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Problem Solving Ability and Academic Achievement among Ix Standard Students in Ariyalur District

Dr. R. Muthaiyan

Assistant Professor, Department of Education and Management, Tamil University, Thanjavur, Tamil Nadu, India

ABSTRACT

The present study explores the Problem solving ability and academic achievement in mathematics among IX standard students in Ariyalur District. The investigator has executed survey method in view of realizing the objectives of the study. The population for the present study has been selected as 400 students from various schools in Ariyalur district of Tamil Nadu. The population has been further limited to the high school students who are studying in IX standard. Using simple random technique from the list of schools the researcher identified. The result revealed that there is significant difference in gender. Female students achieve more in their mathematics subject (Mean value is 78.69), Government employee's children are doing well in their problem solving ability when compare to private employee, agriculture, cooli, and non government parents' children. The result also revealed that there is no significant difference in locality, and parent's educational qualification both in problem solving ability and academic achievement. And the result pointed out that there exist a moderate Positive Correlation between Problem solving ability and Academic achievement.

KEYWORDS: *Problem solving Ability, Utilize Knowledge, Natural Capability, Academic Achievement*

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INTRODUCTION

Problem solving ability is to be a natural emotion that pervades man's feelings and thoughts and indicates to him when he is in an untenable position with respect to god. It is the emotion that leads and accompanies his wish to leap to a higher state of existence. Kierkegaard distinguished between horror and dread; dread is experienced in the absence of a touchable cause of danger, while fear involves a tangible cause of danger.

Academic achievement means those traits or attributes or distinctiveness of an individual which supply to or have a straight bearing oreffect or power on the accomplishment or proficiency of recital pertaining to any activity scholastic in nature or some scholarly activity. Academic achievement represents intellectual growth and the ability to participate in the production of knowledge at its best. At its worst, academic achievement stands for inculcation and mindless opening of the youthful into the cannons and orthodoxy of the mature. Achievement tests portray how well students have mastered the subjects matter in a course of instruction. Achievement is a thing that somebody has done successfully; especially using his/her own effort and skill.

NEED AND SIGNIFICANCE OF THE STUDY

The study aims to make some positive addition to the increase of knowledge connected with the academic achievement of IX students. Precisely, it will try to gather clinching evidence through the sample of the study to know whether problem solving ability has any relation positive or negative with the academic achievement of IX students. Depending upon the environment and quantum of this relationship and the perceptive of the variables under study, the teachers, administrators, and policy makers can develop their teaching methods, curriculum and selection criteria respectively. It would also assist the students to carry desired alters in their socio-psychological behaviour.

The Counselors and psychologists can also be benefited from the findings of the study, if and when some IX students are referred to them to enhance their social and emotional maturity, to raise their confidence, to remove their problems of problem solving ability and depression. Even sociologists and public workers stand to expand by the findings of the study. They can plan ways in which to replenish the personal, interpersonal and social adequacies of IX students, if they are found wanting in these traits. The study will surely contribute towards improving problem solving ability and academic achievement of IX students. Finally, the study will provide as a valuable feedback for one and all connected with teaching faculty, besides appropriate a useful part of decisive research literature.

STATEMENT OF THE PROBLEM

In view of the above facts, the investigator has tried to study problem solving ability and academic achievement among IX students. Psychologically and emotionally balanced, intellectually sound and socially mature IX students have higher degree of problems solving ability and academic achievement. Consequently, to make it more effective and productive, the present study has been stated as " **Problem Solving Ability and Academic Achievement among IX Standard Students in Ariyalur District".**

OBJECTIVES OF THE STUDY

The present investigation is undertaken with the following objectives.

1. To study the problem solving ability of the students belonging to different categories.
2. To examine, is there any relationship and difference between of IX standard students and problem solving ability.
3. To analyze the Mathematics achievement of IX standard students belonging to different categories.
4. To correlate and compare the difference between the problem solving ability and academic achievement.

HYPOTHESES OF THE STUDY

1. There is no significant difference between Gender of IX students and their Problem Solving Ability and Academic Achievement.
2. There is no significant difference between Locality of IX students and their Problem Solving Ability and Academic Achievement.
3. There is no significant difference between Parent Educational Qualification of IX students and their Problem Solving Ability and Academic Achievement.
4. There is no significant difference between Parent's Occupation of IX students and their Problem Solving Ability and Academic Achievement.
5. There is no Correlation between the Problem Solving Ability and Academic achievement.

RESEARH DESIGN

In the present study the researcher adopts descriptive research design to explain record, analyze and interpret the data.

TOOL USED IN THE STUDY

The standardized tool developed by L. N. Dubey for problem solving ability of secondary students is used to evaluate problem solving ability of IX students. The scale is five point standardized scale and items of the scale are in questionnaires form.

SAMPLING PROCEDURE

The IX students are selected by using random sampling technique for the present study. The total sample size for the present study is 400IX standard students.

STATISTICAL TECHNIQUES USED

The following statistical techniques are used for the analysis of data.

A. Descriptive statistics - mean and standard deviation
B. Differential statistics - 't' value and 'F' value
C. Correlation analysis – 'r' value

METHOD OF STUDY

In the present study normative survey research method is adopted.

SCORING PROCEDURE

The problem solving ability of IX students is measured using five point scale that represents strongly agree, agree, neutral, disagree and strongly disagree. Academic achievement score is based on the mathematics test in half yearly.

PROCEDURE FOR ADMINISTRATION

The instructions regarding the method of answering are clearly given in the tool. The subjects are properly motivated so as to enable them to participate sincerely and give real response. The subjects are requested and persuaded to go through carefully and indicate their response in the answer sheet. The tool is administrated with the subjects in different schools on different dates personally by the investigator.

STATISTICAL ANALYSIS

Descriptive statistics such as percentages, mean and standard deviation and inferential statistics such as `t` test, Analysis of Variance(ANOVA) test and simple correlation analysis are used for data analysis.

HYPOTHESIS NO.1

There is no significant difference between gender of IX students and their Problem Solving Ability and Academic Achievement.

- This hypothesis was tested by using't' test.

TEST OF SIGNIFICANT DIFFERENCE BETWEEN GENDER WITH RESPECT TO THEIR PROBLEM SOLVING ABILITY AND ACADEMIC ACHIEVEMENT

Variable	Gender	N	Mean	S.D	SED	/M1-M2/	t Value	Level of Significance
Problem Solving Ability	Male	200	66.88	9.75	0.9212	1.18	1.2809	Not Significant
	Female	200	68.06	8.64				
Academic Achievement	Male	200	73.24	10.74	1.0037	5.45	5.43	Significant at 0.01 level
	Female	200	78.69	9.28				

- **Critical Value for "t" at 0.05 level is 2.58 and at 0.01 level is 1.96**

From the above table, it was clear that for Problem solving ability, the calculated t value was 1.2809. It was lower than the critical value of "t". Hence null hypothesis was accepted for Gender.

From the above table, it was clear that for Academic Achievement, the calculated t value was 5.43. It was greater than the cr itical value of "t". Hence null hypothesis was rejected for Gender.

HYPOTHESIS NO.2

There is no significant difference between Locality of IX students and their Problem Solving Ability and Academic Achievement. This hypothesis was tested by using't' test.

TEST OF SIGNIFICANT DIFFERENCE BETWEEN LOCALITY WITH RESPECT TO THEIR PROBLEM SOLVING ABILITY AND ACADEMIC ACHIEVEMENT

Variable	Locality	N	Mean	S.D	SED	/M1-M2/	t Value	Level of Significance
Problem Solving Ability	Rural	286	66.94	8.66	1.0088	0.12	0.1190	Not Significant
	Urban	114	67.06	9.28				
Academic Achievement	Rural	286	75.13	9.64	1.0324	0.74	0.7168	Not Significant
	Urban	114	75.87	9.19				

- **Critical Value for "t" at 0.05 level is 2.58 and at 0.01 level is 1.96**

From the above table, it was clear that for problem solving ability, the calculated t value was 0.1190. It was lower than the critical value of "t". Hence null hypothesis was accepted for Locality.

From the above table, it was clear that for Academic Achievement, the calculated t value was 0.7168. It was greater than the critical value of "t". Hence null hypothesis was accepted for Locality.

HYPOTHESIS NO.3

There is no significant difference between parent educational qualification of IX students and their Problem Solving Ability and Academic Achievement.

This hypothesis was tested by using 'F' test.

TEST OF SIGNIFICANT DIFFERENCE BETWEEN PARENT EDUCATIONAL QUALIFICATION WITH RESPECT TO THEIR PROBLEM SOLVING ABILITY AND ACADEMIC ACHIEVEMENT

Variable	Source of Variance	Sum of Squares	df	Mean Square	F Ratio	Level of Significance
Problem SolvingAbility	Between Sample	443.45	3	147.82	1.607	N.S
	Within Sample	36428.04	396	91.99		
	Total	36871.49	399			
Academic Achievement	Between Sample	1498.75	3	499.58	0.981	N.S
	Within Sample	201574.77	396	509.03		
	Total	203073.52	399			

- **Critical Value for "F" at 0.05 level is 3.00 and at 0.01 level is 4.61**

From the above table, it was clear that for problem solving ability, the calculated "F" value was 1.607. It was lower than the critical value of "F". Hence null hypothesis was accepted for parent educational qualification.

From the above table, it was clear that for Academic Achievement, the calculated "F" value was 0.981. It was lower than the critical value of "F". Hence null hypothesis was accepted for parent educational qualification.

HYPOTHESIS NO.4

There is no significant difference between parent's occupation of IX students and their Problem Solving Ability and Academic Achievement.

This hypothesis was tested by using 'F' test.

TEST OF SIGNIFICANT DIFFERENCE BETWEEN PARENT'S OCCUPATION WITH RESPECT TO THEIR PROBLEM SOLVING ABILITY AND ACADEMIC ACHIEVEMENT

Variable	Source of Variance	Sum of Squares	df	Mean Square	F Ratio	Level of Significance
Problem SolvingAbility	Between Sample	2846.73	4	711.68	8.26	0.01 Level
	Within Sample	34024.76	395	86.14		
	Total	36871.49	399			
Academic Achievement	Between Sample	2160.72	4	540.18	1.062	N.S
	Within Sample	200912.8	395	508.64		
	Total	203073.52	399			

- **Critical Value for "F" at 0.05 level is 3.00 and at 0.01 level is 4.61**

From the above table, it was clear that for problem solving ability, the calculated "F" value was 8.26. It was greater than the critical value of "F". Hence null hypothesis was rejected for parent's occupation.

From the above table, it was clear that for Academic Achievement, the calculated "F" value was 0.981. It was lower than the critical value of "F". Hence null hypothesis was accepted for parent's occupation.

CORRELATION

There is no correlation between the Problem Solving Ability and Academic Achievement.

CORRELATION BETWEEN PROBLEM SOLVING ABILITY AND ACADEMIC ACHIEVEMENT

	Problem Solving Ability	Academic Achievement
Problem Solving Ability	0.5836**	1
Academic Achievement	1	0.5836**

- **Critical Value at 0.05 level is 0.113 and at 0.01 level is 0.148**

From the above table, it was clear that the calculated correlate value was 0.5836 which was greater than the critical value. Hence the assumption was rejected. It is revealed that r-value for Problem solving ability with Academic achievement was 0.5836. The result reveals that there exists a moderate Positive Correlation between Problem solving ability and Academic achievement.

MAJOR FINDINGS

The investigator applies the necessary statistical techniques for analysis of data. The major findings of the study are:

- The result revealed that there is significant difference in gender. Female students achieve more in their mathematics subject (Mean value is 78.69)
- Government employee's children are doing well in their problem solving ability when compare to private

employee, agriculture, cooli, and non government parents' children.

- The result also revealed that there is no significant difference in locality, and parent's educational qualification both in problem solving ability and academic achievement.
- And the result pointed out that there exist a moderate Positive Correlation between Problem solving ability and Academic achievement.

SUGGESTIONS FOR FURTHER RESEARCH

1. The finding of the present study influenced the investigator to suggest the following points for further research.
2. Similar study can be undertaken in other districts of Tamil Nadu.
3. Similar study can be undertaken on primary, middle and higher secondary students in Tamil Nadu.
4. Similar study can be undertaken in order to find out factors influencing problem solving abilities of IX students.
5. Interaction effect of economic status and students studying at different levels of education (primary, secondary and higher) on their problem solving ability and academic achievement can be taken into consideration for further studies.
6. Study may be extended to larger sample drawn from the Tamil Nadu state as a whole.

CONCLUSION

The above findings reveal that the IX students can understand the extent of problem solving ability. It is also seen that problem solving ability of IX students are influence to their Academic Achievement. In restricted sense only the IX students are utilizing knowledge in their day to day problem solving ability. Hence, this study concludes that problem solving ability of IX students still to be effectively improved, monitored, encouraged and modified from time to time to go on par with the developed states in our country.

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