Original Resear	Volume-8 Issue-10 October-2018 PRINT ISSN No 2249-555X Education PROBLEM SOLVING ABILITY AND ACHIEVEMENT MOTIVATION AMONG SECONDARY SCHOOL STUDENTS
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ABSTRACT The effective secondary achievement motivation of the saimed to find out the level of Pr school students, the difference in Achievement difference in Achievement in the secondary achievement of the secondary	ct of problem solving ability to scaffold the learning skills of students is a proved fact. It is significant to study the ry level students in Kerala on the basis of their problem solving ability. The connection of the variable with econdary level students is to be proved with the aim of experimenting deviated instructional strategies. The study oblem solving ability among secondary school students, the level of Achievement motivation among secondary school students based on gender, locale and type of institution. The venent motivation among secondary school students based on the gender, locale and type of institution. The venent motivation among secondary school students based on the gender, locale and type of institution.

sample is constituted randomly with 130 secondary School students giving due representation to gender, locale and type of the institution. The tools used are the Problem Solving Ability test and Scale of Achievement Motivation. Major techniques applied for analysis are Percentage analysis and test of significance of difference between means. It is found out that secondary level students are having different levels of problem solving ability. Result explains that 16.92% of the students have low level of Achievement Motivation, 68.46% have average level of Achievement Motivation. It is also seen that there exists no significant difference (at 0.05 level) in the problem solving ability of secondary school students based on gender, locale and type of institution. Other relevant finding is that the Female, urban and government school students have high achievement motivation than boys, rural and aided school students

KEYWORDS: Problem solving ability, Achievement motivation, learning skills.

Problem solving as an instructional method and reflective strategy gets wide attention in educational scenario. Researches in the field proved the effect of problem solving ability to scaffold the learning skills of students. The method is positively related to the problem solving ability of the learners. The area still remains with academic gaps to be filled with further researches on this construct.

Secondary Education Commission (1952-53) stated that the practice of mechanically applying the same methods to dull, average as well as bright children is responsible for much of the ineffectiveness of the instruction given in school. This is an indication of to what extend we should change to benefit our next generation for knowledge acquisition and its management (*Intel Education*). Here comes the importance of classroom activities where we can adopt innumerable methods to handle subjects which bring forth creative and effective learning.

In the classrooms, we can see teachers trying to transact content without considering the potential of each student sitting before him. Educational practitioners complain the fact that teachers are not preparing students in accordance with the requirements of the present century. Though the students possess amusing abilities, it is not fully utilized to the desired extent, so the multifaceted development of the individual remains an unfulfilled objective (Bandura, A, Barbaranelli, C, Caprana, G, V and Pastorelli,C). Hence education should evoke abilityto think and provide thinking experiences.

BACKGROUND

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Thinking is a cognitive process and it involves manipulation of information. Every individual has his unique style of thinking and this thinking style reflects his way of solving problems. This century witnessed the major transformations in the field of education. Education should evoke thinking ability and provide thinking experiences. Clemen and Lochhead (1979) stated that "we should teach students how to think instead of teaching what to think." Their view substantiates that the process of thinking has much importance in the field of education.

Critics of current educational practices say that present methods of instruction are not capable of preparing students for the requirements of the present century. Though they outperform in textual procedures, students lack the experise to solve the 'ill-defined problems' they experience in the real world situations. Ill-defined problems' they wherein "the goals themselves are complex and ill-defined, and when the very nature of the problem is successively transformed in the course of exploration" (Simon, 1986, p. 29). Despite this, today's competitive world centers on problem solving, requiring innovative

thinking and technological expertise. Present study framed up on the significance of the innovative methods to substitute the traditional methods in intervening with dull children in the classroom.

NEED AND SIGNIFICANCE OF THE STUDY

Problem solving is considered as one of the essential skills of 21st century students. It is the core skill in the teaching of all subjects, particularly of Physics. Ability in this skill can be considered as a goal of those who learn physics. Problem solving makes learning interesting, live and hence learning will have higher retention power. Problem solving can be defined as "the capacity to engage in cognitive processing to understand and resolve problem situations where a method of solution is not immediately obvious" (OECD, 2017, p.3).

Achievement motivation is an inherent force of the individual that helps in achieving the challenging tasks. Characteristics of individuals with high achievement motivation will have an orientation toward problem (Murray, McClelland &Atkinson). A considerable number of researches conducted in achievement motivation and academic achievement showed that achievement motivation is a facilitating factor of academic achievement. (Atkinson, 1964; McClelland, 1972; Murray 1974)

The studies and pedagogical efforts in the field prove that problem solving is a major area of discussion in connection with the teaching learning process of adolescent students. It is significant to study the secondary level students in Kerala on the basis of their problem solving ability. The connection of the variable with achievement motivation of the secondary level students is to be proved with the aim of experimenting deviated instructional strategies. The study can suggest measures for developing problem solving ability among students. Study can also bring forth measures to develop achievement motivation among secondary level students.

STATEMENT OF THE PROBLEM

Problem solving ability and achievement motivation are closely connected variables (Simon, 1967). The present study focused on the levels of achievement motivation among the secondary level students. The main purpose of the study is to compare the problem solving ability and achievement motivation among secondary school students in Kerala based on gender, locale and type of institution. On this ground the study titled 'problem solving ability and achievement motivation among secondary school students'

VARIABLES OF THE STUDY

The study constituted with two major variables. They are problem solving ability and achievement motivation. The variables selected for

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analysis are gender, locale and type of management or institution.

DEFINITION OF KEY TERMS

Problem Solving Ability is the cognitive capability of the problem solver to perform physical or mental operations based upon his knowledge so as to achieve the goal of solving a problem. This is measured as the score of the Problem Solving Ability with three components namely, comprehending the Problem, Clarifying the Problem and Finding Solution to the Problem (Manoj,2006).

Good (1973) defines Achievement Motivation as a "combination of psychological forces which initiate, direct and sustain behavior toward successful attainment of some goal which provides a sense of significance. Achievement Motivation is the need for achievement, a wish to do all. It refers to the behavior of an individual who strives to accomplish something to do his best to excel others in performance.

OBJECTIVES OF THE STUDY

The present study is settled with the aims to find out the extent of problem solving ability and achievement motivation among secondary level students of Kerala. Specific objectives of the study are given below;

- To find out the level of Problem solving ability among secondary school students
- To find out the level of Achievement motivation among secondary school students
- To find out whether there exists any significant difference in Problem solving ability of secondary school students based on gender, locale and type of institution
- To find out whether there exists any significant difference in Achievement motivation of secondary school students based on the gender, locale and type of institution

HYPOTHESES

The study is designed with the following hypotheses;

- · Secondary school students are varied on problem solving ability
- · Secondary school students are varied on achievement motivation
- There exists no significant difference in Problem solving ability of secondary school students based on gender, locale and type of institution
- There exists no significant difference in Achievement motivation of secondary school students based on gender, locale and type of institution

METHOD OF STUDY

The study aimed to survey the extent of the problem solving ability and achievement motivation among secondary students. The data regarding the variables can be accumulated by the administration of suitable instruments to respond. Survey is adopted to collect large data on variable from a general population. Thus, researcher used survey design for the present study.

SAMPLE OF THE STUDY

The population of the study is secondary level students who are studying in government and aided schools of Kerala state. Presently the sample group is grabbed from such students who are in the schools in Palakakd district of the Kerala state. The district situates in the middle region of Kerala and represents the general school atmosphere of the state. The sample is constituted randomly with 130 higher secondary School students giving due representation to gender, locale and type of the institution.

TOOLS USED FOR THE STUDY

To measure the variable problem solving ability the researcher developed and administered Problem Solving Ability test. The test consists of 25 statements based on three dimensions such as comprehending the problem, clarifying the problem and finding solution to the problem. The tool is properly standardized and established with validity and reliability.

The Achievement Motivation is assessed by using Scale of Achievement Motivation. The scale consists of 36 statements based on seven dimensions such as work ethic, pursuit of excellence, Status aspiration, Competitiveness, Acquisitiveness, Mastery and Dominace. The tool is also properly standardized with validity and reliability.

STATISTICAL TECHNIQUES USED

The data gathered for the study analyzed by using SPSS. Major techniques applied for analyses are Percentage analysis and test of

ANALYSIS AND FINDINGS

significance of difference between means.

The collected data were administered for analysis. Details of analysis and results are given below.

Level of Problem solving ability among secondary school students

Analysis of data proved that secondary level students are having different levels of problem solving ability. Result of analysis is given in table 1.

Table.1 Level of Problem solving ability among secondary school students (N=130)

Score	Levels	Number	percentages
0 to 8	Low Problem Solving Ability	27	20.77%
9 to 17	Average Problem Solving Ability	100	76.92%
18 to 25	High Problem Solving Ability	3	2.31%
Total		130	100

Table-1 shows that 20.77% of the students have low level of Problem solving ability whereas76.92% have average level and only 2.31% have high level of Problem solving ability. The percentage of students with high level of problem solving ability in the total sample is comparatively very less. However, 76.92% have average level of the ability.

Level of Achievement Motivation among secondary school students

The data collected by administering Scale of Achievement Motivation is analyzed to find out the levels of the variable among secondary students. The results of the analysis are given in table 2.

Table 2 Level of Achievement Motivation among secondary level students

Levels	Number	Percent
Low Achievement Motivation	22	16.92%
Average Achievement Motivation	89	68.46%
High Achievement Motivation	19	14.62%
Total	130	100

Table 2 shows that 16.92% of the students have low level of Achievement Motivation, 68.46% have average level of Achievement Motivation. And only 14.62% have high level of Achievement Motivation.

DISCUSSION

The table 1 and table 2 indicates that students with low level of Problem Solving Ability may have low level of achievement Motivation. Students with low Problem Solving Ability are 20.79% whereas students with low Achievement Motivation are 16.90%. This explain the possibility of relation between the two variables among students. Students with average problem solving ability are 76.93 %. This indicates that large numbers of students are with average ability in problem solving. It substantiate to state that most of the students are able to be developed with high problem solving ability if they are 76.93% and those with average level of achievement motivation are 68.50 %, this result also supports to state that there may exist relationship between the two variables among secondary level students. The hypotheses one and two can be accepted on the basis of the results.

Difference in the Problem solving ability of secondary school students based on the gender, locale and type of institution

The third objective of the study is to find out the significant difference in the Problem solving ability of secondary school students based on the gender, locale and type of institution. Result of analysis to realize this variable is given in table 3.

Table 3 Problem solving ability of secondary	school students based
on the gender, locale and type of institution	

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Variable		Ν	Mean	Standard Deviation	t	P value
Problem	Male	62	14.06	2.629	0.510	0.611
solving	Female	68	13.85	2.090		
ability	Rural	80	14.11	2.511	0.971	0.333
	Urban	50	13.70	2.082		
	Govt	42	14.14	2.114	0.631	0.529
	Aided	88	13.86	2.469		
Table 3						

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Table 3 shows that the obtained t value for Problem solving ability based on Gender, Locale, and type of school are 0.510, 0.971, and 0.631 respectively. All the values are less than 1.96. The values indicate that there exists no significant difference (at 0.05 level) in the problem solving ability of secondary school students based on gender, locale and type of institution. Here the third hypothesis that there exists no significant difference in Problem solving ability among secondary school students based on gender, locale and type of institution is accepted. Based on the result, it can be concluded that Problem solving ability of secondary school students do not differ on the Gender, Locale and Type of institution base.

Difference in Achievement motivation of secondary school students based on gender, locale and type of institution

The fourth objective is to find out the significant difference in Achievement motivation of secondary school students based on gender, locale and type of institution. Result of the Achievement motivation of secondary school students based on the gender, locale and type of institution given in table 4

Table	4	Achievement	motivation	of	secondary	school	students
based	or	gender, locale	and type of i	inst	itution		

Variable		Ν	Mean	Standard. Deviation	t	P value
Achievement	Male	62	125.27	9.928	2.27	0.025
Motivation	Female	68	129.59	11.581		
	Rural	80	125.80	11.810	2.30	0.023
	Urban	50	130.30	8.990		
	Govt	42	130.93	8.152	2.42	0.014
	Aided	88	125.91	11.823		

Table 4

Table 4 shows that the obtained t value for Achievement motivation based on Gender, Locale, and type of institution are 2.27, 2.30 and 2.42 respectively. All the values are greater than 1.96 at 0.05 levels of significance. This meansthat there exists significant difference in Achievement motivation among students based on gender, locale and type of institution. Hence the fourth hypothesis that there exists no significant difference in Achievement motivation among secondary school students based on gender, locale and type of institution is rejected.

The obtained mean score of female students is 129.59 which is greater than the score of male students, indicate that female students have high Achievement motivation. The mean score of urban students is 130.30 which is greater than the mean score of rural students which means that urban students have high Achievement motivation. The mean score of Government school students is 130.93 which is greater than the mean score of aided school students.It means that government school students have high Achievement motivation when compared to aided school students. So it can be concluded that the Female, urban and government school students have high achievement motivation than boys,rural and aided school students

Generalizations and Suggestions

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The present study revealed that secondary level students are having average level of problem solving ability. Only a few students have high problem solving ability. It may be due to the lack of training in problem solving method, lack of interest in Physics due to lack of knowledge in the subject, lack of motivation to learn the subject in a creative way and lack of use of innovative methods by the subject teacher.

In this study it is clearly evident that students have average level of Problem solving ability and their level of motivation is also in an average level. It is an eye opener for the educationists and teachers to do something to improve their problem solving ability by providing opportunities for improving self motivation. Some suggestions are as follows

- Realize problem solving as an inevitable part of school education
- Motivate students to make decisions on their own
- Provide collaborative learning environments so that children can take responsibility of their own learning
- Enhance confidence in children and motivate them to learn through experiments thus help them aspire high through training.
- Enhance their critical thinking capacity by providing life related activities
- Encourage students to find out different ways of handling a problem and emerge with multiple solutions

- Motivate students to initiate solving problems themselves Develop positive attitude towards science by providing experiential learning
- Evaluate the achievement motivation and the concerned authorities may see that teachers are made available with appropriate tools to measure them at different grade levels

Since problem solving ability is one of the key elements in the cognitive psychology, it has to be given importance to develop those skills necessary to apply theoretical knowledge in varied situations. Teachers should take special care in providing problem based situations to the students in the classroom itself and motivate them to use multi dimensional approach in solving problems which will enhance their ability to solve everyday ill defined problems to some extent.

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