

Exploring the Root Causes of Examination Anxiety: Effective Solutions and Recommendations

Abhinandita Chakraborty

Rajabazar Science College, University of Calcutta, 92, Acharya Prafulla Chandra Road, Kolkata – 700009, India
abhinanditachakraborty2[at]gmail.com

Abstract: *Test anxiety or examination anxiety is a common problem that can significantly affect academic performance, leading to procrastination and low self-confidence. Students experiencing elevated levels of anxiety before exams are more prone to achieving satisfactory results, while those with low self-efficacy may doubt their abilities and feel unprepared for the exam. However, there are several effective methods for managing test anxiety and improving self-confidence. Relaxation techniques, cognitive-behavioral interventions, time management, and study skills training can all be helpful in reducing anxiety and improving academic performance. By understanding the impact of test anxiety and taking steps to manage it, students can overcome this obstacle and succeed in their academic endeavors.*

Keywords: examination, anxiety, self-efficacy, academic performance

1. Introduction

Anxiety is a prevalent aspect of human life that can have positive and negative effects on an individual's performance in different situations. While a moderate level of anxiety can be advantageous in promoting responsibility and motivation, high levels of anxiety can lead to physical and mental health problems and hinder an individual's ability to function in various social and academic settings. Examination anxiety is a widely researched subject that can have a profound impact on students' academic performance. It is common for students to experience fear and stress during test-taking, which can negatively affect their cognitive abilities, such as working memory and reasoning skills. While some students may experience increased motivation and effort due to exam anxiety, others may suffer from crippling consequences, such as an inability to focus or procrastinate, leading to poor grades and even dropout rates. Examination anxiety is a complex concept comprising various aspects that have an impact on affective and cognitive domains, ultimately influencing academic test results. The cognitive component directly influences student performance. Although the emotional element is linked to test performance, it does not have a direct effect on it.

The prevalence of test anxiety is increasing among students due to the prominent role of testing in the educational system. Procrastination is also a common issue among students, particularly when studying for exams or writing essays, and can have serious consequences, including lower grades and study dropout rates. Anxiety disorders, including test anxiety, are prevalent in American society and can weaken students' test-taking abilities, leading to poor performance and low grades. The objective of this study is to examine the efficacy of an intervention in mitigating examination anxiety and procrastination in students by improving their academic self-assurance. The study focuses on the impact of test anxiety on students' academic performance and learning.

2. Literature Review

2.1 What is anxiety?

Anxiety is a complex psychological construct that can manifest in various forms and degrees of severity. At its core, anxiety is the body's response to an environmental trigger that requires attention. This response is characterized by a series of biochemical changes, such as an increase in adrenaline and a decrease in dopamine, which work to heighten our awareness of the perceived threat. This physiological reaction is commonly referred to as the "fight-or-flight response," as the body prepares to either confront the danger or flee from it. According to psychologists, anxiety is a condition of uneasiness and dread that is frequently only indirectly linked to a particular object or circumstance. While anxiety can be a challenging and uncomfortable experience, it can also serve as a helpful signal that helps us prioritize and respond to the demands of our environment.

2.2 Examination anxiety

Anxiety is a complex psychological construct that can manifest in various sub-categories, including language, speech, social anxiety, and the highly studied phenomenon of test anxiety. Test anxiety occurs when students lack confidence in their abilities, leading to poor test performance and results. As Zeidner (1998) points out, "examination anxiety" is a condition that encompasses a range of mental, physical, and behavioral reactions that indicate worry or unease about adverse outcomes or underperformance in a judgmental context. However, it is crucial to acknowledge that elevated levels of examination anxiety don't always indicate a deficiency in intellect or drive. In fact, studies have shown that test anxiety and related deficits can significantly interfere with academic performance (Everson & Millsap, 1991). Examination anxiety is a type of evaluation-related anxiety that can bring about various physical symptoms such as stomachaches, tension headaches, and an increased heart rate. Strong test anxiety can even lead to feelings of fainting or nausea. It should be

emphasized that test anxiety is distinct from inadequate test results caused by extraneous circumstances. While other factors, such as personal problems or emotional distress, can also negatively affect test performance, test anxiety reflects a specific type of performance anxiety.

Test takers may experience distress due to the feeling that their performances are being closely scrutinized and evaluated, as noted by Cheraghian et al. (2008). According to Moadeli and Ghazanfari (2005), this feeling of distress caused by test anxiety can result in low confidence or poor academic performance. Individuals experiencing test anxiety may also have concerns about social evaluation, as they fear negative judgments from parents, teachers, and others (Lowe et al., 2008). Test anxiety can have an affective impact, leading to unpleasant emotions such as agitation, insecurity, and helplessness. These emotions can result in avoidance behaviors and have a negative impact on motivation. Although a low level of stress is necessary, in some cases, it can become so overwhelming that it hinders an individual's performance in tests and can result in a behavioral disorder, as well as low confidence and poor academic performance.

Anxiety during examinations is a common problem among undergraduate students, and anxiety disorders are increasingly prevalent among them, according to research (Chapell, 2005). Studies also suggest that older students tend to experience more stress than younger students, and female students have a higher likelihood of experiencing anxiety than male students (Ginter et al., 1982). University students encounter various challenges, such as adapting to new environments that can alter their routines and habits. Additionally, there is a high demand for academic success. These emotions can exert adverse effects on their academic performance, potentially leading to heightened levels of stress, depression, and anxiety (Shamsuddin, Fadzil, Ismail, Shah, Omar, & Muhammad, 2013). It is evident that test anxiety plays a crucial role in determining students' performance. According to Sarason's (1978) theory, test anxiety is a form of excessive self-focus that manifests as decreased self-confidence, resulting in disparaging cognitive critiques, forgetfulness, unpleasant somatic reactions, and suboptimal test performance. Extensive research has been carried out to determine the effects of examination anxiety on academic outcomes, given that this multifaceted phenomenon stems from various sources. Numerous studies have delved into the complex interplay between psychological, physiological, and environmental factors that contribute to the onset of test anxiety, and how it can impair students' ability to perform at their best. Numerous studies have suggested that inadequate preparation may be the underlying cause of test anxiety in students. It has been postulated that the fear of underperforming or failing to meet one's own or others' expectations can trigger a vicious cycle of anxiety, leading to decreased motivation and increased negative self-talk. Such debilitating thought patterns can further exacerbate the feeling of being ill-prepared, creating a feedback loop that can significantly hamper students' test-taking abilities. Exploring the nuances of this intricate relationship between preparation, anxiety, and performance can provide valuable insights into how to alleviate test anxiety and enhance academic success. According to Naveh-Benjamin et al's seminal study in 1987, highly test-anxious

students exhibit lower aptitude in organizing the material to be learned in contrast to their less anxious peers. Their research has shed light on the pivotal role of anxiety in impeding students' cognitive processing and information retrieval. Individuals experiencing high levels of test anxiety tend to experience cognitive overload, which can impair their ability to discern critical information from irrelevant information, organize it effectively, and integrate it into their existing knowledge base. As a result, test-anxious students may struggle to perform well on tests, leading to a vicious cycle of anxiety, poor performance, and decreased self-confidence. Various research studies have consistently indicated that students with high levels of test anxiety tend to have suboptimal academic behaviors in contrast to their less anxious counterparts (Culler and Holahan, 1980). This observation is further corroborated by Hembree's findings in 1988, which posit that ineffective study skills can contribute to poor academic performance, leading to heightened anxiety levels during subsequent examinations. In light of these compelling findings, treatment studies have sought to equip students with the requisite study skills to alleviate test anxiety and enhance performance. These interventions have yielded promising results, demonstrating that improved study skills can be an effective strategy to alleviate test anxiety and achieve academic success. By acquiring better study habits, students can cultivate greater confidence in their test-taking abilities, reduce anxiety, and perform optimally during evaluative conditions. The compelling findings of Ohata's study in 2005 indicate that test anxiety is prevalent among students, with many expressing fear and apprehension about the consequences of receiving a poor grade. Ohata's research underscores the importance of understanding the multifaceted nature of test anxiety and its pervasive impact on academic achievement. The fear of failure can trigger a host of negative emotions, such as shame, inadequacy, and self-doubt, which can hinder students' cognitive performance and further exacerbate their anxiety. Studies have consistently demonstrated that anxiety can have a detrimental impact on academic performance, not only in school but also at the university level. For instance, in a classic study conducted by Paul and Eriksen in 1964, a cohort of female freshmen were administered a conventional academic exam, which would be included in their cumulative score. Following a formal examination that would factor into their overall grade, a cluster of female first-year students took a parallel variant of the test and completed a survey to gauge their level of examination anxiety, with the caveat that the marks would not affect their final grade. Upon analyzing the results, it was discovered that students with high levels of test anxiety demonstrated better performance in the low-pressure examination, while those with low levels of anxiety performed better in the standard test setting. This experiment underscores the powerful influence of anxiety on academic performance and the need for strategies to help students manage their stress and anxiety in evaluative situations. By providing students with the tools and techniques to regulate their anxiety, educators can help them perform at their best and realize their academic potential. According to Wine's research in 1980, test-anxious individuals tend to allocate their attentional resources inefficiently by engaging in worry and self-criticism, thereby limiting their capacity to focus on the task at hand. This preoccupation with negative thoughts and

emotions can lead to cognitive overload, impairing their ability to attend to critical information, organize it effectively, and integrate it with prior knowledge. Students who suffer from high levels of test anxiety experience various physical symptoms, such as headaches, insomnia, an increased heart rate, and stomach problems. However, the negative effects of test anxiety extend beyond physical symptoms and also include psychological problems such as increased nervousness, confusion, uncertainty, tension, and negative emotions. Although test anxiety can make students more interested in their test results, it does not necessarily lead to an interest in the content of the course. Nevertheless, students who experience test anxiety do not study less than their low-anxiety peers. To alleviate test anxiety, students suggest that teachers provide more specific information about the content and format of the test, avoid negative comments during tests, and allow enough time to complete the exam. Students also acknowledge that studying systematically can help reduce their anxiety and believe that teachers should be aware of their anxiety and make an effort to understand it. These recommendations could help create a more supportive learning environment for students suffering from test anxiety.

In addition to the factors previously mentioned, it is important to note the findings of Hembree's study in 1988, which revealed that various factors can contribute to varying degrees of test anxiety, including factors such as gender, reasoning skills, and academic year level. Subsequent research has supported the notion that males and females may differ in their responses to test anxiety, with females reporting higher levels of symptoms than males, according to a study by King et al. in 2000. Therefore, when interpreting the results of self-reported measures of test anxiety, it is essential to consider the potential influence of gender on the responses obtained. By acknowledging the differential impact of test anxiety on males and females, educators and researchers can design interventions that are tailored to the specific needs of each group and help them overcome the barriers that may impede their academic success.

2.3 The relation between examination anxiety, self-confidence and self-efficacy

Examination anxiety is a common problem among students, which can have negative consequences on their academic performance and well-being. Self-efficacy, on the other hand, refers to an individual's confidence or assurance in their capability to accomplish a particular task successfully. Recent studies have indicated that self-efficacy can play a crucial role in reducing examination anxiety and improving academic performance. According to Bandura's self-efficacy theory, One's conviction in their competence to effectively carry out a particular task can influence their level of anxiety when faced with that task. People with greater levels of self-efficacy often display greater confidence and reduce anxiety when confronted with challenging tasks. Individuals who have low confidence in their abilities are more susceptible to experiencing stress and anxiety, while those who possess high self-efficacy tend to be more assured and less anxious. Some studies have found a negative relationship between examination anxiety and self-efficacy, suggesting that

individuals with higher levels of self-efficacy tend to experience less anxiety during examinations. For example, a study by Zeidner and Matthews (2005) found that high self-efficacy was associated with lower levels of examination anxiety among high school students. Other studies have discovered a correlation between test anxiety and academic self-assurance, suggesting that individuals who experience high levels of anxiety may have lower levels of self-efficacy. For example, a study by Pajares and Kranzler (1995) found that students with high levels of examination stress also reported lower levels of self-efficacy in academic tasks. However, most studies have found that self-efficacy and examination anxiety are inversely related, meaning that higher self-efficacy is associated with lower levels of examination anxiety. A study by Richardson and Suinn (1972) found that self-efficacy showed an inverse correlation with examination anxiety in a sample of college students.

One explanation for this relationship is that individuals who possess a greater sense of self-efficacy tend to participate in more productive study methods and are better prepared for tasks, which can help reduce examination anxiety. Additionally, individuals with high self-efficacy may view examinations as less threatening and have greater confidence in their ability to perform well.

In conclusion, research suggests that there is a negative relationship between examination anxiety and self-efficacy, indicating that individuals with higher self-efficacy tend to experience less anxiety during examinations. Educators and mental health professionals should consider promoting self-efficacy beliefs among students as a potential strategy for reducing examination anxiety and improving academic performance.

2.4 The cause-and-effect connection between test anxiety and procrastination

Students who are experiencing test anxiety may feel a heightened state of uncomfortable physical agitation and also suffer from disturbing thoughts of concern (Pekrun, 2006). Accordingly, test anxiety can cause students to experience a strong urge to disengage from the situation (Geen, 1987; Matthews et al., 1999). Studies that analyzed various other studies have shown that there is a moderately positive relationship between test anxiety and procrastination (Van Eerde, 2003; Steel, 2007). To put it differently, there is a correlation between higher test anxiety levels and an inclination to procrastinate among students.

However, these findings are based on correlational studies that examine the relationship between procrastination and test anxiety at a single time point. The Temporal Motivation Theory (TMT) proposed by Steel (2007) suggests that while there is a moderately positive correlation between the two, procrastination is not always a necessary outcome of test anxiety. The TMT proposes that students tend to delay their academic tasks and assignments when they are far from deadlines and exams, particularly at the outset of an academic term. This assumption challenges the notion that procrastination is an inevitable outcome of test anxiety. Longitudinal studies have provided evidence in support of

this idea. A study by Tice and Baumeister (1997) found that individuals who tend to procrastinate reported lower levels of stress compared to those who do not procrastinate, but this effect was only observed in the initial phases of an academic term. Moreover, Yerdelen and colleagues (2016) discovered a connection between the progression of procrastination and test anxiety in students throughout an academic semester, finding a negative correlation between individual patterns of test anxiety and procrastination over eight weeks. Although anxiety decreased, procrastination increased during the same time period, indicating that participants could have employed procrastination as a coping mechanism to manage their initial test anxiety.

This study falls short of providing a comprehensive understanding of the causal relationship between test anxiety and procrastination during the concluding stages of an academic term. In contrast, the Temporal Motivation Theory (TMT) suggests that as deadlines approach, students are less likely to delay and more likely to adopt proactive study strategies. This is because the consequences of failing due to poor preparation become more salient as the deadline nears. Consistent with these beliefs, research has revealed that students who postponed their studying at the start of the semester experienced greater levels of stress (Tice and Baumeister, 1997) and anxiety (Lay et al., 1989) before exams. In conclusion, deferring learning activities, also known as procrastination, may provide immediate emotional relief to students dealing with their test anxiety. As deadlines and exams near, it is expected that students will rely less on procrastination to cope with their test anxiety. Therefore, it is crucial to assist students in managing their test anxiety and the resulting procrastination. Research suggests studying effectively for an exam, may have a significant impact on the development of examination anxiety and procrastination (Yerdelen et al., 2016; Bandura, 1977).

3. Effective techniques to scale down examination anxiety and procrastination

Numerous interventions have been developed to address procrastination and examination anxiety. A comprehensive examination of interventions aimed at reducing test anxiety by Von der Embse and colleagues (2013) suggests methods that involve a combination of cognitive-behavioral strategies, as well as interventions that focus on cognitive or behavioral approaches, may be effective for students with high test anxiety. On the other hand, meta-analytical studies (Rozenal et al., 2018; Van Eerde and Klingsiek, 2018) indicate that cognitive-behavioral therapy may be beneficial for students who struggle with high rates of procrastination. Controlling test anxiety and procrastination could involve modifying cognitive factors related to low self-efficacy, as suggested by control-value theory and TMT. In line with this idea, certain interventions designed to alleviate test anxiety and procrastination emphasize modifying irrational thought patterns and beliefs (Pekrun and Stephens, 2009). An illustration of an intervention that targets irrational beliefs and thought patterns is rational-emotive behavioral therapy (Ellis, 2002). This approach entails encouraging students to scrutinize their own ways of thinking using methods like analytical debate and logical reasoning. The aim is to replace unhelpful and illogical beliefs with positive and rational

ones. However, the adjustment of intellectual evaluations, like the enhancement of low self-efficacy beliefs, should not be limited to conscious, logical methods alone. In contrast, according to the cognitive-experiential self theory (CEST; Epstein, 2003), it is not sufficient to rely solely on conscious and logical debate to permanently modify cognitive appraisals like low self-efficacy expectations. This is because implicit schemas learned from past experiences play a role in shaping one's cognitive evaluations. This means that experience-based information processing always plays a role in shaping cognitive appraisals. Aligned with the principles of CEST, the theory of self-efficacy (Bandura, 1977) suggests that one's confidence in their abilities arises not only from language and persuasion, but also from their past successes and failures, as well as their current physiological state. Hence, in order to successfully alter cognitive appraisals like low self-efficacy beliefs, it's important to include not only rational debates, but also new experiences that boost self-efficacy. One method that has been developed to modify cognitive appraisals by combining experiential and rational approaches is called inquiry-based stress reduction (IBSR; Mitchell and Mitchell, 2003). The IBSR technique is a structured approach that incorporates both logical and empirical methods to modify intellectual evaluations. It employs a specialized set of questions to help individuals identify and examine their exhausting thoughts (e.g., "I cannot study enough"). The effectiveness of this approach can be attributed to the fact that the arguments generated are self-derived, and therefore, more persuasive (Briñol et al., 2012). To summarize, IBSR is a promising method for addressing stressful thoughts through a combination of experiential self-exploration and rational persuasion, which allows for a comprehensive and effective debate of such cognitions. Initial research indicates that IBSR may hold promise for alleviating anxiety. In a study involving individuals without clinical diagnoses, the participants received an IBSR intervention (Leufke et al., 2013).

Another intervention that has been found to be effective in reducing examination anxiety is cognitive-behavioral therapy (CBT). CBT is a form of psychotherapy that involves identifying and challenging negative thought patterns and replacing them with more positive ones. A meta-analysis by McEvoy et al. (2016) found that CBT was effective in reducing examination anxiety, with effect sizes ranging from small to moderate. The study also found that CBT was effective regardless of the format in which it was delivered (e.g., individual, group, or self-help).

Mindfulness-based interventions have also been found to be effective in reducing examination anxiety and procrastination. Mindfulness involves being fully present and engaged in the current moment, without judgment. A study by Lu and colleagues (2016) found that a mindfulness-based intervention was effective in reducing examination anxiety and improving academic performance in university students. The study found that the intervention improved students' self-regulation, which in turn led to better academic outcomes.

In addition to these interventions, exercise has also been found to be effective in reducing examination anxiety and

procrastination. Exercise has been found to have a positive impact on mood and cognitive functioning, which can help reduce anxiety and improve academic performance. A study by Haggerty and colleagues (2019) found that a single bout of moderate-intensity exercise was effective in reducing examination anxiety in university students.

4. Strategies to manage examination anxiety

The aim of test anxiety strategies is to mitigate the impact of stress caused by the fear and worry associated with exams. The objective is not to entirely eradicate anxiety, as a moderate degree of distress can be advantageous for the majority of learners. Instead, the aim is to reduce feelings of anxiety to a manageable extent and equip students with the ability to manage testing scenarios. Having multiple alternatives to manage test anxiety is crucial, as assessments across different disciplines and topics can impact learners in varying ways. As soon as test anxiety is identified and tackled using the techniques expounded on this page, the student gains a feeling of proficiency and control over their academic endeavors.

Physical activity can serve as a distraction from anxieties and apprehensions about the test, while also serving as a release for pent-up emotions like anger, which can exacerbate anxiety. Consuming a well-balanced meal before the exam, especially if it is a meal that the student is used to eating, is highly recommended. As an illustration, substandard mental or physical health is one underlying cause of test anxiety, often stemming from unhealthy patterns in areas such as nutrition, sleep, and physical activity. Ensuring a sound and regular sleep schedule in the days leading up to the test is crucial, as a shortage of rest, even days beforehand, can negatively impact performance. Additionally, engaging in physical activity or enjoyable activities can help to reduce excess energy and alleviate test anxiety. Engaging in non-academic activities can be an effective way to alleviate test-related worries and anxieties. Such activities can also serve as a release for negative emotions like anger that can exacerbate anxiety.

Attention is the cognitive skill of focusing one's mental faculties and observing with precision, while listening involves actively directing one's attention towards auditory input. To listen effectively, one must first exercise attentive focus, although concentration is equally important when engaged in other activities such as perusing, composing, evaluating, and inspecting academic material. The caliber and measure of mindfulness are critical for facilitating the learning process. The cognitive functions of attentive observation and focused hearing are deeply interwoven with retrieval, and memory processes.

When students perform poorly on exams and believe that their grades do not reflect their actual abilities, they frequently experience a decline in self-esteem and develop negative self-perceptions. The negative self-perceptions that can arise from poor exam performance may exacerbate test anxiety during forthcoming examinations.

Initially, attempt to center your attention on prior accomplishments in testing. While reflecting on past

missteps can be informative, avoid fixating on them. Engage in constructive self-dialogue to foster a positive outlook. It is crucial for students to employ all available means to enhance their self-assurance regarding their exam readiness and aptitude for test-taking. Confidence can substantially diminish anxiety since an individual's beliefs can have a profound impact on performance. If one possesses a strong belief that he or she will excel, the likelihood of success is heightened. One effective approach to boost self-assurance is by excessively preparing for the exam. Acquire a profound and thorough grasp of the material, ensuring familiarity and comprehension to the fullest extent possible. To further affirm your comprehension, attempt self-assessments or arrange for a peer to test your knowledge, thereby demonstrating your command of the material. Furthermore, it is advisable not to compare oneself to other high-achieving students in the class when preparing for the test. Instead, focus on your own individual strategies and efforts.

5. Conclusions

Anxiety manifests as a fusion of psychological and physiological responses. When an individual experiences feelings of worry and anxiety, their brain's interpretation of these emotions can activate the body's stress response, as though it were responding to a perceived threat. This can result in a sense of heightened risk or danger. Individuals with test anxiety have acquired the belief that they will perform poorly. Excessive and unfounded concern results in a warped self-concept and a misguided self-perception. This often leads to low self-worth. It is evident that to conquer test anxiety, there must be a shift or modification. Given that the structure of tests is unlikely to undergo significant changes, it is paramount to modify one's approach to test-taking to achieve optimal outcomes. Mitigating test anxiety and stress reactions to an optimal level requires learning to regulate bodily responses, transitioning from a state of bodily tension and rigidity to one characterized by tranquility and relaxation. Examination anxiety and procrastination can have a negative impact on academic performance, but there are various interventions that can be implemented to reduce these challenges. IBSR, CBT, mindfulness-based interventions, and exercise are all effective in reducing examination anxiety and procrastination. These interventions can be implemented in a variety of formats and settings, making them accessible to a wide range of students.

The impact of test anxiety on students is undeniable, with many reporting negative physical and psychological symptoms such as headaches, insomnia, an increased heart rate, and stomach disorders. Furthermore, test anxiety can lead to increased nervousness, confusion, uncertainty, tension, and negative emotions, making it difficult for students to focus on the content of the course. However, the study also revealed that test anxiety does not reduce the amount of time students spend studying for exams, indicating that students are motivated to do well.

Gender differences were found to be correlated with test anxiety, with females reporting higher levels of worry and anxiety despite preparing more than their male counterparts.

In the realm of test-taking, multiple factors have been identified that can hinder optimal performance. These include deficient test preparation, apprehension of negative evaluation, past unfavorable experiences, time constraints, pressure, and the difficulty of the course content. The literature suggests that the cognitive and emotional responses to these factors can lead to negative outcomes in test-taking scenarios, such as anxiety, self-doubt, and poor cognitive performance. These phenomena are thought to stem from the interplay of various factors, including individual differences, contextual demands, and situational stressors.

Encouragingly, recent research has highlighted the pivotal role of teachers in mitigating test anxiety, a prevalent concern in educational settings. The study revealed that specific teacher-led interventions, such as pre-test orientations, the provision of information regarding test content and format, and instruction on test-taking strategies, were effective in reducing test anxiety among students. Additionally, creating a low-stress environment and being mindful of students' anxiety levels can improve the testing experience. Giving students the opportunity to provide feedback and comments during testing may also be helpful in reducing test anxiety.

In light of these findings, recommendations for reducing test anxiety include familiarizing students with the exam format and rating system, reflecting course content in tests, creating a low-stress environment, and finding ways to evaluate students without inducing high levels of anxiety. To optimize their academic performance, individuals should strive to achieve their full potential. This can be accomplished by identifying and capitalizing on their strengths, developing effective study strategies, and cultivating a positive mindset.

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Author Profile



Abhinandita Chakraborty received the BSc. (Hons.) degree in Psychology from Loreto College of the University of Calcutta, West Bengal, India in 2022. Now she is pursuing her MSc. in Psychology from Rajabazar Science College, University of Calcutta, West Bengal, India.