Problem Solving Ability among Higher Secondary School Students: An Exploratory Study

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ABSTRACT

Problem solving ability is a part of a mental processes that's includes problem shaping, problem finding and reaching towards a final goal. The present study is an attempt to explore the problem solving ability between boys and girls studying in the higher secondary schools of Udhampur District of UT of Jammu & Kashmir. The method used for the study was descriptive method of research in which survey technique was employed. The sampling technique used for the study was random sampling method. The samples were selected from higher secondary schools of Udhampur. Data collection tool used was the problem solving ability test, which explores the problem solving skills among students. The collected data were analyzed by using online software usablestats.com to find out the t-value and accordingly to derive valid conclusions. Findings of the study revealed that there were no significant differences in the problem solving ability between boys & girls studying in the higher secondary schools.

Keywords: *Problem Solving Ability, Cognitive Process, Random Sampling, Higher Secondary Schools.*

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INTRODUCTION

A Student is confronted with the situation in educational settings which are contradictory for them and which contain obstructions that have to be overcome in order to reach the goal. To overcome this situation, it is needed to apply the thought processes, higher order cognitive process & reasoning ability to solve complex problems easily and in a quick way (Dostal, 2015). Further Matyushkin (1973) augmented that those situations which raise the inevitably thought processes are called as problem situation and the relevant tasks as the problem tasks. Krulik and Posamentier (1998) explained problem as "a situation that confronts a person, that requires resolution, and for which the path to the solution is not immediately known".

Problem solving is a complex form of learning with in which higher intelligence and reasoning ability take place. Problem solving ability is used to solve a problem. There are various form of problem solving ability ranging from simple to complex depending upon the difficulty level of the problem. It is used to cope up a situation which is first seen at that time and does not have immediate answer (NCTM, 2000). Problem solving skill is the advanced function of mind that requires proper training. It comprises a combination of cognitive, behavioral and attitudinal factor. Mayer (1983) supported this view and stated that problem solving skills as a multiple processes in which individual need to recognize the connection between previously experiences and existing problem. It is also stated that problem solving is a key to the attainment of an objective. Ozkaya (2002) suggested that, problem solving is considered as a function of transferring tasks that were

learnt previously. Funkhouser and Dennis (1992) claimed that problem solving requires manipulation or acting upon previous experiences. Problem solving is the form of leaning which refers to the handling and evaluating problem, and arriving at a solution (Heppner, & Petersen, 1982). Polya (1945) divided problem solving processes into four stages; understanding the problem, determining the correct strategy, implementing the determined strategy and evaluating the solution.

Problem solving abilities are one of the most important key factors for success in organizational and personal careers (Anderson & Anderson 1995). Problem solving ability also helps to create the thinking power which is used to find the solution of the problem. Gagne (1976) states, "Problem solving may be viewed as a process by which the learner discovers a combination of previously learned rules which can be applied to achieve a solution for a novel situation".

Despite this, the present study aims to compare and identify the problem solving skills of the students studying in the higher secondary schools of Udhampur and analyzed these data by using different variables.

SIGNIFICANCE

Problem solving is considered as one of the essential skills of 21st century students. Swami Vivekananda focused on Man making education which helps in the human development as well as national development quoted by (Barman and Bhattacharyya, 2012). NEP (2020, p.4) highlighted that problem solving ability develops higher order cognitive capacities among students. During the different stages of school problem solving can be taught

progressively which is helpful for both teacher and taught. As we know that education is man making. In the process of man making, a human being has to face a lots of problems, difficulties, humps, obstacles etc. One has to overcome hindrances in such a way that transfer of learning takes place and it paves the way for solving the future problems. “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” (Woodworth & Marquis, 1948). Successful problem solving ability results in the acquisition of new knowledge. Problem solving ability provides opportunity for analyzing and solving the new problem. It also helps in understanding scientific facts and principles. The present study is an attempt to explore the problem solving ability between boys and girls studying in the higher secondary schools. The above mentioned study we can clearly know the need of the study. The study is conducted to know the problem solving ability among higher secondary school students.

OBJECTIVE

The study is conducted keeping in view the major objective:

1. To find out the significant difference in problem-solving ability between boys and girls studying in higher secondary schools.

HYPOTHESIS

The major hypothesis of the study is:

H_{O1}. There will be no significant differences in problem solving ability between boys and girls studying in higher secondary schools.

METHODOLOGY

The present study has been undertaken through the descriptive method of research in which survey technique was employed. The sampling technique used for the study was random sampling method which comes under probability sampling. The population includes all the students of class 12^{th} studying in Udhampur District of Jammu & Kashmir. The total sample of the study includes 150 students from higher secondary schools of Udhampur District. Out of which 75 students were girls and 75 were boys. In this study the tool used for the data collection was Problem Solving Ability Test (PSAT) developed and standardized by (Dubey. 2015). The collected data were analyzed by using the online software usablestats.com to find out the mean, SD and t-value and derived valid conclusions.

ANALYSIS OF THE STUDY

The data collected was used to explore the problem solving ability among higher secondary schools students studying in Udhampur District were analyzed and based on the analysis and discussions the following conclusions were derived.

Table 1: Mean, SD & t-value of students with respect to gender

Gender	Mean	St. Deviation	t - value
Boys	12.90	2.69	
Girls	12.67	2.53	0.5029

Table 1 shows that the means scores obtained from the boys and girls regarding the problem solving ability were 12.90 and 12.67 respectively. The standard deviation scores obtained for boys and girls were 2.69 and 2.53 respectively. The t-value obtained was 0.5029 which is not significant at 0.05 level. According to the first hypothesis stated that there will be no significant differences in problem solving ability between boys and girls studying in higher secondary schools was accepted which implies that the level of problem solving ability is same for both boys and girls.

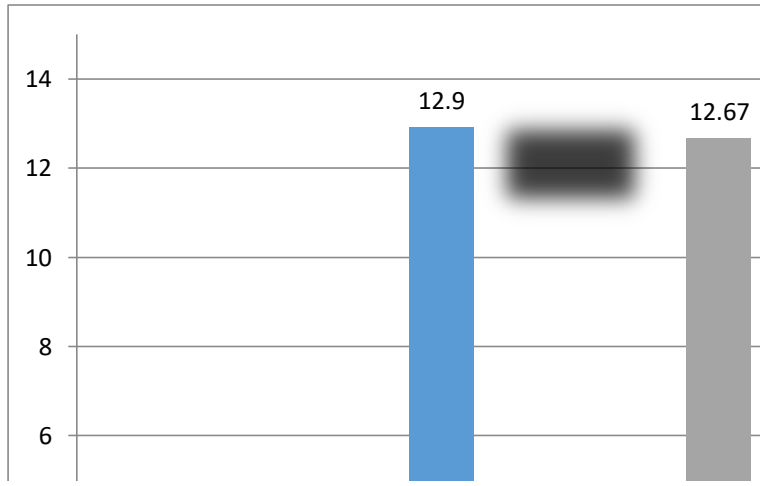

Figure 1: Graph showing problem solving ability among school students of sub-sample.

RESULTS AND DISCUSSIONS

The finding of the study revealed that with respect to gender the problem solving ability among higher secondary school students of Udhampur District was found to be insignificant i.e. there was no significant difference in problem solving ability between boys & girls studying in higher secondary schools. The insignificance conveyed is that the students belonging to different sex shows no differences in problem solving ability among higher secondary schools students. The hypothesis of no difference in problem solving ability was thus accepted. These findings were supported by the following findings of the study done by Stanly (2014) on problem solving ability on IX standard students in Puducherry region. The study revealed that there was no significant difference found between the mean score of problem solving ability of boys and girls.

CONCLUSIONS

Based on the analysis, discussion, and finding of the study the following conclusion was derived that there was no significant differences in the problem solving ability between boys & girls studying in the higher secondary schools of Udhampur District in the UT of Jammu and Kashmir region.

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