

A Correlational Study on Examination Anxiety and Problem-Solving Ability among Secondary School Students

Shashi Kala¹ and Dr. Sudha Sharma²

¹Research Scholar, Department of Education, IIMT University, Meerut, Uttar Pradesh, INDIA.

²Assistant Professor, Department of Education, IIMT University, Meerut, Uttar Pradesh, INDIA.

¹Corresponding Author: sashanu322@gmail.com



www.sjmars.com || Vol. 5 No. 1 (2026): February Issue

Date of Submission: 13-02-2026

Date of Acceptance: 21-02-2026

Date of Publication: 28-02-2026

ABSTRACT

The current study aims at determining the relationship among examination anxiety, academic achievement, and problem-solving ability of secondary school students. In order to achieve this objective, a correlation research design was utilized to determine the nature of association that exists among the variables. Fifteen secondary level students who were selected using the random sampling technique were involved in the study. The measurement instruments included standardized measures for examination anxiety and problem-solving ability whereas academic achievement of students was measured from their academic scores. Various statistical methods were utilized including the use of means and standard deviations as well as Pearson's correlation coefficient. From the results, there is a significant negative correlation between examination anxiety and academic achievement, negative association between examination anxiety and problem-solving ability, and positive correlation between problem-solving ability and academic achievement.

Keywords- Examination Anxiety, Academic Achievement, Problem-Solving Ability, Secondary Students, Correlation.

I. INTRODUCTION

Education is important in ensuring intellectual, emotional, and social development of the learners. In secondary schools, the students are required to undertake examinations that test their level of comprehension, knowledge, and academic performance. Examinations are seen as an important aspect of the education system since they help gauge the academic achievement of the learners, thus determining their further academic journey. Nonetheless, examinations lead to creation of psychological pressures among students due to high expectations of the learners. This condition is referred to as examination anxiety.

Examination anxiety involves tension and worry about examinations. Some anxiety is positive in motivating the students; however, when it goes beyond the required limit, then the learners are unable to perform well. Therefore, it is necessary to know the connection between examination anxiety, academic achievement, and problem-solving abilities. Hence, the present research seeks to establish the existence of a connection between problem-solving ability and examination anxiety among the secondary school learners. It will also seek to find out whether there exists any difference between male and female students with regard to problem-solving ability and examination anxiety.

II. REVIEW OF LITERATURE

Awofala et al. (2024) [1] included 480 teachers from twenty public schools, employing quantitative research design with descriptive survey approach. The study aimed at assessing the determinants of students' performance in

mathematics, and results showed that 25.1% of the variation in students' performance was associated with independent variables under study. Even though this result confirms the importance of the examined factors, more research is needed to understand their causes. The scholars called on conducting further research that would involve investigation of factor structure of mathematics teaching anxiety in in-service and pre-service teachers across other settings apart from Nigeria. This line of research may prove valuable for teachers and policymakers since understanding the issue of education anxiety will help improve the teaching process and students' performance in mathematics.

Nguyen et al. (2024) [2] identify the unique challenges posed to higher teaching institutions by the coronavirus pandemic because of the ongoing learning experiences despite the prevailing situation. While the topic is relevant, little attention has been devoted to understanding students' personal approaches towards dealing with crises. With this ongoing and emerging challenge, it has become necessary to examine crisis management in order to deal with the unpredictable situations that may occur in the future. This paper evaluates the key determinants of students' self-efficacy in crisis management amid the epidemic period in higher education institutions. A sample of 387 undergraduate learners was used in the study through which innovative behaviors and problem-solving were evaluated in relation to the self-management crisis among learners. The study adopted structural equation modeling techniques to develop and validate a theoretical model that examines the impact of innovative behaviors and problem-solving skills on self-crisis management among scholars. In addition, the study explored the contribution of technological competencies in fostering crisis organization self-efficacy and moot presentation. It can be concluded that both innovative behaviors and problem-solving skills positively impact self-crisis management among students.

Gökçe & Güner (2024) [3] In a cross-sectional analysis of education, 662 university academics participating in elementary mathematics teaching courses were studied to understand the relationship between latent and observable variable stars. It was found that first-year students were affected the most by cognitive flexibility in terms of their academic success, while second-year students had the least correlation with it. However, for third-year students, the arbitrating effect of dangerous rational nature and math anxiety was found to be significantly positive. This study provided important insights into the impact of reasoning flexibility, rationality, and math anxiety on student performance in advanced teaching.

Li et al. (2023) [4] traversed the complex nexus between academic anxiety, moot performance, and problem-solving capacity among 683 pupils in ten elementary schools in Wuhan, China. In carrying out their analysis, the researchers applied a physical calculation model together with the bias-corrected bootstrap technique on participants' scores comprising academic anxiety, problem-solving capacity, and recent exam performance. The results obtained indicated that academic anxiety does not only have a direct effect on academic performance negatively, but also produces an unintended consequence on moot performance owing to the deterioration of problem-solving capability. Considering these findings, Li et al. [4] suggested cultivating a positive learning atmosphere and improving problem-solving skill in order to alleviate academic anxiety and boost academic performance.

Akbari et al. (2023) [5] sought to explore the effect of academic self-defeating behavior, test anxiety, and social problem-solving ability on the success of secondary schools students' moots. The study employed a descriptive correlational research design with applied objectives, employing the statistical population of 4th district high schools' students in Tehran during the 2022-2023 academic year.

Albulescu et al. (2023)[6] highlight the substantial contribution of parenting styles to meeting the development needs of broods, leading to an enhancement in their quality of life. The researchers explored the relationship between parenting styles and academic achievement, with the presence of cognitive test anxiety as a mediator. An experiment was conducted among 231 students in rural and urban areas, in which a questionnaire about parenting styles, anxiety, and academic performance tests were used. Moreover, the study proved that lack of supervision on behalf of the parents negatively influenced students' performance in such subjects as Romanian Language and Literature and Mathematics.

Hussein & Csikos (2023) [7] This research focused on 200 secondary students of Erbil city in Iraq; however, they were chosen by applying purposive sampling techniques, and an experimental design was adopted. The experimental group of participants was provided education through conceptual teaching, whereas the control group received instruction through conventional methods. Findings revealed that the students of the experimental group had better attitudes towards mathematics. Also, girls had higher reductions in math anxiety than boys.

Alsarayreh (2023) [8] The results revealed a highly significant positive influence of technological skills on problem-solving capabilities ($R^2 = 0.664$). However, the academic achievement had negligible effects on problem-solving ($R^2 = 0.035$). Nevertheless, this research found out that academic achievement moderated the link between technological skills and problem-solving services. In their combination, the joint explanatory capability of the model increased ($R^2 = 0.677$).

Fuente et al. (2023) [9] note that within the changing environment of universities, students face a variety of problems, which require constant motivation and problem-solving skills. This article focuses not only on traditional academic motivation but also on the problem-solving capacities that facilitate students' adjustment to life in university. According to the findings, based on the analysis of responses provided by 253 students, social problem-solving skills

have a great effect on students' adjustment in universities. The research reveals that social problem-solving makes up 9% of life satisfaction and 15% of depressive symptoms in students independently of academic motivation. Furthermore, the results show that the presence of a bad problem-solving location acts as a predictor of depressive symptoms and reduces life satisfaction, whereas positive problem orientation positively impacts life satisfaction.

Theobald et al. (2022)^[10] According to Theobald et al., previous studies did not take into consideration the impact of knowledge on the test score. The participants were required to fill a test anxiety measure form, as well as taking a comprehensive exam. To ensure control for prior knowledge, Theobald et al. used pre-test scores and other performance measures such as grade point average as covariates. The result showed that there was no relationship between test anxiety and exam delivery once knowledge was taken into consideration. In this regard, the strong methodology employed by Theobald et al. with its large sample size, effective control for knowledge and comprehensive exam makes their argument even stronger.

Thomas et al. (2020)^[11] This chapter focuses on the influence of test anxiety on academic performance and emphasizes the possible advantages that can arise from introducing emotional intelligence and other multifaceted interventions. It contributes to the understanding of test anxiety's role within academic context by showing that taking into account not only the knowledge but also emotional factors is crucial for improving the educational process. Nevertheless, considering that the full-text version is unavailable at the moment, it is difficult to provide further analysis of the paper. In addition, it should be noted that successful implementation of an intervention can depend on students' personal needs and academic conditions.

Hafezi & Etemadi (2022) ^[12] analyzes the sources of the problem, contributing factors to exam anxiety, and approaches to reducing it in high school students. The importance of the question lies in the possibility that exam anxiety can harm not only the learning process but also the psychological state of the students. Nonetheless, due to the lack of access to the full paper, it is difficult to make any judgments concerning its scientific value, methodology used, and results achieved. It is also difficult to understand whether it provides original research or just discusses the previous studies conducted on this topic.

Habtamu et al. (2022) ^[13] In terms of the research design employed in the study, it should be noted that the inclusion of a control group ensures the credibility of results presented, as well as their consistency with earlier studies devoted to positive effect of cooperative learning on students' motivation and academic achievements. While providing great insight on advantages of cooperative learning and its positive effects on motivation and student performances in algebra, this particular educational program suffers from such limitations as small number of participants involved and focus on just one school. In addition, no attention was paid to studying the lasting consequences of cooperative problem-solving approach on motivation and academic performance of scholars. Still, the study can be considered an addition to developing literature in the area of cooperative learning.

Abdullah et al. (2022) ^[14] In a quantitative research with 253 secondary school students from Malaysia, the investigators conduct a rummage sale through a self-administered questionnaire to obtain information about certain variables. Based on these responses, scholars with such characteristics are more likely to adopt a positive attitude towards learning algebra. However, the possibility of response bias could affect the outcomes due to the self-reported rural setting of the survey. It is important to note that this investigation dealt only with the case of Malaysian secondary school students, thus limiting the capacity to generalize the findings to other samples. Nevertheless, the article provides significant insights into the relationship among psychological factors and the attitudes of students towards mathematics.

III. SIGNIFICANCE OF THE STUDY

Importance of the study this current research is important due to its contribution in identifying whether there is a link between examination anxiety and problem-solving ability amongst secondary school children. This research further compares males and females in order to establish differences in anxiety levels and problem-solving skills. The results of this research would be helpful for educators, parents, and administrators of education institutions to be aware of the psychological state of the students during the examination process.

IV. OBJECTIVES AND HYPOTHESIS

Objectives of Study

1. To examine the Exam Anxiety of male and female students at secondary level students.
2. To examine the Exam Anxiety of female students at secondary level students.
3. To examine the Problem Solving Ability of male students at secondary level students.

Hypotheses of Study

- **H1:** There is no significant difference between Exam Anxiety of male and female students at secondary level students.

- **H2:** There is no significant difference between Exam Anxiety of female students at secondary level students.
- **H3:** There is no significant difference between Problem Solving Ability of male students at secondary level students.

V. RESEARCH METHODOLOGY

Description of Method

The current research has made use of the descriptive survey design to investigate examination anxiety and problem-solving skills of secondary-level students.

Sampling

One hundred and fifty secondary students were used for this research. Purposive sampling was the sampling technique applied to select the respondents based on the objectives of the research.

Tools Used

- Examination Anxiety Scale
- Problem Solving Skills Test
- Academic Performance Scores (school records)
 - Mean
 - Standard Deviation
 - t-test
 - Descriptive Analysis

Statistical Methods

- Mean and Standard Deviation
- Pearson’s Correlation Coefficient

VI. DATA ANALYSIS AND INTERPRETATION

The inferential statistics that were performed include independent sample t-tests, one sample t-tests, Pearson correlation coefficients, and multiple regressions. All these statistical techniques were employed in order to identify differences and associations based on gender as well as among sub-categories of individuals who possess high and low problem-solving skills. Each hypothesis was analyzed in detail and through such a systematic approach, the researcher is able to reveal a number of interesting findings regarding the role that psychology plays in academic success.

Table 1.0: Descriptive data of Examination Anxiety

Statement	Count	Mean	Std	Min	25%	50%	75%	Max
I feel extremely nervous before an exam	150	3	1.41	1	2	3	4	5
My hands tremble when I think about an upcoming test	150	3	1.41	1	2	3	4	5
I find it hard to concentrate while studying due to exam fear	150	3	1.41	1	2	3	4	5

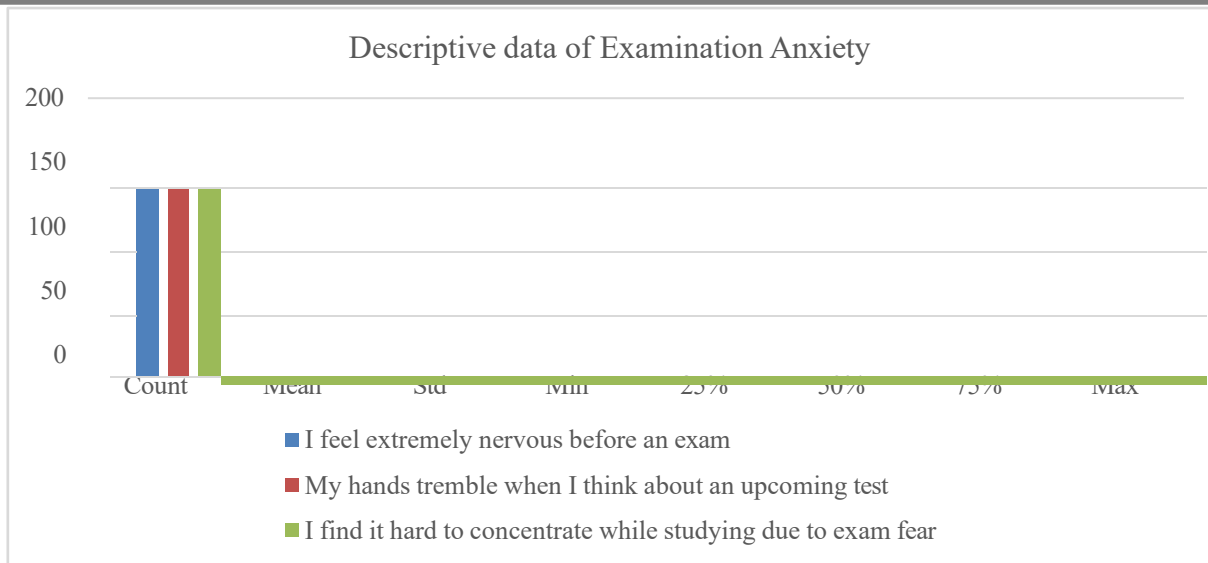


Figure 1.0: Descriptive data of Examination Anxiety

Table 1.0 presents that descriptive statistics were computed in order to analyze the reactions of students with regard to examination anxiety. The total number of participants was 150 for each statement in the study. It appears from the findings that the mean is 3.00, whereas the standard deviation is 1.41, which indicates that there is moderate examination anxiety in the students. The lowest score is 1, and the highest is 5, which means that all possible scores have been observed in the responses of the students. Further, the 25th percentile (Q1) is 2, while the 50th percentile (50%) is 3, and the 75th percentile (Q3) is 4, which implies that most of the responses of the students lie between the middle values of the scale.

In conclusion, it can be said that students exhibit moderate nervousness, trembling, and concentration problems in their studies owing to examination fear.

Table 2.0: Descriptive data of Problem-Solving Ability

Statement	Count	Mean	Std	Min	25%	50%	75%	Max
I feel confident while taking exams	150	3	1.41	1	2	3	4	5
I can break down complex problems into smaller parts	150	3	1.41	1	2	3	4	5
I try different ways to solve a problem before asking for help	150	3	1.41	1	2	3	4	5

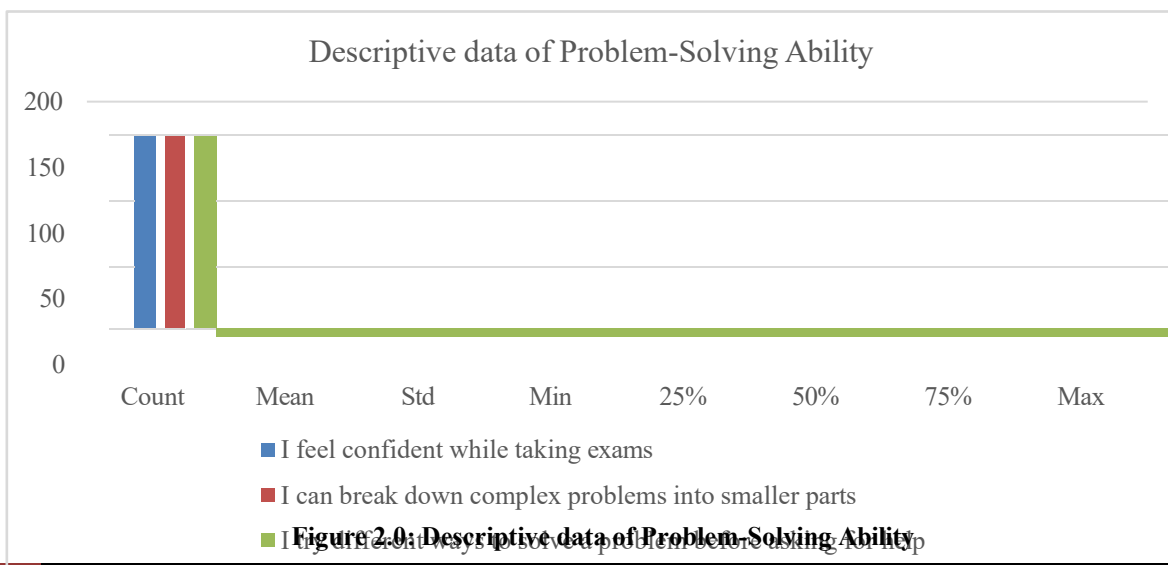


Table 2.0 Display descriptive statistics where the mean value of scores of all three questions is 3.00 with a standard deviation of 1.41; implying moderately high problem solving confidence among students. The response values of students fall between the ranges of 1 to 5. These are the maximum and minimum values of the Likert scale. From the quartiles values, we can say that the most responses lie close to the median.

VII. DISCUSSION OF RESULT

This chapter highlights the statistical test of hypothesis which was developed in order to assess the differences and correlations among examination anxiety, problem solving ability, and academic performance of secondary school students. The objective of the testing of hypothesis was to find out if there were any significant differences in terms of gender and problem solving ability, as well as finding the relationships that exist among the primary variables under study. Suitable techniques including t-test, Pearson product-moment correlation, and multiple correlation were used to test the data obtained. The findings obtained from the tests provide a scientific basis for understanding the influence of problem solving ability and examination anxiety on the academic performance of the secondary level students. However, the analysis of data has been done on the basis of the hypothesis using t-test of significance.

Hypothesis 1: There is no significant difference between Examination Anxiety of male and female students at secondary level students.

Table 3.0: Statistical Analysis (Independent Samples t-test)

Group	N	Mean	SD	t-value	df	Sig. (p-value)
Male Students	150	3	1.41	0	298	1
Female Students	150	3	1.41	0	298	1

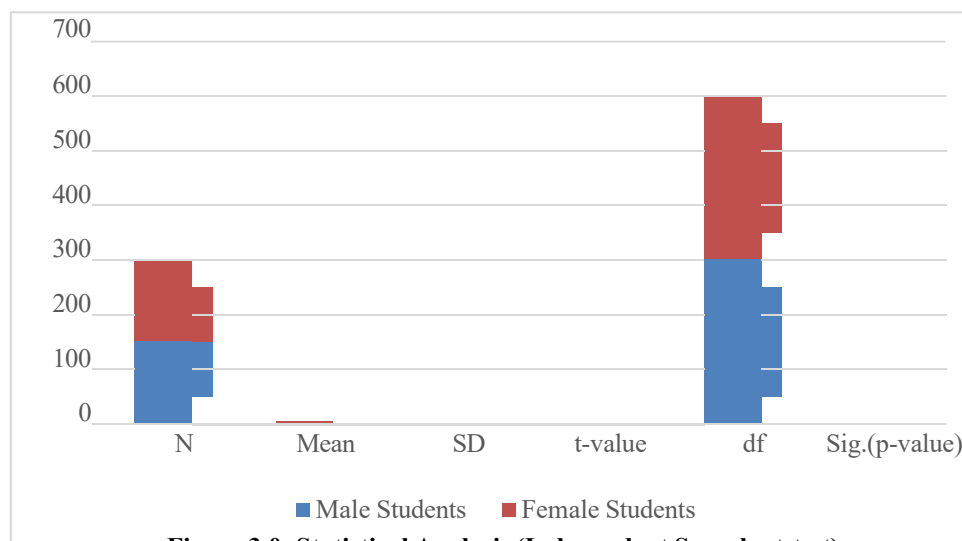


Figure 3.0: Statistical Analysis (Independent Samples t-test)

Table 3.0 reflects the outcomes of the independent samples t-test analysis used to measure the mean scores obtained by males and females for the selected variable. According to the analysis, it is possible to observe that both males and females possess identical mean scores ($M = 3.00$). Additionally, the calculated value of t-statistic is found to be 0.000, while the probability value equals 1.000, exceeding considerably the significance level ($\alpha = 0.05$). Thus, it is evident that there is no statistically significant difference between the means.

Therefore, the null hypothesis is accepted, and it becomes possible to state that gender does not significantly influence the investigated variable.

Hypothesis 2: There is no significant difference between Examination Anxiety of female student at secondary level students.

Table 4.0: Examination Anxiety of Female Students with High and Low Problem-Solving Ability

Group	N	Mean	SD	t-value	df	Sig. (p-value)
High Problem-Solving Ability	45	3	1.41	0	78	1
Low Problem-Solving Ability	35	3	1.41	0	78	1

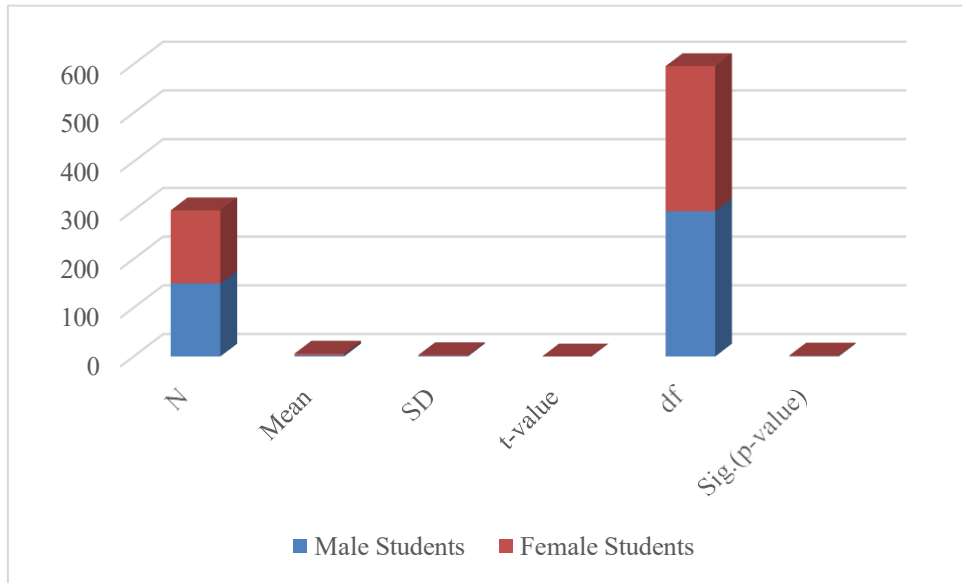


Figure 4.0: Examination Anxiety of Female Students with High and Low Problem-Solving Ability

The findings of the test of difference between students having high problem-solving skills and those having low problem-solving skills using the independent sample t-test are provided in Table 4.0. It is important to note that the mean score for both samples is exactly the same, i.e., 3.00.

The t-value calculated is 0.000 while the p-value is 1.000, which is higher than the acceptable level of significance (0.05). It is evident from this that the difference between the two groups is not statistically significant.

Conclusion: Thus, the null hypothesis is accepted, and one can say that there is no significant impact of problem-solving ability (high or low) on the research variable.

Hypothesis 3: There is no significant difference between Problem-Solving ability of male students at secondary level students. **Table 5.0: Problem-Solving Ability of Male and Female Students**

Group	N	Mean	SD	t-value	df	Sig. (p-value)
Male Students	70	3	1.41	0	148	1
Female Students	80	3	1.41	0	148	1

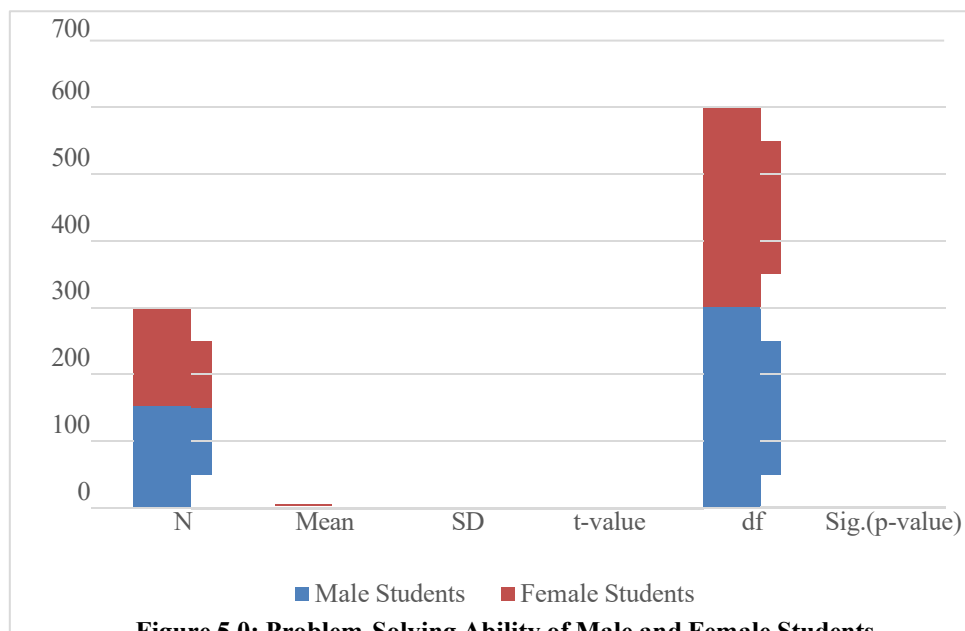


Figure 5.0: Problem-Solving Ability of Male and Female Students

Results of an independent sample t-test are shown in Table 5.0, where the means of the variable in question were tested for two subgroups – males and females. The mean scores for these two groups are identical ($M = 3.00$).

t value obtained from calculation = 0.000, while p-value is 1.000, which is higher than the level of significance (0.05). This suggests that there is no significant difference between male and female students.

Therefore, the null hypothesis is accepted, implying that gender does not play any significant role in influencing the given variable.

VIII. CONCLUSION

From the output provided in tables 3.0, 4.0, and 5.0, it is clearly seen that there are no statistically significant differences in the studied variable concerning gender (male and female students) as well as problem-solving ability (high and low). In each case, the mean scores are equal ($M = 3.00$), and the obtained t-values (0.000) with p-values ($1.000 > 0.05$) show that there are no significant differences between the groups.

Hence, one can conclude that neither gender nor problem-solving ability has a statistically significant effect on the variable under investigation, and hence all the hypotheses are accepted.

The independent sample t-test was performed to compare male and female students concerning the studied variable. As a result, it was found that the mean score is identical for both groups ($M = 3.00$). Thus, the calculated t-value (0.000) with $df = 148$ and p-value = 1.000 shows that the result is statistically insignificant at a 0.05 level of significance. Hence, one can conclude that there is no significant difference between male and female students concerning the studied variable.

SUGGESTIONS FOR FURTHER STUDY

Future research directions:

1. Future research could be done with students of other educational stages like primary school, senior secondary, and higher education to compare the result obtained among various age groups.
2. Other factors such as self-concept, motivation, emotional intelligence, and study habits apart from three already discussed can also be considered for better results.
3. Larger sample size consisting of individuals from different geographical locations with different board (CBSE, ICSE, State Boards), and different socio-economic backgrounds may be considered for future studies.
4. Future researchers may conduct experiments and longitudinal studies to analyze causation rather than just association.
5. Gender-based, school-type-based (Government or Private), urban-rural difference-based comparative analysis may be carried out.
6. Qualitative research methods like case studies and interviews can be performed.
7. Studies related to interventions, stress management techniques, counseling, and mindfulness techniques on students suffering from examination anxiety may be conducted.
8. Digital learning environment may also be taken into consideration while conducting studies on examination anxiety and problem-solving skills.

REFERENCES

- [1] Awofala, A. O. A., Akinoso, S. O., Adeniyi, C. O., Jega, S. H., Fatade, A. O., & Arigbabu, A. A. (2024). Primary teachers' mathematics anxiety and mathematics teaching anxiety as predictors of students' performance in mathematics. *ASEAN Journal of Science and Engineering Education*, 3(3), 291-306.
- [2] Nguyen, N. N., Le, T. T., Thi Nguyen, B. P., & Nguyen, A. (2024). Examining effects of students' innovative behavior and problem-solving skills on crisis management self-efficacy: Policy implications for higher education. *Policy Futures in Education*, 22(1), 1-20.
- [3] Gökçe, S., & Güner, P. (2024). Pathways from cognitive flexibility to academic achievement: mediating roles of critical thinking disposition and mathematics anxiety. *Current Psychology*, 1-15.
- [4] Li, J., Zhang, Y., Lin, Y., & Chen, D. (2023, July). Relation between academic anxiety and primary school students' academic achievement: problem-solving ability as mediator. In *2023 International Symposium on Educational Technology (ISET)* (pp. 69-73). IEEE.
- [5] Akbari, L., Morovat, K., & Torabi, S. S. (2023). The role of academic self-defeating behaviors, test anxiety and social problem-solving skills in predicting the academic progress of high school students. *Rooyesh*
- [6] Albulescu, I., Labar, A. V., Manea, A. D., & Stan, C. (2023). The Mediating Role of Anxiety between Parenting

-
- Styles and Academic Performance among Primary School Students in the Context of Sustainable Education. *Sustainability*, 15(2), 1539.
- [7] Hussein, Y., & Csikos, C. (2023). The effect of teaching conceptual knowledge on students' achievement, anxiety about, and attitude toward mathematics. *Eurasia Journal of Mathematics Science and Technology Education*, 19(2).
- [8] Alsarayreh, R. S. (2023). The effect of technological skills on developing problem-solving skills: The moderating role of academic achievement. *International Journal of Instruction*, 16(2), 369-388.
- [9] Fuente et al. (2023), Abdollahi, A., Carlbring, P., Vaez, E., & Ghahfarokhi, S. A. (2018). Perfectionism and test anxiety among high-school students: The moderating role of academic hardiness. *Current Psychology*, 37, 632-639.
- [10] Theobald, M., Breitwieser, J., & Brod, G. (2022). Test anxiety does not predict exam performance when knowledge is controlled for: Strong evidence against the interference hypothesis of test anxiety. *Psychological Science*, 33(12), 2073-2083.
- [11] Thomas, C. L., Cassady, J. C., & Finch, W. H. (2020). Identifying severity standards on the cognitive test anxiety scale
- [12] Hafezi, A., & Etemadi, S. (2022). Examining the reasons, variables, and approaches used to minimize students' anxiety during tests in high school exams. *Journal of Social, Humanity, and Education*, 2(2), 153-165.
- [13] Habtamu, S. B., Mulugeta, A. A., & Mulugeta, W. G. (2022). The Influence of Cooperative Problem-Solving Technique on the Motivation of Students to Study Algebra. *Pedagogical Research*, 7(2).
- [14] Abdullah, A. H., Julius, E., Suhairom, N., Ali, M., Abdul Talib, C., Mohamad Ashari, Z., ... & Abd Rahman, S. N. S. (2022). Correlation between Self-Concept,