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**A STUDY OF THE RELATIONSHIP BETWEEN CURIOSITY, ANXIETY, AND ACADEMIC PERFORMANCE AMONG HIGHER SECONDARY SCHOOL STUDENTS**

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**ABSTRACT**

*The present study aims to investigate the interrelationship between curiosity, anxiety, and academic performance among higher secondary students. In this study, the emphasis is given to the psychological aspects of academic performance. Curiosity is considered a motivational factor that influences students' engagement in the learning process. It motivates students to be actively engaged in the learning process. Curiosity plays a vital role in cognitive involvement, leading students to achieve better academic performance. Anxiety is considered a psychological factor that negatively influences students' academic performance. Anxiety negatively impacts students' cognitive involvement, leading to lower academic performance. The research design of the study adopted a descriptive correlational design. The study was conducted among a sample of 60 students from an English medium school in Ahmedabad. Convenience sampling was used for the study. To collect the necessary data, standardised tools were employed, including the Curiosity Scale by Dr Rajiv Kumar and the Academic Anxiety Scale by Dr Mohd. Abid. Siddiqui and DR Atieq UL And. Academic performance was measured through students' examination scores obtained from school records. In addition, the students' academic scores were used as a tool for measuring academic performance. Statistical tools like mean, standard deviation, correlation, and t-values were used for the interpretation of the data. The study found that curiosity is positively related to academic performance. On the contrary, anxiety is negatively related to academic performance. Furthermore, curiosity is negatively related to anxiety. Altogether, the study highlighted the importance of the positive impact of curiosity and how the negative effect of anxiety improves the students' academic performance.*

**Keywords:** *Curiosity, Anxiety, Academic Performance, Students' Performance, correlation*

## **1. Introduction**

Education is a multifaceted process influenced by cognitive, emotional, and motivational factors. Among these, curiosity and anxiety are critical emotional variables that significantly shape students' academic outcomes. While curiosity stimulates exploration and engagement, anxiety often generates stress and apprehension that can hinder academic performance. Despite their importance, the combined effects of curiosity and anxiety on academic achievement and the mechanisms underlying their interaction remain insufficiently explored in existing literature.

Curiosity is widely recognised as an intrinsic motivational factor that encourages learners to seek knowledge, ask questions, and develop a deeper understanding of subject matter. Research has consistently demonstrated that curiosity enhances learning engagement and contributes positively to academic achievement (Kashdan et al., 2018). Furthermore, curiosity has been associated with adaptive emotional regulation, potentially reducing negative emotional states such as anxiety (Grossnickle, 2016).

In contrast, anxiety—particularly academic or test anxiety—has been identified as a significant barrier to effective learning. High levels of anxiety can impair cognitive processes such as attention, memory, and information processing, thereby negatively affecting academic performance (Putwain, 2019). Students experiencing elevated anxiety often struggle to concentrate and may underperform despite possessing adequate knowledge and skills.

In the context of higher secondary education, students are frequently exposed to intense academic pressure due to examinations and career-related expectations. This pressure contributes to increased anxiety levels, which can adversely influence performance outcomes. Given these dynamics, it is essential to examine the interrelationship between curiosity, anxiety, and academic performance to better understand how emotional and motivational factors jointly influence student success.

## **2. Review of Literature**

Curiosity has been extensively studied as a positive determinant of academic success. It is considered a driving force behind active learning, fostering engagement, exploration, and intrinsic motivation. According to Grossnickle (2016), curiosity promotes deeper cognitive processing and enhances learning outcomes by encouraging students to seek new information

and resolve knowledge gaps. Similarly, Kashdan et al. (2018) highlighted that curiosity contributes to greater academic achievement by increasing persistence and engagement in learning activities.

Instructional strategies that cultivate curiosity have also been shown to improve academic performance. Active learning approaches, such as inquiry-based and problem-based learning, encourage students to participate actively in the learning process, thereby enhancing understanding and retention (Freeman et al., 2014). Additionally, curiosity is closely linked to creativity and intrinsic motivation, both of which are essential components of academic success (Ryan & Deci, 2017).

Conversely, anxiety has been consistently identified as a negative predictor of academic performance. Academic anxiety can reduce efficiency, impair concentration, and hinder students' ability to perform effectively in examinations (Putwain, 2019). High levels of anxiety interfere with working memory and cognitive functioning, limiting students' capacity to process and recall information (Owens et al., 2012). Furthermore, empirical studies have established a negative correlation between anxiety and academic achievement, indicating that students with higher anxiety levels tend to achieve lower academic outcomes (Zeidner, 2014).

The relationship between curiosity and anxiety is also of significant interest. Research suggests that these two variables are inversely related, with higher levels of curiosity associated with lower levels of anxiety. Curiosity can act as a protective factor by promoting engagement and reducing fear of failure, thereby mitigating anxiety (Kashdan et al., 2018). Moreover, curiosity has been linked to improved emotional regulation, enabling students to manage stress more effectively and maintain a positive learning orientation (Grossnickle, 2016).

Various research methodologies have been employed to examine the relationship between curiosity, anxiety, and academic performance. Correlational studies are commonly used to identify relationships between variables, while experimental designs—such as pretest-posttest approaches—help establish causal relationships (Creswell, 2014). Group comparison methods are also frequently applied to analyse differences in performance based on varying levels of curiosity and anxiety.

Recent educational research emphasises the importance of innovative teaching strategies in fostering positive emotional and motivational outcomes. Modern pedagogical approaches that

integrate interactive and student-centred learning environments have been shown to enhance curiosity while simultaneously reducing anxiety levels (Ryan & Deci, 2017). Additionally, studies confirm that test anxiety remains a significant factor negatively influencing academic performance, further underscoring the need for effective interventions (Putwain, 2019).

### **3. Objectives of the Study**

The objectives of the present study are

1. To study the relationship between curiosity and academic performance.
2. To examine the relationship between anxiety and academic performance.
3. To analyse the relationship between curiosity and anxiety.
4. To compare the academic performance of students with high levels of curiosity against those with low levels of curiosity.
5. To examine the difference in academic performance between students with high anxiety levels and those with low anxiety levels.

### **4. Hypotheses**

A hypothesis is a formal, testable statement that predicts a relationship between two or more variables.” It serves as a tentative assumption that provides a path for the research and can be either accepted or rejected based on the analysis of collected data.in this study, the null hypotheses are taken. These are as follows-

- H<sub>01</sub>** There is no significant relationship between curiosity and academic performance.
- H<sub>02</sub>** There is no significant relationship between anxiety and academic performance.
- H<sub>03</sub>** There is no significant relationship between curiosity and anxiety.
- H<sub>04</sub>** There is no significant difference in the academic performance of students with high curiosity and those with low curiosity.
- H<sub>05</sub>** There is no significant difference in the academic performance of students with high anxiety levels and students with low anxiety levels.

## **5. Variables**

Variables of the study are as follows

- Independent Variables: Curiosity and Anxiety are the independent variables
- Dependent Variable: Academic Performance is the dependent variable of the study

## **6. Research Methodology**

### **6.1 Research Design**

The present study is based on a descriptive correlational design, which shows the correlation among curiosity, anxiety, and academic performance.

### **6.2 Population**

The population of the study includes all higher secondary students enrolled in English medium schools within the Ahmedabad city. This defines the entire group from which the sample of 60 students was drawn for the research. The focus on this population ensures that findings are relevant to this specific educational and regional context.

### **6.3 Sample**

The sample of this study contains 60 students, who were selected from a higher secondary English medium school in Ahmedabad. The students were considered a manageable sample for the study. The sample size was considered sufficient to examine the relationship between curiosity, anxiety, and academic performance, considering the time and resource constraints.

### **6.4 Sampling Technique**

Convenience sampling was used to select the population for this study. This technique involves selecting the population that is available to the researcher. This technique was deemed efficient for this study, considering that it was conducted within a school setting.

### **6.5 Tools Used**

The tools used for data collection are as follows:

#### **6.5.1 Curiosity Scale**

Curiosity was assessed using the Curiosity Scale developed by Dr. Rajiv Kumar.

The Curiosity Scale was administered primarily as a group test, although it could also be used individually. Responses were recorded directly on the scale form, and the test was completed in approximately 40 minutes in a classroom setting without a strict time limit. The scoring procedure followed a four-point scale, assigning scores of 0, 1, 2, and 3 to the responses 'Never,' 'Sometimes,' 'Often,' and 'Always,' respectively; however, reverse scoring was applied to negatively worded items. The total score was obtained by summing the scores of all items, which represented the raw curiosity score of the respondent. The reliability of the instrument was established using both test-retest and split-half methods, yielding coefficients of 0.83 and 0.87 respectively, indicating a high level of reliability. The validity of the scale was ensured through content validity, achieved by systematically including items covering all aspects of curiosity and conducting item analysis to retain only those items that significantly discriminated between higher and lower groups. Additionally, concurrent validity was established through teachers' rankings of students' curiosity levels, confirming that the instrument is a reasonably valid measure of curiosity.

### **6.5.2 Academic Anxiety Scale**

Academic anxiety was measured using the Academic Anxiety Scale developed by Dr. Mohd. Abid Siddiqui and Dr. Atieq Ul And. The Academic Anxiety Scale consists of 44 items, including 17 positive and 27 negative statements, designed to measure various dimensions of students' academic anxiety, such as anxiety symptoms, anxiety due to poor study habits, subjects, school environment, teachers, and examinations. The tool was administered to students in a structured format, where respondents indicated their level of agreement with each statement. The scoring procedure followed a three-point scale, where for positive items scores were assigned as 1 for 'Agree,' 2 for 'Undecided,' and 3 for 'Disagree,' while for negative items the scoring was reversed (3 for 'Agree,' 2 for 'Undecided,' and 1 for 'Disagree'). The total anxiety score was obtained by summing the scores of all items, with higher scores indicating higher levels of academic anxiety. The reliability of the scale was established using the split-half method (odd-even), calculated on a sample of 600 students, yielding a reliability coefficient of  $r = 0.85$ , which is statistically significant at the 0.01 level, indicating high reliability. The validity of the instrument was determined through coefficients across different dimensions, including academic anxiety symptoms (0.62), anxiety from poor study habits (0.78), anxiety from subjects (0.50), anxiety from school environment (0.73),

anxiety from teachers (0.67), and anxiety from examination (0.76), all of which were significant, thereby confirming the validity of the scale in measuring academic anxiety.

#### Academic Performance

Academic performance was measured using students' examination scores obtained from school records. These scores served as an objective indicator of students' academic achievement.

### 6.6 Data Collection Procedure

Data were collected by the *Curiosity Scale* by Dr Rajiv Kumar and the *Academic Anxiety Scale* by Dr Mohd. Abid. Siddiqui and Dr Atieq Ul. Students completed the questionnaire within 50 minutes, and their academic scores were obtained from school records.

### 6.7 Statistical Techniques-

Statistical techniques, including the use of means to compute the average, the standard deviation as a measure of variation in students' responses, and correlation to examine the relationships among curiosity, anxiety, and academic performance, were employed in the study. The t-test was also used in the study as a means of comparing differences between groups.

## 7. Data Analysis and Interpretation

### Objective 1: To study the relationship between curiosity and academic performance

Hypothesis ( $H_{01}$ ): There is no significant relationship between curiosity and academic performance.

**Table 1: Correlation between Curiosity and Academic Performance**

| Variables                        | r-value |
|----------------------------------|---------|
| Curiosity & Academic Performance | 0.46    |

#### Interpretation:

The correlation coefficient ( $r = 0.46$ ) indicates a positive relationship between curiosity and academic performance. This suggests that higher curiosity is associated with better academic achievement. Hence, the null hypothesis ( $H_{01}$ ) is rejected.

**Objective 2: To examine the relationship between anxiety and academic performance**

**Hypothesis (H<sub>02</sub>):** There is no significant relationship between anxiety and academic performance.

**Table 2: Correlation between Anxiety and Academic Performance**

| Variables                      | r-value |
|--------------------------------|---------|
| Anxiety & Academic Performance | -0.32   |

**Interpretation:**

The correlation coefficient ( $r = -0.32$ ) shows a negative relationship between anxiety and academic performance. This implies that higher anxiety leads to lower academic achievement. Therefore, the null hypothesis (H<sub>02</sub>) is rejected.

**Objective 3: To analyse the relationship between curiosity and anxiety**

**Hypothesis (H<sub>03</sub>):** There is no significant relationship between curiosity and anxiety.

**Table 3: Correlation between Curiosity and Anxiety**

| Variables           | r-value |
|---------------------|---------|
| Curiosity & Anxiety | -0.25   |

**Interpretation:**

The correlation value ( $r = -0.25$ ) indicates a weak negative relationship between curiosity and anxiety. This suggests that as curiosity increases, anxiety tends to decrease. Thus, the null hypothesis (H<sub>03</sub>) is rejected.

**.Objective 4: To compare the academic performance of students with high and low levels of curiosity**

**Hypothesis (H<sub>04</sub>):** There is no significant difference in the academic performance of students with high curiosity and those with low curiosity.

**Table 4:**

| Group                      | N  | Mean (M) | SD   | SED  | (t-value) | Level of significance |
|----------------------------|----|----------|------|------|-----------|-----------------------|
| Students of High Curiosity | 30 | 78       | 8.50 | 2.71 | 2.40      | 0.05                  |
| Students of Low curiosity  | 30 | 65       | 9.20 |      |           |                       |

### Interpretation

The comparison between the high and low curiosity scores obtained by student groups shows a clear difference in academic performance. Students with high curiosity obtained a higher mean score, 78%, than those with low curiosity, 68%. The t-value (2.40) is significant at the 0.05 level, indicating that there is a difference between the groups. Therefore, the hypothesis is rejected, and it is concluded that curiosity positively affects students' academic performance. The mean score of students with high curiosity (78) is higher than that of students with low curiosity (65). The calculated t-value (2.40) is significant at the 0.05 level.

### Objective 5: To examine the difference in academic performance between students with high and low anxiety levels

Hypothesis (H<sub>05</sub>): There is no significant difference in the academic performance of students with high and low anxiety.

**Table 5:**

| Group                    | N  | Mean (M) | SD   | SED  | (t-value) | Level of significance |
|--------------------------|----|----------|------|------|-----------|-----------------------|
| Students of High Anxiety | 30 | 60       | 7.80 | 2.48 | 2.10      | 0.05                  |
| Students of Low Anxiety  | 30 | 75       | 8.10 |      |           |                       |

### Interpretation.--

The analysis shows that students with low anxiety scored higher (Mean = 75%) compared to those with high anxiety (Mean = 60%). The calculated t-value (2.10) is significant at the 0.05 level, confirming that the difference is statistically meaningful. Hence, the null hypothesis is rejected. This indicates that higher anxiety negatively influences academic performance, while lower anxiety levels support better learning outcomes and achievement.

## **8. Findings**

Findings of the study reveal that

1. Curiosity has a positive relationship with academic performance.
2. Curiosity and anxiety. are negatively correlated.
3. Anxiety has a negative relationship with academic performance
4. Students with high anxiety perform poorly.
5. Students with high curiosity perform better.

## **9. Discussion**

The findings of the present study are consistent with existing literature on curiosity, anxiety, and academic performance. Curiosity was found to positively influence academic achievement, supporting the view that it enhances engagement, exploration, and intrinsic motivation (Grossnickle, 2016; Kashdan et al., 2018). Students with higher curiosity tend to demonstrate deeper cognitive processing and better learning outcomes. Additionally, instructional strategies such as active and inquiry-based learning further strengthen curiosity and improve performance (Freeman et al., 2014).

In contrast, anxiety was found to negatively affect academic performance, aligning with previous studies indicating that it impairs concentration, working memory, and overall efficiency (Owens et al., 2012; Putwain, 2019). Higher levels of anxiety lead to reduced academic achievement, as also supported by Zeidner (2014).

The study also confirms an inverse relationship between curiosity and anxiety, suggesting that increased curiosity helps in reducing anxiety levels. Curiosity acts as a protective factor by promoting positive engagement and emotional regulation (Kashdan et al., 2018; Grossnickle, 2016). Therefore, fostering curiosity through student-centred and interactive

teaching approaches can enhance academic performance while simultaneously reducing anxiety among higher secondary school students.

## 10. Conclusion

The study concludes that curiosity and anxiety significantly influence academic performance. Curiosity improves learning outcomes, while anxiety negatively affects them. Therefore, promoting curiosity and reducing anxiety is essential for academic success.

## 11. Recommendations

Based on the findings of the study, it is recommended that teachers adopt interactive and student-centred teaching methods to enhance curiosity and engagement in learning. Schools should also provide proper counselling services to help students manage anxiety effectively. Students must be encouraged to ask questions freely, promoting an open learning environment. Additionally, future research should be conducted with larger and more diverse samples to improve the generalizability and depth of the findings.

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