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Problem Solving Ability of Higher Secondary School Students of East Khasi Hills District, Meghalaya

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Abstract:

Problem solving is the ability to think and reason on given levels of complexity. Individuals who have this ability are able to see a problem from different perspectives and arrive at solutions easily. Further, individuals who have acquired effective problem solving techniques are able to solve problems at higher levels of complexity than those who have had no such training. When anyone is faced with a problem, he/she uses all his abilities, intelligence, thinking, imagination, observation etc. to arrive at a solution. In the present study an attempt has been made to find out the problem solving ability of Higher Secondary School students of Shillong Town.

1. Introduction

Problem solving is a mental process and is part of the larger problem process that includes problem finding and problem shaping. Considered the most complex of all intellectual functions, problem solving has been defined as higher-order cognitive process that requires the modulation and control of more routine or fundamental skills. According to *Woodworth*. "problem solving occurs when there is obstruction of some sort to the attainment of an objective. If the path to the goal is straight and open, there is no problem" *Gates and others* " problem solving is a form of learning in which the appropriate response must be discovered. "*Skinner*." problem solving is the framework or pattern within which creative thinking and reasoning takes place."

There are various forms of problem solving- ranging from simple ones to those of high level complexity depending upon the difficulty level of the problem. With the advancement of socio-economic and technological fields, the life of the individual is becoming more and more complex fraught with a number of problems which the individual and the society have to face in the near future. The problem is solved but something new is also learnt. Ability also ranges from individual to individual.

Simple problems can well be solved by instinctive and habitual behaviours. More difficult problems require a series of solution attempts. There are some who are able to solve problems sooner than others. Thus, the problem solving is a process of overcoming difficulties that appear to interfere with the attainment of a goal (*Skinner*, 1968). It has been found out that persons with higher intelligence & reasoning ability can solve the complex problems easily and in a quicker way. This necessitates the fact that while attempting to solve a problem, we should try to develop intelligence and reasoning ability as well as develop the problem solving ability through proper education & training.

Problem solving is the ability to think and reason on given levels of complexity. People who have learned effective problem solving techniques are able to solve problems at higher levels of complexity than more intelligent people who have no such training. When a person faces a problem, he faces a tension in his mind. In carrying out such a thinking process, a particular combination of rules that fit the situation is found out and in the process, not only the problem is solved but something new is also learnt. The individual carries out or exercises his greatest efforts and uses all his abilities, intelligence, thinking, imagination, observation etc.

Problem solving is a complex form of learning and is considered to be at the apex of hierarchies of human learning. In solving a problem; an individual will encounter a number of obstacles which may interfere in the attainment of the desired goal. One has to overcome such hindrances and in this way, transfer of learning takes place and it paves the way for solving future problems. In the present study, problem solving ability is determined through problem solving in arithmetic.

1.1. Statement of the Problem

The title of the study is as follows "Problem Solving Ability of Higher Secondary School Students in East Khasi Hills District, Meghalaya

1.2. Operational definition of the Terms Used

The following definitions of the terms are used in the present study.

1.3. Problem Solving Ability

Problem solving ability refers to the skill of the students in solving problems related to arithmetic.

1.4. Higher Secondary

Higher Secondary refers to the 10+2 pattern of education. Students who have completed Secondary board education are enrolled into higher secondary education.

1.5. Objectives of the Study

The objectives of the present study are stated as follows

1. To study the Problem solving ability of Higher Secondary School Students on the basis of
 - a. Sex
 - b. Locale
2. To find out the differences in problem solving ability of the following groups
 - a. Sex
 - b. Locale

1.6. Null Hypotheses

The following are the null hypotheses of the study.

1. There is no significant difference in problem solving ability between male and female students.
2. There is no significant difference in problem solving ability between rural and urban students

1.7. Delimitation of the Study

The study is delimited to solving ability in Arithmetic only.

- Method: the descriptive method was used in the present study.
- Population of the Study: The population of the present study comprises of 24,339 higher secondary school students drawn from 107 schools of East Khasi Hills district.
- Sample of the Study: Stratified random sampling technique was used to select the sample of the study consisting of 1020 adolescents.
- Tool Used in the Study: The tool used in the study comprised of the Problem Solving Ability Test (PSAT) by L.N. Dubey. In the present study, the investigator modified the tool and classified the level of problem solving ability into three levels viz high, average and low. The range of scores (high 15>, average 13-14, low 11<) have also been mentioned and used for the study.

2. Major Findings and Discussion

The following are the major findings of the present study.

2.1. To study the Problem Solving Ability of Higher Secondary School Students on the Basis of Sex and Locale

2.1.1. Sex

In the case of male student's majority (69.67%) of them are found to have average problem solving ability followed by (5.43%) low problem solving ability and a small percentage (24.25%) falls in the high problem solving ability. In the case of female students' majority (66.54%) of them are found to have average problem solving ability followed by (20.30%) low problem solving ability and a small percentage (13.52%) falls in the high problem solving ability.

It is evident that male students are superior in problem solving ability. This finding is in line with the findings of (Bedell 1934; Billings1934) that stated on the superiority of males over females in Problem solving ability. Burke (1965) also stated that male superiority is seen in solving complex and mathematical reasoning. However, the present findings are not in line with Raaheim (1963); Mendelsohn et al (1966) and Kumar (1980) who showed no variations in performance of male & female students

2.1.2. Locale

In the case of rural students majority (67.31%) of them fall under the average problem solving ability, (25.31%) of them have high problem solving ability the remaining (7.38%) have low problem solving ability. As for urban students, majority (68.29%) fall under the average problem solving ability, only (12.37%) have high problem and the rest (19.34%) have low problem solving ability. It can be observed that rural students have better problem solving ability where 25.31% have high problem solving ability in comparison to only 12.37% of urban students. The probable reason may be that rural students have a good foundation of Arithmetic, concepts are clear and have a higher aptitude in dealing with mathematical problems.

2.2. Differences in Problem Solving Ability of the Following Groups

2.2.1. Sex-wise

Groups	N	Mean	SD	df	t value	Level of Significance
Male	488	71.29	11.01	1018	3.429	0.01
Female	532	68.13	10.09			

Table 1: Differences in problem solving ability between male and female students

The above table indicates that there is significant difference in problem solving ability between male and female students at 0.01 level. Male students have higher problem solving ability than their female counterparts. Hence the hypothesis is rejected.

Groups	N	Mean	SD	df	t value	Level of Significance
Rural students	422	71.88	9.78	1018	4.887	0.01
Urban students	598	68.24	10.56			

Table 2: Differences in problem solving ability between rural and urban students

It may be observed from table 2 that there is significant difference in problem solving ability between rural and urban students at 0.01 level. Rural students have higher problem solving ability than their urban counterparts. Hence the hypothesis is rejected.

3. Conclusion

In conclusion, it may be observed that majority of the higher secondary school students of East Khasi Hills have average problem solving ability. Rural students performed better than their urban counterparts and male students have an edge over female students in this ability. Therefore, it may be suggested that all subjects must be infused with problem solving skills and the teacher's role is extremely important in assisting their students in comprehending and analyzing problems.

4. References

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