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A STUDY ON PROBLEM SOLVING ABILITY AMONG STUDENTS OF GOVT. SENIOR SECONDARY SCHOOL: A COMPARATIVE ANALYSIS

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ABSTRACT

Problem-solving ability 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. The purpose of this study was also to analyse the problem solving ability of higher secondary school students of Arts and Commerce stream. For this purpose, the sample was consisted of 80 students. Out of 80 students, 40 were from Arts and 40 were from commerce stream taken. 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 analyse the data.

Keywords: Problem-Solving Ability, Senior Secondary School, Stream of Study

1. INTRODUCTION

Problem-solving skill can be characterized as the ability to effectively solve challenges, hurdles, or uncertainties that arise in various settings. It comprises a variety of cognitive processes, including problem identification, goal formulation, information collection, alternative appraisal, decision-making, and solution execution. Individual attributes such as cognitive talents, knowledge, experience, motivation, and cognitive abilities all have an impact on problem-solving ability.

Problem-solving ability is an essential skill with far-reaching consequences for academic progress, occupational success, and personal well-being. In education, good problem-solving abilities are linked to improved academic performance, critical thinking, creativity, and flexibility. Employees that can effectively solve problems at work are valued for their abilities to create, collaborate, and overcome obstacles. Furthermore, problem-solving abilities are critical for decision-making, conflict resolution, and stress management.

The importance of problem-solving ability for students cannot be overstated, as it is a critical
The significance of problem-solving ability for students cannot be emphasized, since it is a fundamental skill that crosses academic fields and is required for success in many facets of life. Problem-solving abilities are critical to academic performance in all courses and grade levels. Students face a variety of scholastic hurdles, including answering math problems, comprehending complex texts, and completing scientific experiments. Problem-solving develops critical thinking abilities, which are required for analyzing information, evaluating evidence, and making sound judgments. Problem-solving fosters creativity and innovation by requiring pupils to think outside the box and consider alternative solutions.
In today's quickly changing environment, adaptability and resilience are essential qualities for success. Problem-solving helps pupils negotiate uncertain situations, overcome obstacles, and adjust to new challenges.
Students that thrive at problem solving can collaborate effectively in groups, share ideas, listen to varied perspectives, and settle disagreements constructively. These collaborative abilities are required for success in both academic and professional environments. Problem-solving abilities are directly applicable to real-world difficulties and obstacles. Students with good problem-solving talents are better positioned to make meaningful contributions to society and influence positive change, whether they are tackling environmental challenges, developing creative technology, or fixing social problems. Students who develop excellent problem-solving abilities during their academic years are more equipped for the demands of the workforce, giving them a competitive advantage in the labor market.
Problem-solving skills are important for students because they foster academic performance, critical thinking, creativity, adaptability, teamwork, communication, real-world application, career readiness, and lifelong learning. Students who acquire excellent problem-solving skills are better prepared to achieve in school, career, and life, as well as make important contributions to their communities and society as a whole. Moreover In today's knowledge-based economy, people must constantly adapt to new technology, industries, and difficulties. By cultivating problem-solving talents, children become lifelong learners who are capable of navigating complexity, acquiring new knowledge, and adapting to change.

2. RATIONALE OF THE STUDY

Problem-solving ability refers to students' ability to analyze and solve problems. It is the students' ability to adapt to any environment that allows them to comprehend the problem and how to solve it. Thus, measuring the students' level of problem-solving ability is crucial because problem-solving ability improves students' thinking skills when confronted with diverse challenges in their life and studies. Problem-solving skills can be used outside of the classroom in both personal and professional settings.
In our school system, senior secondary students face a variety of study disciplines such as science, arts, and commerce. Students at this level choose a study course based on their interests, which may not lead to the appropriate subject of study. Again, students' interests may be influenced by their parents' preferences and status. Along with the student's interests, several extremely essential factors such as problem-solving ability should be considered when making such judgments. Problem-solving skills are useful in both daily life and school.
Students in secondary school usually range in age from 14 to 16 years. Adolescence causes cognitive, social, and emotional changes. There are numerous challenges that can develop during the thought process. In everyday life, a teenage learner faces and seeks to solve a wide range of problems. It cannot be accomplished through one's own mental processes. It is vital to develop a thinking process in order to deal with the myriad obstacles that arise in daily life or when studying. The teacher's responsibility is to assess the students' problem-solving ability and determine whether they need help based on their level. Students benefit from problem solving since it helps them develop a stronger and more unified sense of self.
In this regard, the current study focuses primarily on the varied problem-solving abilities of higher secondary pupils. As a result, the current issue is of critical importance. As a result, further research into secondary school pupils' problem-solving abilities is required. The purpose of this study was to determine the level of problem solving skills and compare it to that of students in the commerce and arts streams of senior secondary school.

3. REVIEW OF LITERATURE

Kiran, U. (1983) conducted study on Anxiety, Task Complexity and Sex as Related to Verbally Expressed Preferences and Problem Sowing Performance. The objectives were (i) to study the effect of anxiety, sex, and task complexity, separately on performance of subjects, (ii) to study the interaction between sex and anxiety; anxiety and complexity; and

sex and task complexity separately in relation to verbally expressed preferences, (iii) to stay the interaction between sex, anxiety and task complexity in relation to verbally expressed preferences, (iv) to study separately the effect of anxiety, sex and task complexity on problem solving performance, and (v) to study separately the interaction between sex and anxiety, sex and task complexity anxiety and task complexity, and sex, anxiety and task complexity on problem solving performance. The hypotheses were: (1) Anxiety, sex, and task complexity separately do not affect verbally expressed preferences. (2) There is no interaction between sex and anxiety, anxiety and task complexity, sex and task complexity, anxiety, sex and task complexity separately in relation to verbally expressed preference. (3) Anxiety, sex and task complexity separately do not affect problem solving performance. (4) There is no interaction between sex and anxiety, sex and task complexity, anxiety and task complexity, and sex, anxiety and task complexity separately in relation to problem solving performance.
The sample comprised of 300 students. An anxiety test developed by D.N. Sinha was used to measure anxiety. The test-retest and split-half reliability coefficients were 0.85 and 0.92 respectively. The data were analysed through factorial design analysis of variance of equal cell size followed by Duncan's Range Test.
The findings were: 1.Complexity in addition to anxiety as well as sex affected the mean interestingness ratings significantly. 2. There was found to be a significant main effect of rating trials leading to a significant interaction between sex and rating trials; anxiety and rating trials, and complexity and rating trials. 3. The main effect of anxiety, sex and task complexity variables were found significant as the problem solving performance was concerned. 4. The interactions between anxiety and complexity, and sex and complexity were found significant whereas the interaction between anxiety and sex was not significant. 5. On trend analysis, a significant linear and quadratic trend for complexity variable was found.

Veerasamy, Ashok Kumar (2019) conducted study on the relationship between perceived problem-solving skills and academic performance of novice learners in introductory programming course. It is discovered that great problem solver obtained good marks in their final exams. There was no significant difference in formative assessment performances between efficient and poor problem solvers.
Kumar, M.(2020) conducted a study on problem-solving ability and creativity among higher secondary students. Problem-solving capacity is a mental activity that is a component of the greater issue-solving process, which involves problem identification, shape, and obtaining a final goal. There is a need to cultivate this among school pupils who will become future citizens of the country. The study's findings show that higher secondary pupils possess a high level of problem-solving skills. According to the study's findings, higher secondary pupils exhibit modest levels of inventiveness. There is no relationship between creativity and problem-solving ability among higher secondary students, and there is no significant difference in problem-solving ability between boys and girls.
Zulkarnain (2021) explored the common challenges encountered by most students when learning mathematics, which included an inability to answer problem-solving questions and a lack of mathematical self-confidence. Search, Solve, Create, and Share (SSCS) is a teaching strategy that allows students to improve their problem-solving abilities and self-efficacy. The purpose of this quasi-experimental study was to see how the SSCS teaching paradigm affected high school students' mathematical problem-solving abilities and self-efficacy. This study included 129 high school students, divided into two groups: 69 in the treatment group and 60 in the control group. To answer the study objectives, the one-way analysis of covariance test was performed using SPSS 25.0 program. The results indicate significant differences in mathematics problem-solving skill and self-efficacy between students who used the SSCS teaching models and those who were taught using traditional approaches. The former has better problem-solving skills and self-efficacy than the latter. This study recommends that teachers use the SSCS teaching model as an alternate teaching technique to improve students' problem-solving abilities and self-efficacy. Furthermore, this study can act as a catalyst in attempts to promote the adoption of the SSCS teaching paradigm at various levels of education.

Objectives

1. To find out the level of problem-solving ability of students of arts stream of +1 class.
2. To find out the level of problem-solving ability of students of commerce stream of +1 class.
3. To compare the difference between students of arts stream and commerce stream of +1 class of government school on the level of problem-solving ability.

NULL HYPOTHESIS

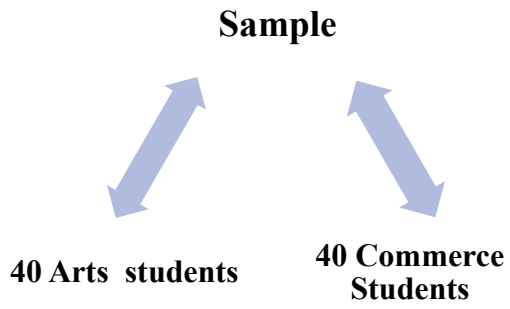
There is no significant difference between the Problem-solving ability of students of arts stream and commerce stream of +1 class of government school on the level of problem-solving ability.

Research and Design

The present study is primarily designed to find out the level of problem-solving ability of students of +1 class arts and commerce stream and to compare the difference between arts stream and commerce stream students.

Population and Sample

The population of the study comprises of students of class +1 of commerce and arts stream from government senior secondary schools. The sample of the study consisted of 80 students of Class +1 (40 commerce+ 40 arts).



Tools: The investigator used the Problem-Solving Ability Test (PSAT) designed by L.N. Dubey. This test has 20 items which were highly distinguish. Each of 20 statements has four alternative answers, out of which only one is correct. The correct awarded is 1 score.

Delimitation: The present study is delimited to arts and Commerce students only.

Result

In order to find out the level of problem solving ability of secondary school students in the scores obtained from the scale are analyzed and interpreted in accordance with the norms provided in the manual of the scale. The collected data was analyzed using statistical techniques like mean, standard deviation and percentage. For the comparison of variable t-test was used. Findings are presented in the following table:

Table 1
Level of Problem-solving ability of Arts Stream students

S.N.	Level of Problem Solving Ability	No of Students	Percentage
1.	Extremely High	_	_
2.	High	_	_
3.	Above Average	04	10
4.	Average	23	57.5
5.	Below Average	09	22.5
6.	Low	04	10
7.	Extremely Low	_	_

Analysis of the above table No. 1 shows that 10 % of the students have Above Average problem solving ability while 57 % have Average Ability of problem solving ability whereas 22.5 % of the students have Below Average Ability of problem-solving ability while 10% of the students have low problem-solving ability.

Table 2
Level of Problem-solving ability of Commerce Stream students

S.N.	Level of Problem Solving Ability	No of Students	Percentage
1.	Extremely High	_	_

2.	High	17	42.5
3.	Above Average	19	47.5
4.	Average	04	10
5.	Below Average	_	_
6.	Low	_	_
7.	Extremely Low	_	_

Analysis of the above table No.1 shows that 42.5 % of the students have high problem solving ability while 47.5 % of the students have Above Average Ability of problem-solving ability whereas 10 % of the students have Average problem-solving ability.

Table 3
Comparison of Problem -Solving Ability of Arts and Commerce Students.

Problem-solving ability	N	Mean	S.D	T-value	Level of significant
Arts Stream	**40**	**10.325**	**2.20**	**18.39**	**Significant at 0.05 level**
Commerce Stream	**40**	**15.975**	**1.573**		

The above table shows the result for the comparison between students of +1 arts and commerce stream of govt schools in their level of Problem-Solving ability. The table shows that the t- value (18.39) is more than the table value (1.64) at 0.05 levels. Hence there is significance difference between the arts and commerce stream Students on their Problem solving ability mean scores. Therefore the null hypothesis "There is no significant difference between the Problem-solving ability of arts stream and commerce stream students of +1 class of government school on the level of problem-solving ability" is rejected.

4. CONCLUSION

From the study conducted, it can be concluded that the students of arts and commerce stream of +1 class was found to have significant difference in their problem-solving abilities. The problem-solving ability is very important for the students to improve in their studies and in their life. Thus, we may need to upgrade the teaching methods to enhance the understanding level of the students; so that the students can have better problem-solving ability.

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None.

CONFLICT OF INTEREST

None.

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