

A Descriptive Study to Assess the Problem-Solving Ability of Children with Active and Non-Active Play in Selected Schools of Vadodara

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Descriptive study, Problem solving ability. Active & Non active play, School children

Abstract:

Background: Play is a vital component of child development, promoting physical and mental well-being. This descriptive study aimed to assess the problem-solving ability of primary school students and its association with active and non-active play. **Material & Methods:** A total of 388 students were selected using purposive sampling, and data was collected using the standardized Child Physical Activity Questionnaire and a Likert scale questionnaire to evaluate problem-solving ability. Demographic data was also collected and analyzed using descriptive statistics. **Results:** Majority of the participants were 13 years old (36.60%), male (51.29%), studying in 7th grade (36.60%), from nuclear families (65.72%), and residing in rural areas of Vadodara city (51.55%). Cricket was the most popular sports activity, and playground play was the most common leisure time activity. The majority engaged in arts and craft activities at school (79.38%). Problem-solving ability was found to be "hit-and-miss" for 210 participants, with a score between 36-55, indicating an understanding of the importance of structured problem-solving but inconsistent results. There was no significant association between type of play and socio-demographic variables. **Conclusion:** Unstructured play is essential for healthy development, and the study highlights the need for promoting various play opportunities from birth until adolescence.

1. Introduction

The act of playing is crucial for children as it allows them to be creative and develop their imagination, dexterity, and various strengths such as physical, cognitive, and emotional abilities. When children are given the freedom to direct their play, they learn how to make decisions, explore their interests, and engage in their passions at their own pace. Play is also important in the academic environment as it fosters social and emotional development, learning readiness, and problem-solving skills. With the rise of digital transformation, Problem Solving (PS) has become a vital 21st-century skill that institutions worldwide encourage education to prioritize. PS skills are essential for addressing issues in personal, social, and work domains, and they go hand-in-hand with critical thinking and collaborative learning skills as part of problem-based learning. By honing creative and critical thinking through problem-solving skills,

students can contribute to their nation's development and address its needs¹.

2. Methodology

The current study utilized a quantitative research approach and a descriptive research design, and it was conducted in selected schools located in Vadodara. Primary school students served as the source of the study, with a calculated sample size of 388 children selected using purposive sampling techniques. The inclusion criteria for participation in the study were primary school students who were willing and available during data collection, as well as those who could read, write, and understand English or Gujarati. Exclusion criteria were students who were not willing to participate. Before the study began, an information sheet was provided to the parents of the participants, and informed consent was obtained after the study's purpose was explained to them.

3. Result:

Table 1 displays the demographic information of the participants. The data indicates that most of the sample group were aged 13 years (142), followed by 14-year-olds (127) and 12-year-olds (119). Of the total sample, 199 (51.29%) were male, and 189 (48.71%) were female. The grade levels of the participants were distributed across 6th (119), 7th (142), and 8th (127) grades. Regarding family structure, 255 participants were from nuclear families, and 133 were from joint families. The sample was also divided by their place of residence, with 200 participants from rural areas and 188 from urban areas. In terms of siblings, 310 participants had one sibling, while 43 had two siblings, and 15 had more than two.

Age (in years)	Frequency	percentage
12 years	119	30.67%
13 years	142	36.60%
14 years	127	32.73%

Gender	Frequency	Percentage
Male	199	51.29%
Female	189	48.71%

Grade of the study	Frequency	Percentage
6 th grade	119	30.67%
7 th grade	142	36.60%
8 th grade	127	32.73%

Type of Family	Frequency	Percentage
Nuclear family	255	65.72%
Joint family	133	34.28%

Location of Residence	Frequency	Percentage
Rural area	200	51.55%

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Urban area	188	48.45%
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Number of Sibling	Frequency	Percentage
One	310	79.90%
Two	43	11.08%
More than two	15	3.86%

Table 2 results shows that majority of samples show interested in play on playground, shows that majority of the sample were doing activities at school are arts & craft (79.38).

Table 2 - Assessment of Active play and non-active play in children

Basketball/volleyball		
No. of times	Frequency	Percentage
1-3	46	11.85
4-5	29	7.47
6-7	11	2.83
Baseball/softball		
1-3	6	1.54
4-5	0	0
6-7	0	0
Cricket		
1-3	22	5.67
4-5	56	14.43
6-7	103	26.54
Football		
1-3	67	17.27
4-5	78	20.1
6-7	61	15.72
Gymnastics		
1-3	33	8.5

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4-5	57	14.69
6-7	34	8.76
Hockey		
1-3	21	5.41
4-5	0	0
6-7	0	0
Martials arts		
1-3	0	0
4-5	0	0
6-7	0	0
Netball		
1-3	0	0
4-5	0	0
6-7	0	0
Rugby		
1-3	0	0
4-5	0	0
6-7	0	0
Running or jogging		
1-3	65	16.75
4-5	23	5.92
6-7	78	20.1
Swimming		
1-3	43	11.08
4-5	21	5.41
6-7	10	2.57
Tennis /badminton		
1-3	62	15.98

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4-5	11	2.83
6-7	14	3.6

2. Leisure time activities

Bike riding		
No. of times	Frequency	Percentage
1-3	0	0
4-5	0	0
6-7	0	0
Bounce on trampoline		
1-3	2	0.52
4-5	0	0
6-7	0	0
Bowling		
1-3	28	7.22`
4-5	59	15.21
6-7	106	27.32
Household cores		
1-3	21	5.81
4-5	11	2.83
6-7	67	17.27
Play in playhouse		
1-3	0	0
4-5	0	0
6-7	0	0
Play on playground equipment		
1-3	45	11.6
4-5	76	19.59
6-7	88	22.68

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Play with pets		
1-3	2	0.51
4-5	78	20.1
6-7	65	16.75
Roller skating		
1-3	43	11.08
4-5	22	5.67
6-7	33	8.5
Snowboarding		
1-3	0	0
4-5	0	0
6-7	0	0
Skipping rope		
1-3	0	0
4-5	0	0
6-7	0	0
Tag		
1-3	0	0
4-5	0	0
6-7	0	0
Walk the dog		
1-3	2	0.21
4-5	78	20.1
6-7	65	16.75
Walk for exercise		
1-3	56	14.43
4-5	22	5.67
6-7	32	8.24

3. Activities at school

Physical education class		
No. of times	Frequency	Percentage
1-3	277	71.38
4-5	0	0
6-7	0	0
Travel by walking to school		
1-3	53	19.65
4-5	0	0
6-7	112	28.86
Travel by cycle		
1-3	0	0
4-5	66	17.01
6-7	102	26.28
Watching tv/videos		
1-3	0	0
4-5	0	0
6-7	0	0
Arts& craft		
1-3	308	79.38
4-5	0	0
6-7	0	0
Doing homework		
1-3	65	16.75
4-5	21	5.41
6-7	11	2.83
Imaginary play		
1-3	0	0

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4-5	0	0
6-7	0	0
Listen to music		
1-3	0	0
4-5	0	0
6-7	0	0
Play indoor with toys		
1-3	0	0
4-5	0	0
6-7	0	0
Playing board games		
1-3	67	17.26
4-5	0	0
6-7	0	0
Playing computer games		
1-3	79	20.36
4-5	0	0
6-7	0	0
Playing musical instrument		
1-3	89	22.93
4-5	0	0
6-7	0	0
Reading		
1-3	76	19.58
4-5	56	14.43
6-7	33	8.5
Sitting /talking		
1-3	76	19.58

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4-5	56	14.43
6-7	33	8.5
Talk on phone		
1-3	0	0
4-5	0	0
6-7	0	0
Travel by car /bus		
1-3	0	0
4-5	32	8.24
6-7	55	14.17

Table 3 outlines the statements used to evaluate the problem-solving abilities of the 388 participants. Approximately 33 (9%) participants scored between 15-35, indicating that they may perceive problems negatively and lack a structured approach to problem-solving, resulting in less effective solutions. With practice and a more structured approach, they can improve this essential skill and achieve better problem-solving outcomes. The majority of participants, 210 (54%), scored between 36-55, indicating a "hit-and-miss" approach to problem-solving. They recognize the importance of a structured problem-solving process, but do not consistently follow it. By committing to the

process and working on consistency, they can achieve significant improvements in their problem-solving skills. Almost 145 (37%) participants scored between 56-75, indicating that they are confident problem-solvers who take the time to understand the problem, criteria for decision-making, and generate effective options. They have a systematic approach to problem-solving, resulting in well-thought-out, well-planned, and well-executed decisions. With continued practice, they can further refine their problem-solving skills and utilize them for continuous improvement initiatives within their organization.

Sr No.	Statements	Not at all (1)	Rarely (2)	Sometimes (3)	Often (4)	Very often (5)
1.	Once I choose a solution, I develop an implementation plan with the sequence of events necessary for completion.	55	68	120	70	75
2.	After a solution has been implemented, I immediately look for ways to improve the idea and avoid future problems.	36	55	160	89	48
3.	To avoid asking the wrong question, I take care to define each problem carefully before trying to solve it.	48	93	88	73	86

Journal of Coastal Life Medicine

4.	I strive to look at problems from different perspectives and generate multiple solutions.	76	88	59	96	69
5.	I evaluate potential solutions carefully and thoroughly against a predefined standard.	61	79	86	44	118
6.	I systematically search for issues that may become problems in the future.	87	96	49	94	62
7.	When I decide on a solution, I make it happen – no matter what opposition I may face.	34	49	116	122	67
8.	I find that small problems often become much bigger in scope, and thus very difficult to solve.	26	59	109	124	70
9.	I ask myself lots of different questions about the nature of the problem.	51	63	119	97	58
10.	After my solution is implemented, I relax and focus again on my regular duties.	128	59	68	49	84
11.	I focus on keeping current operations running smoothly and hope that problems don't appear.	74	69	112	98	35
12.	I evaluate potential solutions as I think of them.	59	66	98	86	79
13.	When I need to find a solution to a problem, I usually have all of the information I need to solve it.	29	68	98	89	104
14.	When evaluating solutions, I take time to think about how I should choose between options.	32	49	95	110	102
15.	Making a decision is the end of my problem-solving process.	28	51	89	106	112

Table 4 – Find out the Association between children with active and non-active play with their selected Socio-demographic variables

The table depicts that among the six socio-demographic variables of the samples, Age and grade of study had significant association with active and non-active play at 0.05 level significance. The other variables were found non-significant. Hence the research hypothesis is rejected and the null hypothesis is accepted.

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S. No	Variables	Type of Play		Total	Df	X ²	S
		Active play	Non active play				
1	Age (in years)						
	a) 12	78	50	128	2	35.18 (p value 0.0001)	S
	b) 13	85	38	123			
	c) 15	47	90	137			
	Total	210	178	388			
2	Gender						
	a) Male	165	40	205	1	2.7128 (p value- 0.0995)	NS
	b) Female	134	49	183			
	Total	299	89	388			
3	Grade of study						
	a) 6 th Grade	31	32	63	2	27.037 (p value - 0.0001)	S
	b) 7 th Grade	80	85	165			
	c) 8 th Grade	120	40	160			
	Total	231	157	388			
4	Type of Family						
	a) nuclear family	89	117	206	1	1.7153 (p value .2180)	NS
	b) Joint family	90	92	182			
	Total	179	209	388			
5	Location of the residence						
	a) Urban Area	90	110	200	1	2.6021 (p value - .1067)	NS
	b) Rural Area	100	88	188			
	Total	190	198	388			
6	Number of sibling in the family						
	a) One	86	74	160	2	2.3077 (p value - .3154)	NS
	b) Two	87	78	165			
	c) More than two	27	36	63			
	Total	200	188	388			

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4. Discussion

In 2013, Goharpey et al. conducted a study to investigate the problem-solving abilities of children with different types of intellectual disability, as measured by the Raven's Colored Progressive Matrices test. They found that children with intellectual disability who have cognitive processing deficits tend to use immature problem-solving strategies when they cannot find the correct answer. This study supported the use of the RCPM as a valid tool for assessing the problem-solving abilities of both typically developing and intellectually disabled children¹².

In 2019, Spencer et al. conducted a study to examine the role of physical activity and movement in early childhood in promoting healthy physical activity patterns. The study found that outdoor loose parts play had numerous social and cognitive benefits for preschool-aged children that were crucial for their growth, development, and overall health and well-being, according to feedback from educators¹³.

In 2015, Brussoni et al. conducted a review of studies on outdoor play and its impact on children's health and development. The review revealed that risky outdoor play was associated with both positive outcomes and potential harm, indicating a need for further high-quality research. However, despite the limitations of the review process, the study suggested that promoting risky outdoor play could benefit healthy child development, and policy and practice should encourage opportunities for such play¹⁴.

5. Conclusion:

Nursing education should emphasize the importance of play in children and necessary training should be given to the student nurses on the aspect. The nurse educates the primary school students about the problem-solving ability, importance of play and what is active and non-active play. Problem solving is a ability to identify and understand a problem, finds a solution and take action. It is a skill that is used in every aspect of our lives. Administration in both private and government sectors should take initiative action to update knowledge about the importance of play during the childhood period of life and development of new skills and ability. As an administrator a nurse must provide adequate supply of av aids for conducting awareness Programmes in community.

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