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Research Paper Education

Achievement Motivation and Problem Solving Ability in Mathematics of IX Standard Students

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ABSTRACT *This study was undertaken with the objective of identifying the level of Achievement motivation and Problem solving ability in Mathematics of IX Standard students in Pondicherry region. A sample of 300 students was selected from nine schools in Pondicherry. An Achievement motivation questionnaire and problem solving ability test were used to collect the data. The study revealed that the level of Achievement motivation of XI Standard students is above average and that of the problem solving ability is low.*

KEYWORDS : Achievement Motivation, Problem Solving ability, IX Standard Students.

INTRODUCTION

We exist in a competitive world in which individuals are striving hard to achieve their goal. Future progress of the nation depends only on the progress of the students. Achievement as a whole depends on the students outperforming ability. Attainment of the goal depends on acceptance of challengeable situation and striving to resolve it, which is nothing but the problem solving ability.

Kothari says, "The destiny of the nation is being shaped only in the classroom" (1966). Therefore the progress of the nation directly depends on the progress of the citizen. Our present system of education is achievement oriented.

Mathematics is a logical science. It is also an exact science with a highly organized and systematized body of knowledge. Its processes involve encoding and decoding of many concepts and abstractions. It is a "vehicle to train a child to think, reason and analyze and to articulate logically" (Ministry of Human Resource Development, 1986). Mathematics is taught for the training of the mind. Mathematics helps in developing the different faculties of mind like analytical thinking, divergent thinking, reasoning ability, observation capacity, rational thinking, judgement, precision, concentration, expression, and so on.

The purpose of teaching Mathematics is not only to enable the students to acquire mathematical skills and knowledge but teaching of Mathematics should result in the development of intellectual powers and habits.

NEED FOR THE STUDY

It is highlighted in National Policy on Education (1986), as follows-"Mathematics should be visualized as the vehicle to train a child to think, reason, analyze, and articulate logically. Apart from being a specific subject it should be treated as a concomitant to any subject involving analysis and meaning".

A knowledge of mathematics not only helps a student to acquire a great many mathematical facts, but also to apply these facts intelligently to discover new facts through efficient reasoning. Moreover, knowledge is of use only when one is able to apply it in new situations. The ability to apply one's knowledge requires power to think effectively. The subject of mathematics offers this knowledge profusely. Mathematics can be taken as a creative activity for students since it involves graphs, analysis and formula writing. To solve a problem in mathematics, students need time to explore ideas and see the relationship between concepts. Thus, finding a solution to a problem will further motivate the students to practice more by doing the exercises from their textbooks.

Mathematics in the real sense is a science of space and quantity that helps us in solving the problems of life that needs numeration and calculation. It provides opportunity for the intellectual calibre of the man's inherent powers. It is an exact science and involves high cognitive abilities and powers.

Hence this study is intended to study the problem solving ability in Mathematics of the IX standard students.

OBJECTIVES OF THE STUDY

1. To study the level of achievement motivation of IX standard students.
2. To study the level of problem solving ability of IX standard students.
3. To find out the relationship between achievement motivation and problem solving ability of IX standard students.

STATEMENT OF HYPOTHESIS

The following hypotheses have been framed to attain the above said objectives:

1. The level of achievement motivation of IX standard students is high.
2. The level of problem solving ability in mathematics of IX standard students is high.
3. There is no significant relationship between achievement motivation and problem solving ability in mathematics of XI standard students.

METHODOLOGY

A normative survey was undertaken.

SAMPLE

The population of the study comprised of IX students from nine schools in Pondicherry. A sample of 300 students was selected from nine schools in Pondicherry by random sampling technique. Out of this 140 were boys and 160 were girls; 180 were from urban and 120 were from rural area; 160 were from Government and 160 were from private school; and 110 were of high achievement level and 190 were of average achievement level students.

RESEACH TOOLS

The following tools have been used for collecting data.

1. Achievement motivation questionnaire by Bishwanath Mukherji.
2. Problem solving ability test by L.N. Dubey.

ANALYSIS AND INTERPRETATIONS

Mean median, and standard deviation of achievement motivation and problem solving ability scores for whole sample is given in Figure-1.

Figure-1

Variable	N	Mean	Median	Mode	S.D
Achievement motivation	300	19.58	19	19	5.01
Problem solving ability	300	8.11	8	8	2.54

From Figure-1, it is concluded that the mean and standard deviation of achievement motivation scores of IX standard students are 19.58 and 5.01. It is found that the mean score of achievement motivation falls in the above average level. Therefore the level of achievement motivation of the entire sample is above average. Also it is found that from the Figure-2, the mean score of problem solving ability is 8.11. The median and mode are 8 and 8. From these measures, it is concluded that problem solving ability of XI standard students is low.

Correlation coefficient between achievement motivation and problem solving ability is given in Figure -2.

Figure-2

Variable	N	Co-efficient of correlation (r)	Significance (at 0.05 level)
Achievement motivation	300	0.718	S
Problem solving ability	300		

From Figure-2, it is found that the correlation co-efficient which is calculated to be 0.718 is greater than that of the table value at 0.05 level. Hence there is a significant relationship between Achievement motivation and Problem solving ability.

Mean and standard deviation of achievement motivation and problem solving ability category–wise

Figure-3

Variable	Category	Sub-groups	N	Mean	S.D	M.D	't' value	Sig. level (0.05)
Achievement motivation	Sex	Boys	140	19.14	4.6	0.73	1.27	NS
		Girls	160	19.87	5.39			
	Locality of school	Urban	180	18.99	4.91	0.89	1.46	NS
		Rural	120	19.88	5.05			
	Type of school	Govt	140	18.74	4.72	0.44	2.75	S
		Private	160	20.31	5.16			
	Level of achievement	High	110	21.56	4.79	2.66	4.11	S
		Average	120	18.9	5.01			
Problem solving ability	Sex	Boys	140	7.89	2.41	0.33	1.12	NS
		Girls	160	8.22	2.68			
	Locality of school	Urban	180	7.71	2.45	0.6	1.99	S
		Rural	120	8.31	2.57			
	Type of school	Govt	140	7.79	2.53	8.39	2.52	S
		Private	160	8.39	2.52			
	Level of achievement	High	110	7.44	2.25	2.25	7.28	S
		Average	120	9.69	2.42			

From Figure-3 it is observed that the Govt. and Private school students and High and Average level achievement students differ in their achievement motivation. Also in the sub-samples, Urban and Rural, Govt. and Private, and High and Average level achievement students differ in their problem solving ability. The mean differences between the above mentioned groups are significant at 0.05 level.

CONCLUSION

1. The level of achievement motivation of IX standard students is above average.
2. The problem solving ability of IX standard students is low.
3. The IX Standard students of Puducherry region differ significantly in their Achievement motivation and Problem solving ability.
4. It is found that boys and girls nearly have equal level of achievement motivation and problem solving ability.
5. It is found that the government school students have higher achievement motivation and problem solving ability than the private school students.
6. It is found that the urban and rural areas school students have equal level of achievement motivation but locality of the school has influence on the problem solving ability of IX standard students in Puducherry region. The urban school students have higher problem solving ability than rural school students.
7. It is found that High and Average level achievement students differ in their achievement motivation and problem solving ability.

SUGGESTIONS FOR FURTHER RESEARCH

1. The study may be undertaken using the students of lower classes as subjects for the study.
2. Problem solving in relation to other variable such as personality, adjustments and intelligence may be undertaken.
3. An experimental study research in how problem-solving ability can be improved through computer assisted instruction may be undertaken.

REFERENCES

1. Courant, R. and Robbinns, H. (1941). What is Mathematics? New York, Oxford University Press. | 2. Locke and Bacon. (1967). The Teaching of Mathematics. New Delhi, Sterling Publications. | 3. Corinna, A.E. and Lee, M.W. (1986). A Structural Model of Mathematics Achievement for Men and Women, American Educational Research Journal, 23(1), 65-75. | 4. Jain, D.K. (1979). A study of significant correlates of high schools failures in mathematics and English with special reference to Jammu Division. Ph.D dissertation in Education, Jammu University. | 5. Oakes, J. (1990). Opportunities, achievement, and choice: Women and minority students in Science and Mathematics, in C. Gazden (ed.) Review of Research in Education, 16, 153–222. | 6. Shah (1974). A study on relationship between pupil's intelligence and their achievement in science in secondary school in Mumbai. Third survey of Research in Education, Buch, M.B.(Ed).NCERT, New Delhi. | 7. Sharma, V.S.(1975). Comparitive study of the Achievement of boys and Mathematics of Delta class in Rajasthan. S.I.E.R.T., Rajasthan. | 8. Tripathy, A. (1989). The effects of preschool education on the cognitive ability and academic achievement of pre adolescent and adolescents. Fifth survey of Research in Education (1988-1992). Volume-2, Buch, M.B.(Ed).NCERT, New Delhi. |