

Problem Solving Ability and Academic Achievement among College Students in Aizawl

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Abstract

Problem solving ability is important in this era of rapid changes to adapt to new circumstances and seize opportunities that arise. Education plays one of the major role in shaping a person to become a good problem solver. The present study examines the problem solving ability and academic achievement of college students in Aizawl. Descriptive survey method was employed for collecting data. The sample consisted of 200 college students, 100 Arts students and 100 Science students from four different colleges in Aizawl. The “Problem-Solving Ability Scale” developed by V. Sharmila and P.C. Naga Subramani (2011) was used to measure the problem solving ability of college students. The findings showed that majority of the college students in Aizawl had moderate level of problem solving ability. The result indicated that problem solving ability had a significant relationship with academic achievement. The result also showed that Science students had better problem solving ability than Arts students while there was no significant difference in the problem solving ability between male and female students.

Keywords: *Problem solving ability, academic achievement, college students*

Introduction

In everyday life, everyone must have a problem. It could be from family, academic, social, etc. that range from simple to the most complicated one. Each of us solves problems every day, although we usually don't think of our activities in those terms. The problem solving is the highest operation of cognitive process.

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A problem is an obstacle which makes it difficult to achieve a desired goal, objective or purpose. It refers to a situation, condition, or issue that is yet unresolved. Problems are the real facts of life. Everyone in this world has them. It really does not matter whether someone is stinking rich or very poor. Problems haunt people every day and night. Likewise, even children are not immune to it; children have their own problems that they face in the classroom and in home. If your children fail to solve their problems, they may feel dejected and disappointed. On the other hand, children who can solve problems can feel very confident and bold.

Problems are common and diverse in the education system. They range from unanswered questions that learners have tried to answer without progress. Robertson (2001) described precisely that although a question might not be a problem when an answer is available, it becomes a problem when an individual cannot provide an answer.

Problem solving is a common and normal activity of living and can be an important strength in coping with all kinds of demands, from daily hassles to major traumatic life events. Each individual since the age of normal infant has the potential and talent that can be expanded and enhanced.

Problem-solving skills are the ability to identify problems and devise effective strategies to overcome them. Problem solving is a high-level thinking skill that requires the ability to identify the nature of a problem, deconstruct it, and develop an effective set of actions to address the challenges related to it (Abazov, 2016). It empowers individuals to confront obstacles, make informed decisions, and create innovative solutions, ultimately leading to personal growth and success. This skill is not only essential for tackling everyday issues but also crucial in addressing more intricate problems in various fields, from science and engineering to business and interpersonal relationships. Whether in our personal lives or professional endeavors, the ability to navigate problems efficiently is invaluable.

Problem solving isn't just about responding to and fixing the environment that exists today. It is also about innovating, creating new things and changing the environment to be more desirable. Problem-solving enables us to identify and exploit opportunities in the environment and exert some level of control over the future.

It is a fact that students often do not succeed in applying knowledge which they have acquired in lessons given in school or in everyday contexts. The responsibility of school becomes increasingly important to develop scientific attitudes in student so that they may solve their problems independently for better adjustment in future complex society. A child is not born with this ability but has to develop this ability in course of his life time with the help of his parents, teachers and society at large.

In the highly achieving society of today, success has become an index of attaining position and respect. A good academic achievement record of students is an index of an effective educational system. It is the tangible result of the quantity and quality of knowledge attained. Education is frequently concerned with the need to improve students' academic achievement. Academic development of the pupil is the primary concern and the most important goal of education. Obviously, in the school, great emphasis is placed on achievement right from the beginning of formal education.

There are many factors which affect academic achievement viz. intelligence, personality, motivation, school environment, heredity, home environment, learning, experiences at high school, interests, aptitudes, family background, socio economic status of the parents and many more other factors influenced the academic achievement. Despite this, one of the major factors of education is the ability of problem solving that affect the academic achievement. Enhancing students' problem solving capacity is one of educational psychology's greatest challenges and is a major demand placed on any educational institution (Mayer and Wittrock, 2006).

It is important to note that academic achievement is just one aspect of a person's overall development. While it is valuable, it does not capture a person's full range of skills, talents, or potential. Additionally, academic achievement should be seen in the context of individual goals and aspirations, as not all individuals have the same academic objectives or priorities.

By nurturing problem-solving skills in students and providing them with the tools and support they need to tackle challenges head-on, educators can help prepare the next generation to navigate the complexities of the world with confidence and resilience. As students develop their problem-solving abilities, they not only enhance their academic performance but also lay the foundation for success in life.

Rationale of the study

Studying problem solving ability is important because individuals differ in their ability to solve problems. Understanding the problem, devising a plan to solve the problem, implementing the plan, and reflecting on the problem and learning other problem-solving strategies will enable students to deal more effectively and successfully with most types of problems. This will help them with their confidence in tackling problem-solving tasks in any situation, and enhance their reasoning skills. Children can learn that not every problem calls for the same approach and that each problem has to be managed differently.

The study will also help in improving the education quality. Not every solution or answer to life problem can be seek from books, if teachers know the problem solving ability of the students, they can adjust themselves in their teaching style and adapt the suitable teaching

strategy and also help them in their daily life. Through this study we can also find out if there is a relationship between problem solving ability and academic achievement. We can see students' attitudes towards learning and how it affects their reflective thinking and see if problem-solving ability is important factor for academic success and psychological well-being.

Research questions

1. What is the problem-solving ability of college students in Aizawl city?
2. Is there any significant relationship between problem-solving and academic achievement among college students?
3. Is there any significant difference in the problem-solving ability among college students with reference to gender?
4. Is there any significant difference in the problem-solving ability among college students with reference to their streams of study?

Statement of the problem

The problem has been stated as “Problem Solving Ability and Academic Achievement among College Students in Aizawl”.

Objectives

1. To find out the problem-solving ability of college students in Aizawl city.
2. To find out the relationship between problem-solving ability and academic achievement.
3. To find out the difference in the problem-solving ability among college students with reference to gender.
4. To find out the difference in the problem-solving ability among college students with reference to their streams of study.

Hypotheses

1. There is no significant relationship between problem-solving ability and academic achievement among college students.
2. There is no significant difference in the problem-solving ability among college students with reference to gender.
3. There is no significant difference in the problem-solving ability among college students with reference to their streams of study.

Methodology

The aim of this current study is to examine the problem-solving ability and academic achievement of college students in Aizawl city. Therefore, a descriptive survey method has been chosen for this investigation.

Population

The population of the study comprises of all colleges of Aizawl District.

Sample

The sample of the study consisted of 200 college students. 100 Arts students and 100 Science students from Pachhunga University College, Govt. Zirtiri Residential Science College, Govt. Aizawl North College and Govt. Aizawl West College. Stratified random sampling technique was employed for the study.

Procedure for data collection

In the collection of data, the investigator used a standardized questionnaire. The investigator took the consent of college principals for the collection of data among college students of Pachhunga University College, Govt. Zirtiri Residential Science College, Govt. Aizawl North College and Govt. Aizawl West College. After getting permission from the investigator's supervisor and college principals, the investigator distributes the questionnaire in the classroom. The investigator gave the necessary instructions and inform them about the confidentiality of their responses. The investigator keeps an eye on every student while they were responding and all the responses were submitted as soon as the respondents finished answering. Further, the investigator requested Class-12 marksheet from each respondents to find the relationship between problem-solving ability and academic achievement.

Tool used for data collection

To find out the problem-solving ability of college students', Problem-Solving Ability Scale developed by V. Sharmila and P.C. Naga Subramani (2011) was used. The scale has 40 items. Problem-solving has two major domains: mathematical problem solving and personal problem solving. The test constructed by Sharmila and Subramani fall in the second category.

Analysis and interpretation

The responses received from the participants were categorized, organized into tables, and analyzed using standard scoring methods. Statistical techniques were employed for thorough data analysis, aligning with the objectives and hypotheses outlined in the study. The findings were then interpreted in a meaningful manner and presented accordingly.

Objective 1: To find out the problem-solving ability of college students in Aizawl.

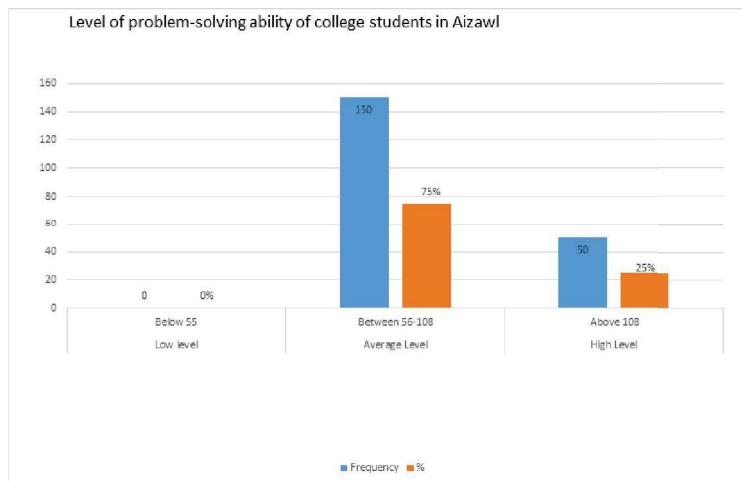
Table 1

Level of problem-solving ability of college students in Aizawl

Norms	Score Range	Frequency	%
Low level	Below 55	0	0%
Average level	Between 55 and 108	150	75%
High level	Above 108	50	25%

Fig.1

Level of problem-solving ability of college students in Aizawl



From the above table and figure it can be seen that the problem-solving ability scale was divided into three categories – Low level, Average level and High level in which there were no respondents who fall in the low level category. There were 150 respondents, i.e., 75% of the total respondents fall in the average level and the remaining 50 respondents, i.e., 25% of the respondents fall in the high level category.

Objective 2 : To find out the relationship between problem-solving ability and academic achievement.

For the purpose of statistical testing following null hypothesis was formulated:

H_0 = There is no significant relationship between problem-solving ability and academic achievement among college students.

Table 2**Relationship between problem-solving ability and academic achievement**

Variables	r	Sig.
Problem Solving Ability and Academic Achievement	0.54	Significant*

* Correlation is significant at the 0.01 level

From the above table it can be seen that there was a marked or substantial relationship between problem-solving ability and academic achievement. The result of the table reveals that there is positive and significant relationship between academic achievement and problem solving ability among college students in Aizawl. Thus, the null hypothesis is rejected.

Objective 3 : To find out the difference in the problem-solving ability among college students with reference to gender.

For the purpose of statistical testing following null hypothesis was formulated:

H_0 = There is no significant difference in the problem-solving ability among college students with reference to gender.

Table 3**Problem-solving ability in relation to gender**

Gender	Number of Samples	Mean	SD	t-value	p-value	df	Remarks
Male	100	98.63	14.6	0.58	0.56	198	Not Significant*
Female	100	99.82	14.3				

As depicted in the above table, the computed 't' value for the significance of the difference between the mean scores of males and females was .58. The table shows no significant gender difference (i.e. $p = .56$) at 0.05 level. Further, the table shows that based on the mean scores, female students (99.82) had higher mean scores than male students (98.63) of college students in Aizawl. This suggests that statistically, there was no significant difference based on gender among college students. Hence, the null hypothesis is accepted.

Objective 4: To find out the difference in the problem-solving ability among college students with reference to their streams of study.

For the purpose of statistical testing following null hypothesis was formulated:

H_0 = There is no significant difference in the problem-solving ability among college students with reference to streams of study.

Table 4
Problem-solving ability in relation to streams of study

Streams	Number of Samples	Mean	SD	t-value	p-value	df	Remarks
Arts	100	95.71	15.1	3.55	0	198	Significant*
Science	100	102.7	12.8				

As shown in the above table, the computed ‘t’ value for the significance of the difference between the mean scores of Arts and Science was 3.55. The table shows that there was significant difference (i.e. $p = .00$) at 0.05 level. Further, the table shows that based on the mean scores, Science students (102.74) had higher mean scores than Arts students (95.71) of college students in Aizawl. This suggests that statistically, there was significant difference based on streams of study among college students. Thus, the null hypothesis is rejected.

Major findings

Problem-solving ability of college students in Aizawl city.

1. Out of the 200 respondents there were no respondents who fall in the low level category of problem-solving ability scale.
2. There were 150 respondents, i.e., 75% of the total respondents fall in the average level category of problem-solving ability scale.
3. There were 50 respondents, i.e., 25% of the respondents fall in the high level category of problem-solving ability scale.
4. The general conclusion indicates that most of the college students in Aizawl city had moderate level of problem-solving ability.

Problem-solving ability of college students in Aizawl city in relation to their academic achievement.

There was a marked or substantial relationship between problem-solving ability and academic achievement. The result indicate that problem-solving ability had a positive and significant relationship with academic achievement and had an impact on the academic achievement of college students in Aizawl city.

Problem-solving ability of college students in Aizawl city in relation to their gender.

There was no significant difference in the level of problem-solving ability of college students in Aizawl city in relation to their gender.

Problem-solving ability of college students in Aizawl city in relation to their streams of study.

There was significant difference in the level of problem-solving ability among college students in Aizawl city in relation to their streams of study.

Recommendations

Here are several recommendations based on the findings of the present study:

1. To design courses that combine elements from different disciplines to foster a more holistic approach to problem-solving.
2. To promote projects that require teamwork among students from diverse academic backgrounds, encouraging them to leverage their unique perspectives and skills.
3. To analyse real-world scenarios that require students to apply their knowledge in practical contexts.
4. To facilitate debates on various topics to help students articulate their reasoning and consider multiple viewpoints.
5. Encouraging laboratory work and field studies that require students to design experiments, collect data, and analyze results.
6. Ensuring students have access to a variety of learning materials, including books, articles, and online resources, to broaden their understanding and approaches.
7. To offer constructive feedback that focuses on both strengths and areas for improvement, guiding students on how to enhance their problem-solving skills.

Conclusion

Problem solving is the key to success and has been regarded as the most significant aspect of human behavior. Problem solving is an important skill for business and life. A student having good problem solving ability will be properly adjusted in the class as well as at home. Since today's students are tomorrow's leaders and successful leaders are energetic. They exert a great deal of effort in order to communicate effectively, solve problems, make decisions, to set goals, execute plans, and supervise/evaluate. Problem-solving and academic achievement is an important aspect in learning. This research also indicates a strong and positive correlation between problem-solving ability and academic achievement. Students who demonstrate advanced problem-solving skills tend to achieve higher academic success across various subjects. Therefore, integrating problem-solving training into the curriculum can be a beneficial strategy for educators seeking to foster higher academic achievement among students. This integration not only supports students in their current

academic pursuits but also equips them with essential skills for lifelong learning and adaptation in a rapidly changing world.

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