



A STUDY ON PROBLEM SOLVING ABILITY AMONG HIGH SCHOOL STUDENTS

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Abstract: Problem-solving abilities are essential for success in education, work, and daily life, ranging from solving mathematical equations to resolving interpersonal conflicts. The importance of problem-solving ability for students cannot be overstated, as it is a critical skill that transcends academic disciplines and is vital for success in various aspects of life. The purpose of this study was also to analyze the problem solving ability of high school students. For this purpose, the sample was consisted of 135 students. Problem Solving Ability Test (PSAT) developed by L.N. Dubey was used as a tool for data collection. Mean and t-test were used to analyze the data. On the basis of statistical evidences obtained it was concluded that the majority of high school students have moderate level of problem solving ability. Findings of present study can show a new way for developing problem solving ability skill among students of all level of education which in turn can also improve their academic performance.

Keywords: Problem Solving Ability, High School Students.

Introduction: Problem-solving ability is one of the most important core life skills. It is a crucial skill that is essential in many areas of life, including education, job, and daily decision-making. Problem-solving ability is a multidimensional cognitive skill that entails recognizing, analyzing, and addressing problems in a variety of circumstances. Problem-solving abilities are required to navigate the intricacies of everyday life, from calculating mathematical calculations to resolving interpersonal conflicts. Problem-solving ability is a critical cognitive skill that allows people to navigate the problems and hurdles that arise in diverse settings. Problem-solving abilities are essential for success in education, work, and daily life, ranging from solving mathematical equations to resolving interpersonal conflicts. The importance of problem-solving ability for students cannot be overstated, as it is a critical skill that transcends academic disciplines and is vital for success in various aspects of life. Problem solving ability refers to a person's cognitive capacity to recognize, evaluate, and efficiently complete difficult tasks or problems that arise in various settings, particularly in the high school level. This skill involves designing and implementing suitable solutions by applying critical thinking, logical reasoning, creativity, and decision-making abilities.

Review of Literature: In their study **Kumar and Verma (2019)** investigated gender differences in Problem solving ability across 400 students from government schools as well as from private schools. The results showed that there were no appreciable variations in the Problem solving abilities of male and female students. The study by **Jakhar (2021)** indicated that the varying distribution of the scientific attitude among rural and urban students. The study further indicated significant difference in the scientific attitude of the rural and urban school students in favour of the rural school students and significant difference in the scientific attitude of the male and female students in favour of the female in the rural area. **Pradhan and Bhutia (2020)** conducted a study on scientific attitude and problem solving ability among senior secondary students in Namchi, Sikkim. They found that while most students possessed an average level of scientific attitude, their Problem solving abilities were generally low. Furthermore, there was no significant relationship between the two variables. This suggested that although scientific attitude is important, it may not automatically lead to better Problem solving ability without specific instructional strategies or practice. **Ardithayasa, Gading, and Widiana (2022)** developed and implemented project-based learning modules to enhance students' scientific literacy and Problem solving ability. Their research showed that students involved in hands-on, project-based activities developed a deeper understanding of scientific concepts and improved their ability to solve real-life problems. This indicated that experiential learning approaches could simultaneously strengthen scientific attitude and Problem solving ability. **Sharma and Yadav (2023)** studied the scientific attitude of secondary school students in relation to their academic achievement in science. Their findings indicated a moderate positive correlation between scientific attitude and science achievement, implying that students with a stronger scientific attitude tended to perform better in science subjects. **Handayani and Suyanta (2024)** examined the impact of the Problem-Based Learning (PBL) model on students' Problem solving abilities and scientific attitudes. Their study revealed that students who were taught using the PBL approach demonstrated significantly higher Problem solving ability and more positive scientific attitudes compared to those taught using conventional methods. Many studies haven't really looked at how specific teaching methods affect both problem-solving ability and scientific attitude in this age group, and there's little focus on how these two factors interact in real classroom settings.

Significance of the study: Problem solving is widely recognized as critical to success and is considered a fundamental aspect of human conduct. Education aims to develop better performance, with individual differences evident in problem solving abilities. Some individuals excel at coping, while others struggle. The majority of human life involves grappling with problems in order to find effective solutions. Students with strong problem solving ability tend to adjust well in both academic and home environments. Effective Problem solving requires critical thinking, supporting the power of thought to find solutions. The primary goal is to overcome barriers in various aspects of life, including physical, psychological, social and environmental factors. It is believed that the findings of this study may affirm the pivotal role of education in shaping the problem solving capabilities of high school students.

Objectives of the study: The present study was conducted to attain the following objectives:

1. To study the level of problem solving ability of high school students
2. To study the difference between male and female high school students in their problem solving ability.
3. To study the difference between govt and private high school students in their problem solving ability.
4. To study the difference between urban and rural high school students in their problem solving ability.

Hypotheses of the study: The study was designed to test the following hypotheses:

1. There is significant difference in the level of problem solving ability of high school students.
2. There is no significant difference between male and female high school students in their problem solving ability.
3. There is no significant difference between government and private high school students in their problem solving ability.
4. There is no significant difference between urban and rural high school students in their problem solving ability.

Research Design: Descriptive survey method was used for conducting the present study. The present study covered variables like Problem Solving Ability and some moderate variables.

Tools Used: Problem Solving Ability Test developed by Dubey (2010) standardized tools was used for conducting this study:

Delimitation of the Study: The study was delimited to 135 high school students of class IX from government and private high schools of Davangere district in Karnataka.

Statistical Techniques Used: Descriptive statistics were employed to find out mean, standard deviation, etc. to study the nature of data and Inferential statistics such as t-test was employed to study the significant variation in the data.

Data Analysis and Interpretation: Analysis of the data has been done by using statistical techniques such as Mean, Standard Deviation. 't' test for testing the significance of two means.

Hypothesis-1: There is significant difference in the level of problem solving ability of high school students.

Table 1 : Level of problem solving ability among high school students.

Level of problem solving ability	Number of students	Percentage
High	60	44.4
Moderate	41	30.4
Low	34	25.2
Total	135	100

The above table reveals that 44.4 percent of high school students have high level of problem solving ability, 30.4 percent of high school students have moderate level of problem solving ability and 25.2 percent of high school students have low level of problem solving ability, Hence it may be concluded that in the present study majority of high school students have moderate level of problem solving ability. Hence the hypothesis is accepted.

Hypothesis-2; There is no significant difference between male and female high school students in their problem solving ability.

Table 2 : Mean, SD and 't' test values of male and female high school students in their problem solving ability.

Variables	N	Mean	SD	't' Value	Level of Significance
Male	65	64	12.67	0.83	NS
Female	70	62	11.85		

NS=Significant at 0.05 level

The above table reveals that the mean value of male students is 64 and female students are 62. Since the calculated 't' value 0.83 is lesser than the table value 1.96 at 0.05 level of significance. Therefore it is stated that there is no significant difference existed between male and female high school students in their level of problem solving ability. Hence the hypothesis is accepted.

Hypothesis-3; There is no significant difference between government and private high school students in their problem solving ability.

Table 3 : Mean, SD and 't' test values of government and private high school students in their problem solving ability.

Variables	N	Mean	SD	't' Value	Level of Significance
Govt High School	78	62	12.56	0.69	NS
Private High School	57	64	11.82		

NS=Significant at 0.05 level

The above table reveals that the mean value of government high school students is 62 and private high school students are 64. Since the calculated 't' value 0.69 is lesser than the table value 1.96 at 0.05 level of significance. Therefore it is stated that there is no significant difference existed between government and private high school students in their level of problem solving ability. Hence the hypothesis is accepted.

Hypothesis-4; There is no significant difference between urban and rural high school students in their problem solving ability.

Table 4 : Mean, SD and 't' test values of urban and rural high school students in their problem solving ability.

Variables	N	Mean	SD	't' Value	Level of Significance
Urban	73	70	10.34	9.12	S
Rural	62	55	8.74		

S=Significant at 0.05 level

The above table reveals that the mean value of urban high school students is 70 and rural high school students are 62. Since the calculated 't' value 9.12 is more than the table value 1.96 at 0.05 level of significance. Therefore it is stated that there is significant difference existed between urban and rural high school students in their level of problem solving ability. Hence the hypothesis is rejected.

Major Findings:

1. Majority of high school students have moderate level of problem solving ability.
2. There is no significant difference existed between male and female high school students in their level of problem solving ability.
3. There is no significant difference existed between government and private high school students in their level of problem solving ability.
4. There is significant difference existed between urban and rural high school students in their level of problem solving ability.

Educational Implications: The analysis revealed several important educational implications:

* Schools should create an inclusive academic environment where every student has equal access to learning opportunities, free from gender-based expectations.

* Teaching methods must be diverse and student-centred, encouraging the development of problem solving through practical engagement.

* Educator training should prioritize awareness of equitable teaching practices and equip teachers with tools to address different learning preference.

* Educational planning should be grounded in actual student performance data to support a more responsive and inclusive education system.

Conclusion: According to the findings of the present study, it was depicted that high school students need to develop and enhance their problem-solving ability and skills. The scarcity of teacher was another problem. As previously stated, every topic could not be adequately handled due to the lack of teachers. Students become passive at addressing issues and challenges in their academic and real life. In addition to that one of the possible reason of extremely low problem solving ability and psychological well being among high school students would be still practicing of rote memorization as the basic method of teaching rather than comprehension. In order to improve problem solving ability of the students, school authorities need to take steps to diagnose the crucial difficulty areas in basic education. For this purpose, the high school teachers are required to be trained for making use of diagnostic and criterion based evaluation procedures to make teaching-learning process more effective as well as child centre learning to enhance the level of problem solving ability.

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