama)
25. What is the distance between Bombay and Calcutta ? (1000-300 miles)
26. What is Borometer ? (measures airpressure, heights; predicts weather)
27. What (or, why) do we celebrate on Republic Day ? (Constitution, abolition of monarchy, Notion of Independence not enough)
28. How do we get kerosen ? (imply process from crude oil)
29. Who was Chenghis Khan ? Chinese or Mongol-not Mogul-Ruler)
30. What is the meaning of V. P. P. ? (Value payable percel, or a correct description of it.)

II. GENERAL COMPREHENSION TEST

Directions : Repeat questions if needed and encourage with remarks such as "Yes, Go ahead" and in case additional credited reasons are expected as in 6-14 "Yes, and also because .....

Scoring : Discontinue after 3-consecutive failures. Scores are graded from 2, 1 to 0. See criteria scoring samples. below.)

TEST QUESTIONS

1. What should you do if you cut your finger ? For example. while sharpening a pencil.)
2. What would you do if your Mother sends you to buy sugar and the shopkeeper says he does not have anymore ?

3. What would you do if a boy (girl) smaller than you starts to fight with you ?

4. What should you do if through your own fault the ball (doll) of your friend is lost and you cannot find it ?

5. What should you do if you found a railway line broken and at the same time noticed a train about to come ?

---

6. Instead of spending all your money, why would it be better to save some, for example in a bank ?

7. What good is it to send criminals to jails to prisons ?

8. Why does the small shopkeeper prefer cash to giving credit ?

9. Why should we respect and obey those who teach us ?

10. Why should we be kind to animals ?

11. Why should Goverment set examinations when selecting job applicants ?

12. Why is bad to break a promise ?

13. Why it is wrong to steal ?

14. Why is a Parliament needed in our system of Government ?

CRITERIA AND SCORING SAMPLES

Items : 1-5 are scored 2 points if Subject assumes personal responsibility for what is done. Allow 1 point only ifresponsibility is shirked but S. knows what is to be done. Items 6-14 allow 2 points for 2 good reasons and 1 point if only one can be given. Do not allow religious reasons.

1. Cut : 2 = apply medicine' cleanse; etc. 1 = See Doctor. 0 = Cry.
2. Sugar : 2 = Go to another; Go to another; 1 = Go home and tell. (Q)
3. Fight : 2 = Dont hit back; report 0 = hit back
4. Ball : 2 = replace. 1 = Say Sorry (Q)
5. Train : 2 = Some kind of warning 1 = Tell Station Masters 0 = Tell police.
6. Bank : Safety ; interest; future needs; encourage thrift.

7. Jails : Stop evil; punish; community safety ; teach lesson.
8. Cash : Small customer forgets; cheated.
9. Teachers; Elders; place of parents; help us ; wiser.
10. Animals : Dumb and helpness; useful; sensitive like ourselves.
11. Jobs : Select fit ones; give equal chance to all.
12. Promise : Lose repute; spoil character; harm others.
13. Steal : Unjust possession and profit; harmful deprivation.
14. Parliament : Popular representation; brings Government closer.

III. ARITHMETIC TEST

Directions : Problems 1, 2, 3, are for subjects below 8 yrs. or suspected mental defective. Problems 4-12 and 16 are read to the subject and 13, 14, 15 are presented on cards to be read by the subject. Timing starts ater stating the problem the first time. Repetitions are at the expense of the subject's timing. Discontinue after 3 consecutive failures. No paper work allowed. Names and problem items can be adapted to local conditions and prices. Figures must not be changed. Second trails allowed within time limit.

Scoring : 1 or 0. Give credit for first three if subject works out 4 and 5.

PROBLEMS -TIMINGS-ANSWERS

1.	Place 9 blocks (or coins) in a row saying : "Count these with your finger"	45"
2.	Rearrange the row saying : "Give 4 blocks to me"	45"
3.	Rearrange as above saying : " Take 7 and give me the rest"	45"
4.	If I break this (pencil) in half, how many pieces will there be ?	30"
5.	Prem has 4 rupees. Mummy gives him 2 more. How many has he ?	30"
6.	Rita has 8 bananas and buys 6 more. How many has she ?	30"
7.	Teacher has 12 books and sells 5. How many has she left ?	30"
8.	If one pencil costs 7 p. what will 3 pencils cost ?	30"

9. A Milkman has 25 bottles of milk, he sold all. How many bottles had the left ? 30

10. A workman after finishing his job was given Rs. 36 for his pay. He had agreed for Rs. 4 each day. Tell me how many days he worked. 30

11. Let us say you want to buy some marbles (ribbons). They cost 30 (make this distinct from 13) paise a dozen. Now you have a rupee and want to buy 3 dozen. How much change will you receive ? (10p.) 60

12. Four boys (girls) have gathered 72 marbles (flowers). If they divide them equally, how much will each get ? (18) 30

(Present the following 3 problems on separate cards to be read)

13. If 3 pencils cost 5 paise, what will 24 pencils cost ? (40) 60

14. If bus fare is 20 paise for the first quarter mile and only 5 paise for each other quarter mile; what will be the fare for 2 miles ? (55) 120

15. Prem and Raj start a marble game with 27 marbles each. They agree that at the end of each game, the loser must give up one third of what he has left. 120

Now, Prem wins three games. How much has Raj left for the 4th game ? (8) 120

16. 36 is two-thirds of what whole number? (54) 30

IV. ANALOGIES AND SIMILARITIES

Direction Analogies :– For subjects under 8 years. Before reading each item say : " Now listen carefully as I am going to read you a sentence which you must finish. " Score 2 for each correct analogy.

ANALOGIES TEST

1. Lemon are sour, but sugar is .....
2. You walk with your legs and throw with your.....(hand, arm)
3. Boys grow up to be men and girls grow up to be .....
4. A knife and a piece of glass can both .....

SIMILARITIES TEST

Direction :–Say : "In what way are a mango and a banana alike ?" If the Subject fails or denies a similarity then coach him on all score grades and try the next Cat and Mouse. If he fails again explain for the last time and discontinue after 3 consecutive failures, or return to Analogies.

Scoring :–Grade from 2 to 1 and 0. See Below for Grades. Give credit for 4 analogies if subject earns at least 4 points on Similarities.

TEST ITEMS

5. Mango-Banana (or other familiar fruits).
6. Cat - Mouse
7. Organ-Flute (Similar instruments such as a Harmonium or mouth organ may be substituted).
8. Milk-Medicine.
9. Ruler (e. g. foot) — Scale (weights).
10. Scissors - brass pot (vase).
11. Paper-Coal (Charcoal).
12. Salf-Water.
13. Mountain-Lake
14. Liberty-Justice.
15. First-Last
16. Numbers 49 and 121.

GRADES AND SCORING SAMPLES

5. Mango : 2 = fruits 1 = both round; have skin; seeds; food. 0 = Sweet, from tree.
6. Cat : 2 animals creatures; 1 = four legs: eyes; both eat. 0 = chase
7. Organ : 2 = both wind or musical insturments 1 = play them both ; have keys ; tubes. Both gives tunes. 0 = both gives noise.

8. Milk : 2 = both are good for health; good to take; 1 = consumables (drink)
9. Ruler : 2 = both measure ; 1 = both have numbers 0 = made of same thing.
10. Seissors : 2 = both made of metal utensil. 1 = made of iron, steel.
11. Paper : 2 = carbons; originate from trees. 1 = both burn;
12. Salt : 2 chemical compound; necessary for life. 1 = for cooking.
13. Mountain : 2 = geographical or natural features of landscape; common origin. 1 = both are scenery, landscape.
14. Liberty : 2 = social ideal, or rights, 1 = relate to Government : needed for the country. have to do with law 0 = mean pease.
15. First : 2 = extremes of position; position in a series or rank. 1 = both odd numbers; cannot be divided by 2.0 = Both are numbers.
16. 49 : 2 = perfect squares or odd number square roots. 1 = both odd numbers; cannot be divided by 2.0 = Both are numbers.

V. VOCABULARY TEST

Directions :–Say : "I want to see how many words you know. Tell me now for example what CYCLES means. What is a cycle ?" If response is vague or has only the score value of I then question further, (Q) for example, "What else does is mean ? Explain a little more".

Scoring :–Discontinue after 5 consecutive failures. Each word is scored 2, 1 or 0 except words, I through 6 are scored only 2 or 0. Criteria and example of marginal responses are found below. Subjects may be started with 10 and credited with 2 points for the previous unless subject fails to give 2 point defintions from 10 to 14, in which case proceed backwards until 5 consecutive 2 point successes are met, then return and continue from the first failed 2 pt.

TEST WORDS

1.	Cycle	11.	Hammer	21.	Martyr	31.	Bail
2.	Knife	12.	Mischief	22.	Editor	32.	Apprentice
3.	Shoe (Chappal)	13.	Gold	23.	Ambassador	33.	Affiction
4.	Umberella	14.	Meet	24.	Auction	34.	Boycott
5.	Pillow	—		25.	Stanza	35.	Aseptic
6.	Letter	15.	Clever	26.	Proverb	36.	Nitroglycerine
	—	16.	Diamend	27.	Anonymous	37.	Spangle

7. Nail	17. Brave	28. Shameful	38. Hari-kiri
8. Donkey	18. Shilling	29. Buoy	39. Mantis
9. Leather	19. Gambling	30. Atheist	44. Sedition
10. Sword	20. Microscope		

VOCABULARY GENERAL CRITERIA

A. 2 point responses can be, a good synonym or translation; a major use e.g. Donkey-carries stones, laundry : one or more Primary features : e. g. long ears; small horse : a genetic classification, e. g. animal or finally less definitive but correct cumulative description e. g. four legs, very short, brays, etc.

B. 1 point responses can be vague synoyms e.g. Nail-tool; a minor use not elaborated e.g. sword-something to cut with; a correct but non-distinguishing attribute e.g. donkey got tail or giving an example of the use of the word e.g. Nail-pounding the nail into the wall; hanging a calendar on it.

SAMPLE RESPONSES

1.	Cycle	:	2	=	What you ride on. It has wheels, etc.
2.	Knife	:	2	=	To cut bread. Is sharp; has a point
3.	Shoe	:	2	=	Wear it. Made of leather. A boot.
4.	Umbrella	:	2	=	For rain, sun. Put over the head. Is round with a handle.
5.	Pillow	:	2	=	To rest the head; for sleeping. Has cotton inside.
6.	Letter	:	2	=	Post card. Write to friend, We send it. Postman brings it.
			0	=	Writing. Paper with writing
7.	Nail	:	2	=	pound into wood; has a point, On our finger.
			1	=	It is iron, sharp, Used to hang calendars. Pound into walls.
8.	Donkey	:	2	=	Small horse; carries clothes, stupid animal, animal; brays.
			1	=	like a horse; got a tail;
9.	Leather	:	2	=	skin; makes shoes; from animals.

10.	Sword	:	2	=	Fight with it ; it kills; has a point; like a knife.
			1	=	to cut with; is sharp, 0 = cuts bread.
11.	Hammer	:	2	=	to pound with ; tool; iron with handle.
			1	=	to hammer anils ; carpenter uses it ; breaks coal.
12.	Mischief	:	2	=	naughty : fooling; trouble someone; describe such an act.
			1	=	very bad;
13.	Gold	:	2	=	precious metal : is very valuable ; make rings, ornaments of it.
			1	=	It shines; a gold necklace.
14.	Meet	:	2	=	Join; together; to see, visit, greet someone
			1	=	to meet a friend; to play with one.
			0	=	meet somebody; a meeting
15.	Clever	:	2	=	Smart ; cannot be tricked or fooled. very tricky.
			2	=	Bright, intelligent, good in school, good brain.
16.	Diamond	:	2	=	sparking, shiny stone, very valuable, piece of jewelry; hardest substance, carbon.
			1	=	glass; diamond ring; play cards with, square shape, shines.
			0	=	stone, metal.
17.	Brave	:	2	=	Can fight everyone and in wars ;
			1	=	brave in fighting; strong and clever ; tiger is brave.
18.	Shilling	:	2	=	English coin or money; part of a pound.
			1	=	Foreign, American, olden money.
			0	=	silver coin, a rupee, money.
19.	Gambling	:	2	=	play with money; win on luk; to bet.
			1	=	waste money; gamble money ; 0-to play cards; it is bad.
20.	Microscope	:	2	=	to see germs and insects; makes them big (many items).
			1	=	something to see.

21. Martyr	:	2	=	dies for faith or country. Gandhiji. 0 = Saint.
22. Editor	:	2	=	Selects for publication or writes editorials,
		1	=	Publishes, prints, writes for newspaper, head of newspaper.
		0	=	Writes (Q).
23. Ambassador	:	2	=	Sent by King to make peace; carries messages to another country; represents.
		1	=	Does work in another country :
24. Auction	:	2	=	Sale by bidding;
		1	=	Public sale; selling old things; American auction.
		0	=	Selling.
25. Stanza	:	2	=	Part of poem ; veese ; part of a song ; paragraph in poetry.
		1	=	A poem; some lines; a paragraph.
26. Proverb	:	2	=	A saying ; sentence with a moral ;
		1	=	Sentence from olden time ; from the Bible;
27. Anonymous	:	2	=	Without name of author. 1 = no name ; unknown.
28. Shameful	:	2	=	A low feeling; want to hide; made shy; can't be proud of.
		1	=	a bad thing ;
		0	=	thing full of shame.
29. Buoy	:	2	=	Float to warn ships or mark places; to save from drawning.
		1	=	Bell-buoy; something floating; 0 = Life-Buoy soap.
30. Atheist	:	2	=	Unbeliever; without religion. 1 = Does not pray or believe in Christ.
31. Bail	:	2	=	Jail release money : used in cricket; take out water.
		1	=	Money.
32. Apprentice	:	2	=	Learns trade;
		1	=	Assistant.
33. Affiction	:	2	=	Sorrow, hurt.
		1	=	afficted with disease; infection.
34. Boycoot	:	2	=	to stop byuing from or going to a place out of protest.
		1	=	to put out (British).
35. Aseptic	:	2	=	without germs 1 = medicine to cleanse : not septic
36. Nitroglycerine	:	2	=	Explosive. 1 = dangerous chemical.
37. Spangle	:	2	=	sort of sequin, shiny thing on clothes. 1 = shiny ornament.

38.	Hara-Kiri	:	2	=	Jap method of suicide.
			1	=	to kill in Japan or China.
39.	Mantis	:	2	=	Insect - like grasshopper. 1 - An insect.
40.	Sedition	:	2	=	Excite rebellion to Government.
			1	=	Break laws.

VI. DIGIT SPAN TEST (Alternate)

DIGIT SPAN FORWARDS

Directions : "I am going to say some numbers. Listen carefully and when I am finished repeat them after me" (one per second). If subject repeats trail I of a series then go on to next higher number in same Trial. If he fails then give a second chance from Trail II. Discontinue if fails on both Trails of a given series.

Scoring : His score is the highest number of digits repeated without error. Thus if he only repeated five digits his score is 5. Total score combines forward and backward.

Series	Trial I	Trial II
3	3—8—6	6—1—2
4	3—4—1—7	6—1—5—8
5	8—4—2—3—9	5—2—1—8—9
6	3—8—9—1—7—4	7—9—6—4—8—3
7	5—1—7—4—2—3—8	9—8—5—2—1—6—3
8	1—6—4—5—9—7—6—3	2—9—7—6—3—1—5—4
9	5—3—8—7—1—2—4—6—9	4—2—6—9—1—7—8—3—5

DIGIT SPAN BACKWARDS

Directions : "Now I am going to say some more number but this time when I stop you say them backwards." Give an example and let the subject try. Scoring and directions as in the above.

Series	Trial I	Trial II
2	2—5	6—3
3	5—7—4	2—5—9

4	7—2—9—6	8—4—9—3
5	4—1—3—5—7	9—7—8—5—2
6	1—6—5—2—9—8	3—6—7—1—9—4
7	8—5—9—2—3—4—2	4—5—7—9—2—8—1
8	6—9—1—6—3—2—5—8	3—1—7—9—5—4—8—2

VII. PICTURE COMPLETION

Directions : Before presenting the first card say : "I am going to show you some pictures in which there is a part missing. Look carefully at the card and tell me what important part is missing." The Subject can be helped in the first two cards but without geeting a score. Pointing to the missing part can also be credited. If S. point to, e. g. coat pocket, say "Yes, but something else ismissing."

Timing and Scoring—Discountinue after 4 failures. 15 seconds are allowed for each picture, and one point for each correct response except with the last five pictures when an extra bonus score is credited if at least 3 of the last five are correct. Totoal miximimum score 20.

TEST PICTURES AND CORRECT RESPONSES

1. Comb.....tooth (teeth)
2. Fox ..... ear
3. Girl.....mouth
4. Table .....leg
5. Cat.....whiskers
6. Hand.....fingernail
7. Scissors.....screw
8. Coat.....buttonholes
9. Door.....hinge
10. Card.....centre spade
11. Rooster.....spur
12. Screw.....slot (crack)
13. Fish.....extra fin (dorsal)
14. Fly.....antennae
15. Profile.....eyebrow
16. Cow.....hoof cleft
17. Umbrella.....spokes
18. Thermometer.....mercury in bulb
19. House.....tree shadow.
20. Man.....

VIII. BLOCK DESIGN

Directions : For Subjects under 8 years.

Demonstrate Design A, then take 4 more blocks and tell subject to imitate (Not from card !) If fails, then correct (i.e. demonstrate) a second time with blocks of S. Score 2 pts. if first trail correct and 1 pt., if only second trail was passad. Arrange Design B behind a screen and proceed as in A. With design C, use Card and demonstrate without scren explaing how it agrees with the card. Then brush up pile for S to begin. Score as with A. Timings for A—C : 45."

Direction : For Subjects under 8 years and above

Take blocks say : "You see these blocks have different colours and they can be put together in a picture like this." Give four blocks to the Subject brushed up so that only one red colour faces upwards. Then say : "Now I am going to show you a picture made of red blocks and I want you to try to copy it as quikly as you can" Then show Card C and start timing. Second trail may be given on C also, but without credit. On designs 1-7 discontinue after 2 consecutive failures.

Scoring—Advance credit of 4 points is given for designs A., and B and 2 pts. more for passing C. Design C. Designs 1-7 give 4 points plus bouns or per table below. No points are given incomplete design 5-7 are made with 9 blocks and 2 brushed up red colours.

Design	1.....75".....	1-10" (7 points).....	11-15" (6 points)	16-20" (5 points)
,,	2..... ,, ...	1-10" (,,)	11-15" (,,)	16-20" (,,)
,,	3..... ,, ...	1-15" (,,)	16-20" (,,)	21-25" (,,)
,,	4..... ,, ...	1-10" (,,)	11-15" (,,)	16-20" (,,)
,,	5.. 150".....	1-35" (,,)	36-45" (,,)	46-65" (,,)
,,	6..... ,, ...	1-55" (,,)	56-69" (,,)	70-80" (,,)
,,	7..... ,, ...	1-55" (,,)	56-60" (,,)	61-90" (,,)

IX. OBJECT ASSEMBLY

Directions : Bouns allowed for speed. See table below :

MANIKIN.....120".....1-10" (7pts.) .... 11-15" (6pts.) ..... 16-20" (5pts.) .... 21-120" (4pts.)

Horse.....180"..... 1-15" (9pts.) .... 16-20" (8pts.) ..... 21-30" (7pts.) .... 31-180" (6pts.)

Face.....180"..... 1-35" (,,) .... 36-45" (,,) ..... 46-70" (,,) .... 71-180" (6pts.)

Car..... 180"..... 1-25" (,,) .... 26-30" (,,) ..... 31-45" (,,) .... 46-180" (,,)

MANIKIN : Directions—Arrange pieces behind a screen according to given diagram. Then say : "These pieces will make a boy. Go ahead and put them together."

Scoring Table—Perfect performance - 4 pts. or bouns.

Imperfect performances : No TIME bouns ! 2. pts. if legs omitted or put as arm.

3 pts. if legs interchanged or inverted. 1. I pt. if only trunk is correct.

HORSE : Directions same as for Manikin.

Scoring Table : Perfect - 6pts. or bonus.

Imperfect 5 pts. if only somach midpiece inverted

4 pts. if midpiece omitted or legs interchanged. 3 pts. if midpiece inverted and legs : 2 pts. if : omitted and : or 1 & 4. 1 pt. for each two peices joined properly.

FACE : **Directions** same as above EXCEPT no name of the object is revealed.

Scoring Table : Perfect - 6 pts. or bouns.

Imperfect : General 1/2 pt. for each proper joint seperate or joined to the whole.

5 pts. if eye inverted or hair pieces omitted (2 pieces) I pt. if only large half and hair (3 pieces).

AUTO : **Directions** same as for Face.

Scoring Table : Perfect - 6 pts. or bouns.

Imperfect : General 1 pt. for each proper joint as above.

5 pts. Door inverted or reversed. 4 pts. Omitting pieces 4 & 5 or omitting 7 3 pts. Omitting 7 and inverting or reversing 4 (door) also omitting 4, 5, 7. also interchanging 4 & 5 or omitting 7 3 pts. Omitting 7 and inverting or reversing 4 (door) also omitting 4, 5, 7. also interchanging 4 & 5 with 6.

X. CODING

Directions : for Subject under 8 years and suspected mental defectors,

Use Design A. Point to the row of stars, squares, etc, and say; "Look at these and see how each one has some mark inside. Now look at these samples and I want you to put in each figure the same mark that you find here in the top row. Here is a star so put this mark inside." After marking the first two or there samples let the subject fill in the remaining and then start timing when the samples have been finished.

Timing & Scoring—120 time limit and the score is the number of designs excluding he samples completed in that time. If finished before, then the following bonus table is used

101—110—46 pts. 71—80 —49 pts.

91—110—47 pts. 70 or less —50 pts.

Directions—for Subjects 8 years and above.

Use Desing B Point to the key and say—"Look and these boxes or square. See how each has a number in the upper half and a mark in the lower half. Each number has its own special mark. Now look at the samples. Here is a 2. soput in this mark (here write the symbol) and try the others until I tell you to stpo." Start timing when the samples have been completed. Watch out that the subject does not skip.

Timing & Scoring—120 seconds and 1 point for each correct square excluding the samples.

Note—For left hand subjects an extra folded code so that they do not obscure their vision.

XI. MAZES

Directions : Show the sample and with a pencil demonstrate saying : "Imagine someone trying to get out of here. He cannot cross the lines and you cannot lift the pencil once you start" Subjects above 8 years can start with C and be credited for A and B if not more than one error on C. Subjects below 8 years start with A. if fails on A or B then show correct procedure. Discontinue if 2 consecutive failures (0 scores). Timing printed beside each maze.

Scoring : A, B, C. - No errors - 2 pts. Not mor than 2 errors - 1 pt.

1-5. - No errors - 3 pts. First error substracts one point and the second error subtracts the second point but the third point is not substracted until the maximum allowed errors have been passed, viz.,

Nos. 1—	2	allowed	3	errors
	3	,,	5	,,
	4	,,	6	,,
	5	,,	8	,,

Avinashilingam Institute for HomeScience and Higher Education for Women
(Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD
Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC
Coimbatore - 641 043, Tamil Nadu, India

Appendix L2

(Item No 5 of Check List) Details of Research Publications

S.No	Article	Journal	Other Details Vol/No/Page No/ Year	Published in UGC-CARE / Scopus Indexed/ Web of Science
1.	Development and Validation of play-behaviour scale	AI in business; opportunities and limitations	229-241, 2024	Springer
2.	"Play behaviour of selected primary school children of Assam" Karishma Begum, M. Priya	The Journal of Research ANGRAU	Vol.no51(1) P.no. 103-112, 2023	UGC - CARE
3.	Play behaviour of primary school children; A descriptive research in Assam Karishma Begum, M. Priya	The Indian Journal of Home-Science	36(1):426-434, 2024	UGC - CARE

*Proof of list of Journals from Internet to be attached along with copies of reprints.

Scholar :

Supervisor :

Checked By:

HoD/Dean of Respective School

The scholar Miss. Karishma Begum (19PHHDF001) has published her research articles in the following journals:

1. The Journal of Research ANGRAU - indexed in UGC Care Group I and
2. The Indian Journal of Home Science - indexed in UGC Care Grp. I.

This may be considered.

06.09.24

Asst. Librarian.

The Indian Journal of Home Science 2024: 36(1)

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PLAY BEHAVIOUR OF PRIMARY SCHOOL CHILDREN: A DESCRIPTIVE RESEARCH IN ASSAM

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HSAI life membership no.-HSAI-2019-AS-424-LF

ABSTRACT

Play is crucial for the development of a child, through which children experiment with various ways to solve problems and learn to practice skills needed for social development as well as for enhancing creativity. This paper presents the play behaviour of children in primary schools in Biswanath, Assam. The aim of the study was to identify the type of play behaviour among primary school children in the age group of 6–8 years, who were selected through a random sampling method. A self-constructed questionnaire on play behaviour was used to find out about social and non-social play behaviour among children. This research explores the influence of living areas and siblings on children's play behaviour. The study found that the number of siblings in a family has a significant association with the play behaviour of children. Results found that children in rural areas are better at co-operative play than those in urban and semi-urban areas. It is also found that sibling interactions help children learn skills for interpersonal behaviour and social interaction and engage in social play rather than non-social play.

Keywords: Play behaviour, primary school children, sibling relation, living area.

INTRODUCTION

Play involves activities that are performed for self-amusement and also have behavioural as well as psychomotor rewards. Play promotes learning geared towards self-regulation, language, social competencies, and cognitive and versatile knowledge (NAEYC, 2020). It is well known that a child's playing with others is important to their development. Play provides a relationship between children and the environment that happens naturally and is uninhibited by imagination. In general, children have a natural tendency to play, which activates extensive use of their creativity and is, at the same time, safe and enjoyable. In addition, play is the basis for developmentally appropriate practice for children, which ensures the foundation for their learning (Frost and Sutterby, 2017). With the help of play, a child improves his social skills, relationships with others, self-awareness, cooperation, and negotiation abilities (Newton & Jenvey, 2011; Rentzou, 2014). Additionally, play behaviour determines the child's nature while playing with peers, and individual differences can also be drawn out of it. The play behaviour of children involves both social and non-social play. Social play occurs among pairs or groups of children when the child is motivated

to engage others in playing activities. The child is also interested in social play when he or she possesses the skills necessary to initiate interactions with other children. Parten's (1932) study characterised the developmental sequences of different aspects of children's play behaviour with respect to socialisation, which may range from immature to mature types of social play. For example, the developmental patterns of socialisation in children progress from onlooker play behaviour to parallel play and then to the most interactive social form of cooperative play (Sette et al., 2021). However, the children who are popular among peers and who like to always lead and coordinate the games are mostly involved in cooperative play behaviour (Mamat et al., 2021). In contrast, non-social play behaviour is defined as engaging in solitary activities and behaviours in the presence of other potential playmates. Young children who are shy may have a longing to play with peers, but sometimes due to feelings of social uneasiness and anxiety, they get stuck in the internal conflict that leads to constant watching of other children without showing interest in joining them, i.e., displaying onlooker behaviour or remaining unoccupied near other children (Coplan et al., 2021).

Whatever play behaviour a child adopts, it is crucial to identify the behaviour at a young age, as it determines the child's participation in play activities and also makes sense in development and learning as well. Allowing children time to play is a fundamental part of interacting with others, learning to solve problems, making decisions, remembering information, knowing their own feelings, and also knowing how to deal effectively with such feelings or emotions (Whitman, 2018). Engaging in social play behaviour is crucial because children learn to develop their relationships with others through play, which builds trust among peers and creates emotional bonds that last a lifetime. It also enhances communication skills in those children involved in social play. Furthermore, social play helps in learning skills to build strong bonds with peers, leading to a sense of belongingness outside of the home environment. The academic achievement of children also strongly depends on social skills. Children with good interpersonal skills are better prepared to succeed in school and afterwards. They can take part in group activities by cooperating with each other and also establish good relationships with teachers, which improves their academic environment. Lack of social skills in the early years can result in subsequent behavioural disorders that are both internalised and externalised, poor academic achievement, improper reconciliation of interpersonal relationships, educational and cognitive deficits, loneliness, and psychological problems. Therefore, identifying social and non-social play behaviours of children at an early age is of utmost importance for providing an appropriate environment to children who are lacking in acquiring good social skills to ensure a better educational outcome and a better future for children. Hence, the current study is intended to investigate "Play Behaviour of Primary School Children: A Descriptive Research in Assam" with the following objectives:

1. To identify social and non-social play behaviours of primary school children (6–8 years).
2. To find out if play behaviour differs based on the type of family and the number of siblings in the family.

HYPOTHESIS

1. There is no significant difference found in the play behaviour of children based on the type of family and the number of siblings in the family.

METHODOLOGY

The present descriptive study aimed to study the play behaviour of primary school children (6–8 years) based on living area, number of siblings in Biswanath, Assam, through a random sampling method. A total of 600 primary school children from the age group of 6–8 Years were selected as a sample for the study. The present data were collected through a self-constructed tool on the Play Behaviour Scale' which involves i) the demographic profile of the respondents and ii) play behaviour statements. A total of 40 statements of both social and non-social play behaviour were included in the questionnaire. The tool was subjected to reliability and validity tests; the reliability was computed by Cronbach's alpha, and the total value of the overall variable was 0.875. The items were responded to on a 5-point Likert scale with options of "Strongly Disagree", "Disagree", "Somewhat Agree", "Agree" and "Strongly Agree". For statements of social behaviour, the scoring procedure is as follows: Strongly Agree-5, Agree-4, Somewhat Agree-3, Disagree-2, Strongly Disagree-1, and vice versa for non-social behaviour. The maximum score of the Play behaviour Scale is 200, and the minimum score is 40. The higher score indicates better Social Play behaviour, and the lower score indicates higher non-social play behaviour in children. The range was decided based on the obtained mean value for each dimension and the overall play behaviour score. Prior to collecting data, the researcher established rapport with the mothers of the primary school children through the selected schools. Questionnaires were distributed to the mothers to get data regarding the play behaviour of their children. An assurance was given by the researcher that the collected data would remain confidential and would be used only for research purposes. Efforts were made by the researcher to clarify the doubts of mothers of primary school children (6–8 years) during the phase of data collection.

RESULTS AND DISCUSSION

The purpose of the present study was to find out play behaviour among primary school children (6–8 years) in Biswanath, Assam, based on living area and number of siblings. Findings from the present study are discussed below.

Demographic profile of the respondents

Table -1 Distribution of respondents based on their demographic characteristics

Sl. no.	Demographic Characteristics		Frequency (n=600)	Percentage (%)
1.	Living area	Rural	126	21.0
		Semi-urban	234	39.0
		Urban	240	40.0
2.	No. of siblings	No sibling	272	45.3
		1-2 sibling	328	54.7

From the results of Table-1, it is observed that the majority (40%) of the respondents were from urban areas, followed by semi-urban and rural areas. Most (54.7%) of the children had one or two siblings in their family.

Association of demographic variables with play behavior of children

Table -2 Association between demographic characteristics and parenting behavior of respondents

Sl. no.	Demographic variables	Chi-square test	P value
1.	Living area	6.949	.139
2.	No. of siblings	6.850	.033*

Results from Table-2 showed that there is a significant association between the demographic variable "number of siblings" and the play behaviour of children. No significant association was found with the living area of children in primary school (6–8 years).

Overall Play behavior of children

Table -3 Distribution of level of play behaviour of respondents based on different dimensions

Sl. no.	Play behaviour	High		Average		Low	
		n	%	n	%	n	%
1.	**Non-social**						
	Unoccupied	220	36.7	188	31.3	192	32.0
	Solitary	286	47.7	213	35.5	101	16.8
	Onlooker	134	22.3	374	62.3	92	15.3
	Anxious	193	32.2	264	44	143	23.8
2.	**Social**						
	Associative	263	43.8	228	38.0	109	18.2
	Cooperative	258	43.0	212	35.3	130	21.7
	Games with rules	168	28.0	264	44.0	168	28.0
3.	Total play behaviour	140	23.3	336	56.0	124	20.7

*Multiple responses

Findings from Table-3 describe that in the case of non-social play behaviour, the majority of the children performed at a high level regarding unoccupied, solitary, onlooker, and anxious behaviour as compared to children who had a low score. In the case of social play behaviour, including associative and cooperative play, it was observed that the majority of children had higher scores as compared to the children with low scores. In games with rules, it is observed that an equal percentage of children perform in the high and low categories.

Findings also indicate that most of the primary school children had higher scores in non-social play behaviour, which means children are less involved in non-social play. On the other hand, in social play behaviour, most of the children scored higher. As children grow, their social interactions among peers become more frequent and complex (Berk, 2008). During the shift to

primary school, friendships increase with peers, and children communicate, react to complementary roles, and learn the art of empathy. Social skills like cooperating and sharing with peers, introducing play with other children help a child to interact suitably among all (Samantha A. Sang & Jackie A. Nelson, 2017). Thus, children in primary school perform more social play behaviour than non-social play behaviour.

Play behaviour of children based on living area

Table -4 Distribution of levels and differences in play behaviour of children based on type of living area

Sl no.	Play behaviour	Living area	High		Average		Low		Mean	SD	F value
			n	%	n	%	n	%			
1.	**Non-Social**										
	Unoccupied	Rural	58	46.0	33	26.2	35	27.8	9.03	2.77	.006*
		Semi-urban	84	35.9	77	32.9	73	31.2	8.38	2.51	
		Urban	78	32.5	78	32.5	84	35.0	8.11	2.58	
	Solitary	Rural	68	54.0	35	27.8	23	18.3	20.39	5.20	.080
		Semi-urban	117	50.0	81	34.6	36	15.4	19.81	4.57	
		Urban	101	42.1	97	40.4	42	17.5	19.24	4.62	
	Onlooker	Rural	27	21.4	80	63.5	19	15.1	12.15	3.24	.082
		Semi-urban	60	25.6	138	59.0	36	15.4	11.69	2.84	
		Urban	47	19.6	156	65.0	37	15.4	11.40	3.13	
	Anxious	Rural	50	39.7	47	37.3	29	23.0	15.27	3.98	.102
		Semi-urban	73	31.2	103	44.0	58	24.8	14.84	3.54	
		Urban	70	29.2	114	47.5	56	23.3	14.41	3.78	
2.	**Social**										
	Associative	Rural	65	51.6	35	27.8	26	20.6	18.37	5.56	.214
		Semi-urban	109	46.6	81	34.6	44	18.8	17.57	4.67	
		Urban	89	37.1	112	46.7	39	16.3	17.43	4.93	
	Cooperative	Rural	66	52.4	34	27.0	26	20.6	31.25	8.43	.049*
		Semi-urban	106	45.3	78	33.3	50	38.5	29.49	7.12	
		Urban	86	35.8	100	41.7	54	22.5	29.23	7.93	
	Games with Rules	Rural	43	34.1	45	35.7	38	30.2	14.86	3.65	.123
		Semi-urban	69	29.5	107	45.7	58	24.8	14.24	3.16	
		Urban	56	23.3	112	46.7	72	30.0	14.16	3.06	
	Total	Rural	38	30.2	62	49.2	26	20.6	121.32	29.32	.047*
		Semi-urban	52	22.2	136	58.1	46	19.7	116.03	25.29	
		Urban	50	20.8	138	57.5	52	21.7	113.98	27.25	

*Significant at 5% level, **Multiple responses

In the results from Table-4, it is found that the majority of the children living in rural areas performed better in unoccupied, solitary, anxious, associative cooperative, games with rules, and overall play behaviour than those children in semi-urban and urban areas. Regarding onlooker play behaviour, children in semi-urban areas performed higher than those in rural and urban areas. Results also revealed that there is a significant difference in unoccupied, cooperative, and overall

play behaviour among children in rural, semi-urban, and urban areas. It was observed that rural children had less unoccupied play behaviour and were more involved in cooperative play.

Play improves children's minds, refines their social skills, strengthens their creativity, and helps keep them healthy. Playing outdoors helps children get companions to play in open space, which helps in developing joint goals with peers that lead to building peer relations. Children from rural areas spend more time outdoors and are thus more adapted to the demands of playing with nature outside (Niemisto et al. 2019). The environment created outside will offer stimulating situations for children to expand different aspects of their personalities, which normally do not appear during indoor activities. The findings of Maynard et al. (2013) suggested that outdoor play allows for a deeper knowledge of children, and thus fewer conflicts occur during outdoor play and children tend to cooperate more with each other (McClain C. & Vandermaas-Peeler M., 2015; Bilton et al., 2017). While playing outdoor games, children become both teachers and learners by sharing their skills and knowledge among peers to achieve different tasks. Through play and cooperation with peers, children experience a sense of empathy as they begin to know each other's feelings and needs. Outdoor play increases opportunities for interaction among peers, helping children to become cooperative gradually, and they choose to play in groups rather than playing alone. Thus, rural children choose more cooperative play behaviours than those in urban and semi-urban areas.

Play behaviour of children based on number of siblings

Table -5 Distribution of level and differences in play behaviour of children based on number of siblings

Sl. no.	Play Behaviour	No. of sibling	High		Average		Low		Mean	SD	t-test
			n	%	n	%	n	%			
	Non-social										
	Unoccupied	No sibling	86	31.6	100	36.8	86	31.6	8.06	2.50	.003*
		1-2 Sibling	134	40.9	88	26.8	106	32.3	8.70	2.67	
	Solitary	No sibling	116	42.6	109	40.1	47	17.3	19.25	4.48	.034*
		1-2 Sibling	170	51.8	104	31.7	54	16.5	20.08	4.92	
	Onlooker	No sibling	60	22.1	169	62.1	43	15.8	11.50	2.98	.211
		1-2 Sibling	74	22.6	205	62.5	49	14.9	11.81	3.11	
	Anxious	No sibling	80	29.4	125	46.0	67	24.6	14.44	3.52	.056
		1-2 Sibling	113	34.5	139	42.4	76	23.2	15.02	3.90	
2.	**Social**										
	Associative	No sibling	60	22.1	169	62.1	43	15.8	17.31	4.76	.099
		1-2 Sibling	74	22.6	205	62.5	49	14.9	17.99	5.15	
	Cooperative	No sibling	102	37.5	113	41.5	57	21.0	29.07	7.34	.049*
		1-2 Sibling	156	47.6	99	30.2	73	22.3	30.33	8.07	
	Games with Rules	No sibling	68	25.0	124	45.6	80	29.4	14.02	2.99	.028*
		1-2 Sibling	100	30.5	140	42.7	88	26.8	14.60	3.41	

3.	Total	No sibling	50	18.4	163	59.9	59	21.7	113.65	25.72	.028*
		1-2 Sibling	90	27.4	173	52.7	65	19.8	118.53	27.96	

Findings from Table-5, revealed that children who have one or two siblings performed well in all the dimensions of play behaviour, including unoccupied, solitary, onlooker, anxious, associative, cooperative, and games with rules. Results also found that there is a significant difference in unoccupied, solitary, cooperative, games with rules, and overall play behaviour of children based on the number of their siblings in the family. Children with siblings in the family performed less in unoccupied and solitary play behaviour and had better performance in cooperative, games with rules, and overall play behaviour.

Having a sibling can help a child in numerous ways, either to compete or to provide a support system for each other. Even children can regulate their emotions through the presence of siblings in the family as they learn something new from each other. Older siblings usually tend to take on the role of helping, which inculcates the concepts of self-esteem and social responsibility within a child. The younger siblings, on the other hand, try to imitate their brothers and sisters, which leads them to try new things of their own accord (Fiza Abbas, 2019). Thus, children learn social responsibilities, which they implement in playing situations by cooperating with peers, following directions, etc. Researchers suggested that children with at least one sibling also have a chance of displaying higher social skills (Downey & Condron, 2004; Rochebrochard et al., 2013, Samantha & Jackie 2017). Additionally, children with one or two siblings will attain more social skills from kindergarten to fifth grade than children with no siblings (Downey et al. 2015). Thus, children with siblings can show better social skills, including cooperation and following game rules, while playing with peers as compared to children without siblings.

CONCLUSION

It is recognized that play is necessary for the holistic development of a child, and it provides more benefit to the child when it is driven willingly and freely. Free play allows children to explore, enhance their imagination and creativity. Children get fast access to a wide range of natural materials in rural areas, available in different textures and heights, which inspires children's manipulation and makes use of their senses through play with siblings and also explores more opportunities than in urban surroundings with limited free and natural play.

SUGGESTION FOR FUTURE RESEARCH

The study can be conducted in various parts of the country. Further study on the influence of parental support and parent education on the play behaviour of children could be carried out.

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DoI: https://doi.org/10.58537/jorangrau.2023.51.1.12

J. Res. ANGRAU 51 (1) 103-112, 2023

PLAY BEHAVIOUR OF SELECTED PRIMARY SCHOOL CHILDREN OF ASSAM

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Date of Receipt : 18.10. 2022 Date of Acceptance : 31.12. 2022

ABSTRACT

The study aimed to find out the type of play behaviour adopted by the children of primary school in Biswanath, Assam in the year 2022. The size of the sample was 600 primary school children in the age group of 6-8 years selected through random sampling technique. A self constructed questionnaire was used to identify social and non-social play behaviour among the children. The study revealed that children of 8 years had higher social play behaviour when compared to children between ages of 6 and 7 Years. Study also reported that children living in joint family had higher social play behaviour than those of nuclear family. No gender difference in children's play behaviour was found.

Keywords: Assam, Play behaviour, Primary School children

INTRODUCTION

Play is a normative child behavior with defining characteristics. Play has a significant contribution towards children's physical as well as psychological development. According to the Oxford English Dictionary (2021), play is an activity done for pleasure. Play develops relationship between a child and the environment, which happens naturally and is uninhibited by imagination. In addition, play is the basis for developmentally appropriate practice for children which ensures foundation for their learning (Frost and Sutterby, 2017). Children use their optimum maturity level in order to carry out play activities more enjoyable which may not be seen in other daily activities. Therefore, it is necessary to teach children in play way method, which will assure a pleasant learning experience for them, help in acquiring knowledge and skills and make them competent (Pasek *et al.,* 2008).

Play behaviour of children

Play is a regular and spontaneous activity where children engage in various play activities depending on their age and interest. Play behaviour of children differs from individual to individual. According to Parten (1932), children show six categories of play behaviour, the first four categories are classified under non-social or semi-social play

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activities which includes- 1) Unoccupied play behaviour where the child does not have any intentions or focus towards their activities; The child might stare blankly or roam without any aim; 2) Onlooker play behaviour involves observation of other children's activities without participating in peer activities; 3) Solitary play behaviour is where the child is playing separately from other children and paying little or no attention to other children; he is fully engage in his own activities; and 4) Parallel play behaviour is where the child plays near other children but not playing with them. Additionally, socially interactive play involves two categories which are- Associative and Co-operative play behaviour. Associative play behaviour involves interaction with other children where children might use similar materials for play but they rarely engage in communication. Whereas, Co-operative play involves group activity that is organized in order to carry out some activities to attain a particular goal. Peer interaction is important for the overall development of children. In particular, child's interactions among peers, in the form of co-operation, conflict, opposition, as well as friendly discussion, assists the child to increase an understanding of the self. Even children experience themselves indirectly through peer responses. Thus, relationship with peers is essential for developing the skills for co-operation, compromise, empathy and altruism (Rubin *et al.,* 2012). Friendship with peers involve dyadic relationships including *closeness and reciprocity* resulting in social play. In addition, lack of peer relations more often show non-social behaviour such as social reticence, decrease in prosocial behavior, academic difficulties and low self- esteem in children (Buhs *et al*., 2006; Coyne *et al*., 2011). Therefore, helping children in establishing good relation with peers through social play is of utmost important as play behaviours provide a significant clues about interaction and communication of children with their peers and also with their social competence behaviour (Magdalena, 2015; Uyanýk *et al.,* 2018). Identifying play behaviour of children helps parents and teachers to provide positive environment for the optimum development of children as well as to enhance better learning environment and help minimizing the negative consequences of future life.

MATERIALS AND METHODS

The study is a descriptive study conducted in Biswanath district of Assam in the year 2022. The purpose of the study was to identify play behaviour of children including social and non-social play behaviour in the primary school of Biswanath, Assam. A total of 600 primary school children in the age group of 6-8 years, covering the North, South, East and West zone of Biswanath district, Assam were selected as sample for the study. The sample were chosen through random sampling technique.

A self-constructed questionnaire on play behaviour was constructed to assess play behaviour of children. The questionnaire includes both i) socio-demographic profile and ii) play behaviour of the sample. The questionnaire included a total of 40 statements with both social and non-social play behaviour. A reliability and validity test were done for the self-constructed questionnaire with the help of Chronbach's alpha and the total value of overall variable was 0.975. The structure of the questionnaire was of 5-point Likert scale with options of 'Strongly Disagree', 'Disagree', 'Somewhat Agree', 'Agree' and 'Strongly

Agree'. The maximum score of the play behaviour scale was 200 and minimum score was 40. The higher score indicated better social play behaviour and lower score showed higher non- social play behaviour of children. The range was decided based on the acquired mean value for each dimensions and overall play behaviour score.

The questionnaires were distributed to the mothers of the selected sample for collecting the required data. An assurance was given by the researcher that the collected data will be used only for research and will remain confidential.

RESULTS AND DISCUSSION

The study aimed to identify play behaviour of primary school children in the age group of 6- 8 years in Biswanath, Assam based on age, gender and family type of primary school children. Results of the study obtained through the mothers of the children. Study analysed different social and non-social play behaviour including unoccupied, solitary, onlooker, anxious, associative, co-operative play behaviour and games with rules of the children. Data were analysed through appropriate statistical measures such as mean, SD, t-test, and ANOVA test. Data regarding Demographic characteristics of the respondents are shown in the Table 1.

Table 1 showed that majority (34.2%) of the respondents were in the age group of 8 years. Among the sample number of male children were more (51.5%) than female children and also most (58%) of the children were living in nuclear family.

Level of play behaviour of children

Data obtained from the respondents regarding Social and Non-social play behaviour is shown in the Figure 1 and Table 2.

From the Figure 1, it is observed that more than fifty percent of the children had average score followed by high and low level in play behaviour. This indicates that most of the primary school children showed average social play behaviour while some children showed high social play behaviour and some showed low level of social play behaviour.

From the Table 2, it is found that in case of non-social play behaviour 36.7% of the children scored high in unoccupied play behaviour, 47.7% scored high in solitary, 23.3%

Table 1. Distribution of respondents according to their demographic characteristics

S. No.	Demographic Characteristics(n=600)		n	%
1.	Age (years)	6	194	32.3
		7	201	33.5
		8	205	34.2
2.	Gender	Male	309	51.5
		Female	291	48.5
3.	Type of family	Nuclear	348	58
		Joint	252	42

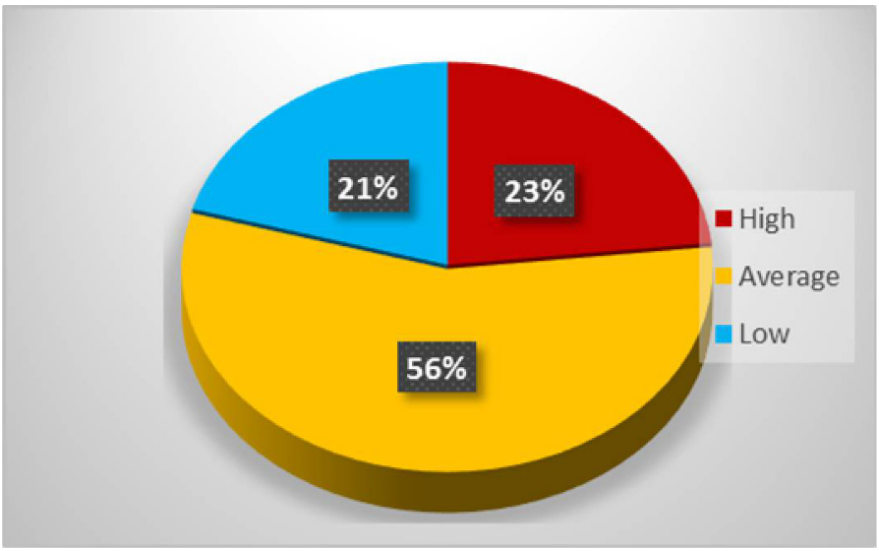

Figure 1. Distribution of level of play behaviour of respondents

had high score in onlooker and 32.05% had high score in anxious behaviour. On the other hand in social play behaviour, it is observed that majority (43.8%) of children had higher score in associative and 36.2% had higher score in cooperative play behaviour. In case of games with rules, it is observed that percentage of children scored in low category was more (28.7) than that of high category.

From the results, it can be stated that in non-social play including unoccupied, solitary, onlooker play behaviour and anxious behaviour children of primary school (6-8) years scored high which indicates they were engaged less in non-social behaviour. Usually, children come across peer influence when they enter school to a certain extent because they are surrounded by peers, but also because they're

Table 2. Distribution of level of play behaviour of respondents on different dimensions (based on multi-responses of the respondents)

S. No.	Play behaviour	High		Average		Low	
		N	%	N	%	N	%
1.	**Non-social**						
	Unoccupied	220	36.7	188	31.3	192	32
	Solitary	286	47.7	213	35.5	101	16.8
	Onlooker	134	22.3	374	62.3	92	15.3
	Anxious	192	32.0	264	44.0	143	23.8
2.	**Social**						
	Associative	263	43.8	208	38.0	109	18.2
	Cooperative	217	36.2	245	40.8	137	22.8
	Games with rules	164	27.3	263	43.8	172	28.7

developmentally proficient of caring what others think. Thus, children get exposure to interact with peers and learn to be independent in absence of parents. With the friendship with peers, children gratifies their need for belongingness through acceptance or attraction in the group, and also the need for relationship which is satisfied through friendly interactions with peers. By participating in the group coordinates their behaviours and attains the common goal (Cheah *et al*., 2001; Whitman, 2018). Play is the mediator through which children learn new skills and practice those learned skills while playing with the peers and thereby increases peer relations. During school years, social play becomes an integral part of the children. When a child grows, involving in social play rises as children become more aware with other children and become familiar with their environment and thus have a tendency to play with peers (Gray, 2017). In addition, the child's peer relationships allows the child to develop a sense of belonging within the group. Thus, children of primary school enjoys playing in a group rather than playing alone and hence they engage in more social play behaviour as compared to non-social play behaviour.

Level of play behaviour of primary school children based on age

From the Table 3, it is observed that majority of the children in the age group of 8 years had highest score in unoccupied, solitary, onlooker, anxious, associative, cooperative and games with rules than those of 6 years and 7 years children. Results also revealed that there is a significant difference among children in the age group of 6 years, 7 years and 8 years in the play behaviour with various dimensions namely- unoccupied, solitary, onlooker, anxious, associative, co-operative and games with rules.

From the results it is revealed that children of 8 years had higher score in social play as compared to children of 6 and 7 years. Right after entering school children gets new environment out of home where he starts interacting with peers in the absence of parents. During school period, children experience various environment of challenges which help them in shaping themselves in variety of ways, both playing in pairs, small and large groups and also during interaction with peers. (Sorlie *et al.,* 2021). As the children grow and progressively increase their shared environment, school becomes an essential ground where children both learn and practice their learned social behaviour. Children learns through interacting with peers and peer relation becomes a part of their life. After spending years at school, the amount of time the children of 8 years spend interacting with peers right after entering school rises from about 10% to more than 30% and the peer group becomes much larger as compared to peer groups of earlier years (Rubin *et al*., 2012). Thus, the extent to which children of 8 years feel socially integrated and recognized in the classroom determines their performance working in a group and results in involvement of more social play instead of non-social play (Ladd *et al.,* 2012). On the other hand children who are shy displays more non-social behaviors like onlooker, unoccupied, which in turn, associates with less social play (Stefania *et al*., 2022).

Play behaviour of primary school children based on gender

From the results of Table 4, it is revealed that majority of the female children scored high

Table 3. Distribution of level and differences in play behaviour of children based on age (in reference to multi-responses of the respondents)

S. No.	Play behaviour	Age	High		Average		Low		Mean	SD	F value
			N	%	N	%	N	%			
1.	**Non-Social**										
	Unoccupied	6 years	66	31.3	67	31.8	78	37.0	8.12	2.55	.029*
		7 years	68	34.9	68	34.9	59	30.3	8.32	2.47	
		8 years	86	44.3	53	27.3	55	28.4	8.80	2.78	
	Solitary	6 years	86	40.8	89	42.2	36	17.1	19.18	4.41	.043*
		7 years	96	49.2	70	35.9	29	14.9	19.61	4.51	
		8 years	104	53.6	54	27.8	36	18.6	20.36	5.24	
	Onlooker	6 years	36	17.1	144	68.2	31	14.7	11.31	2.73	.026*
		7 years	43	22.1	122	62.6	30	15.4	11.62	3.02	
		8 years	55	28.4	108	55.7	31	16.0	12.12	3.37	
	Anxious	6 years	65	30.8	92	43.6	54	25.6	14.06	3.30	.000**
		7 years	58	29.7	90	46.2	47	24.1	14.60	3.63	
		8 years	70	36.1	82	42.3	42	21.6	15.68	4.12	
2.	**Social**										
	Associative	6 years	83	39.3	89	42.2	39	18.5	17.06	4.59	.006*
		7 years	82	42.1	79	40.5	34	17.4	17.46	4.66	
		8 years	98	50.5	60	30.9	36	18.6	18.59	5.56	
	Cooperative	6 years	73	34.6	89	42.2	49	23.2	28.20	6.53	.000**
		7 years	86	44.1	73	37.4	36	18.5	29.70	7.26	
		8 years	99	51.0	50	25.8	45	23.2	31.51	9.06	
	Games with Rules	6 years	57	27.0	89	42.2	65	30.8	13.82	2.67	.000**
		7 years	50	25.6	95	48.7	50	25.6	14.13	2.90	
		8 years	61	31.4	80	41.2	53	27.3	15.10	3.92	
	Total	6 years	31	14.7	135	64.0	45	21.3	111.76	23.48	.000**
		7 years	41	21.0	117	60.0	37	190	115.44	25.60	
		8 years	68	35.1	84	43.3	42	21.6	122.16	30.91	

*Significant at 5% level; ** highly significant at 1% level

Table 4. Distribution of Level and differences in play behaviour of children based on gender (in reference to multi-responses of the respondents)

S. No.	Play Behaviour	Gender	High		Average		Low		Mean	SD	t-test
			n	%	n	%	n	%			
1.	**Non-social**										
	Unoccupied	Male	112	36.2	86	27.8	111	35.9	8.29	2.60	.246 NS
		Female	108	37.1	102	35.1	81	27.8	8.54	2.62	
	Solitary	Male	146	47.2	110	35.6	53	17.2	19.64	4.83	.733 NS
		Female	140	48.1	103	35.4	48	16.5	19.77	4.65	
	Onlooker	Male	70	22.7	190	61.5	49	15.9	11.61	3.07	.621 NS
		Female	64	22.0	184	63.2	43	14.8	11.74	3.04	
	Anxious	Male	100	32.4	129	41.7	80	25.9	14.74	3.69	.890 NS
		Female	93	32.0	135	46.4	63	21.6	14.78	3.80	
2.	**Social**										
	Associative	Male	138	44.7	118	38.2	53	17.2	17.57	5.00	.560 NS
		Female	125	43.0	110	37.8	56	19.2	17.80	4.97	
	Cooperative	Male	131	42.4	110	35.6	68	22.0	29.70	7.68	.847 NS
		Female	127	43.6	102	35.1	62	21.3	29.82	7.87	
	Games with Rules	Male	90	29.1	132	42.7	87	28.2	14.17	3.11	.182 NS
		Female	78	26.8	132	45.4	81	27.8	14.52	3.37	

NS= Non significant at 5% level

in unoccupied play, solitary and cooperative play behaviour as compared to male children. Regarding onlooker, co-operative, games with rules and anxious behaviour, male children scored high than those of female children. The results also indicates that there is no statistically significant difference in unoccupied, solitary, onlooker, anxious, associative, co-operative, and games with rules between male and female children.

Results also revealed that there is no significant difference in social and non- social behaviour among male and female children. School plays important role in socialization of gender attitude, behavior of children. Teachers as well as peers shape children's attitudes results in gender differences in behaviour of children. Teachers who believe in gender stereotypes and prejudices and receive less training in recognizing and combating those stereotypical behaviour, often expect and lay the foundation for gender differences among their children. Thus, most of the schools maintain the traditional gender stereotypical behaviour rather than neutralizing biases and behaviour (Bigler and Rebecca, 2013). In this study the association between gender-typed play behaviour was not moderated by sex, however, the researcher did not found any differences in their play behaviour as well.

Play behaviour of primary school children based on type of family

Data acquired from the study was also analysed based on family type of children for both social and non-social play behaviour and results are discussed in the Table 5.

From Table 5, it can be observed that majority of the children living in the joint family scored high in unoccupied, solitary, onlooker, associative, cooperative play behaviour and games with rules than children of nuclear family. With regard to anxious behaviour it was found that majority of children of nuclear family showed high score in anxious play behaviour than children of joint family. Results of the study also revealed that there is no significant differences in unoccupied, solitary, onlooker, anxious and associative play behaviour among the children of nuclear family and children of joint family. Significant difference was found in the co-operative play behaviour and the games with rules among the children of nuclear family and children of joint family.

Results also showed that children of joint family had higher involvement in co-operative play and games with rules. It is well known that family forms the basis of a child's development and it acts as a child's first school where he/she learns about the surroundings, behavior, discipline, etc. Since in joint family, members under different age groups live together, the child can get more exposure for learning new experiences with all the family members. The other family members involve in taking care of the child, in the absence of parents. Hence, child get the environment to learn new things by interacting with each other. Compared to children of nuclear family, there is higher bond of unity and affection of children living in joint family. Thus, joint family helps children to provide nurturing environment for their social development better than the nuclear family (Gurav and Vageriya, 2019). Moreover, children in the joint family who receive qualitative child care are better in thinking, responding with others and interacting with friends and world around them which influences their play behaviour to adopt better co-operative play and could be able to listen and follow the games with rules. They are somewhat better in play behaviour and adopting the skills related to play than those of who lived in nuclear families. They also may have good home environments; parents' and siblings support towards play and child care and also the structure of care and help for children's overall development with respect to play. Researches also has shown that children who are brought up in a lively and engaging joint family are likely to be more socially adaptive and responsive in the later years of the life compared to their contemporaries brought up in isolated nuclear families (Gupta 2021). Thus, joint families have an obvious advantage when it comes to learning interpersonal and social skills and improving their play behaviour skills as well.

CONCLUSIONS

The study aimed to find out play behaviour among the primary school children. The study reported that children in the age group of eight years who had better child care in joint families were able to take better decisions, respond, and interact with the other children and world around them which influences their play behaviour to adopt better co-operative play and could be able to listen and follow the games rules compared with 6 and 7 years aged children. This age group are better in play behaviour and adopting the skills related to play than those of who lived in nuclear families.

Table 5. Distribution of level of play behaviour and differences of play behaviour based on types of family (in reference to multi-responses of the respondents)

S. No.	Play Behaviour	Gender	High		Average		Low		Mean	SD	t-test
			n	%	n	%	n	%			
1.	**Non-Social**										
	Unoccupied	Nuclear	119	34.2	119	34.2	110	31.6	8.30	2.44	.203
		Joint	101	40.1	69	27.4	82	32.5	8.57	2.83	
	Solitary	Nuclear	160	46.0	127	36.5	61	17.5	19.39	4.67	.057
		Joint	126	50.0	86	34.1	40	15.9	20.13	4.81	
	Onlooker	Nuclear	70	20.1	227	65.2	51	14.7	11.50	3.01	.112
		Joint	64	25.4	147	58.3	41	16.3	11.90	3.10	
	Anxious Behaviour	Nuclear	115	33.0	157	45.1	76	21.8	14.54	3.57	.094
		Joint	78	31.0	107	42.5	67	26.6	15.06	3.95	
2.	**Social**										
	Associative	Nuclear	147	42.2	140	40.2	61	17.5	17.46	4.77	.206
		Joint	116	46.0	88	34.9	48	19.0	17.98	5.26	
	Cooperative	Nuclear	140	40.2	131	37.6	77	22.1	29.20	7.13	.040*
		Joint	118	46.8	81	32.1	53	21.0	30.52	8.52	
	Games with rules	Nuclear	91	26.1	166	47.7	91	26.1	14.10	2.92	.038*
		Joint	77	30.6	98	38.9	77	30.6	14.66	3.61	

* Significant at 5% level; NS= Non significant at 5% level

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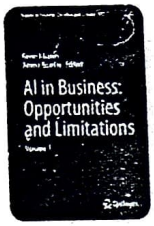
How to cite this article?: Karishma Begum and Priya, M. 2023. Play behaviour of selected primary school children of Assam. The Journal of Research ANGRAU. 51(1): 103-112. https://doi.org/10.58537/jorangrau.2023.51.12

Development and Validation of Play Behavior Scale

| Chapter | First Online: 20 February 2024

| pp 229–241 | Cite this chapter



AI in Business: Opportunities and Limitations

Karishma Begum ✉, M. Priya & N. C. Kiran Babu

Part of the book series: Studies in Systems, Decision and Control ((SSDC,volume 515))

Abstract

Play serves as an essential component of a child's developmental progress. Play is the prism through which children experience their own and other people's worlds. Play promotes cognitive development by teaching children how to solve problems, recollect knowledge, and make decisions. Children also develop social skills through play by forming relationships, building trust, and forming bonds with their peers. The study aimed to identify the play behaviours of primary school children aged 6–8 years. Both the children's social and non-social play behaviours were investigated in the study. The sample comprises 600 primary school children from Biswanath, Assam. Data were collected through simple