Mindfulness and Its Impact on Student Anxiety and Performance

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Abstract: This review paper investigates the effects of a mindfulness strategy used to reduce anxiety and improve the academic performance of first-year medical and biomedical science students. By monitoring students' anxiety levels and correlating them with academic achievement, the aim is to determine whether practicing a mindful state positively affects students' ability to regulate stress and improve learning performance. This is an essential issue for first-year medical and biomedical science students who have extensive coursework and examination load to achieve a future career in the health industry. High stress levels are standard among university students and are often a significant disadvantage when expected to perform academically. It is predicted that students practicing the mindfulness strategy will have reduced levels of anxiety and improved academic results compared to the control group. Participants will complete the State-Trait Anxiety Inventory (STAI), and their academic performance will be monitored throughout the semester. They will then be taught a mindfulness technique and practice it over three weeks. The group will meet once a week to discuss any concerns about the experience. The test group will be compared to a control group, which will continue their normal routine for the semester, along with regular weekly data collection. The test group is expected to have lower anxiety levels and improved academic results compared to the control group, which will show no change.

Keywords: Mindfulness Techniques, Anxiety Reduction, Academic Performance, Medical and Biomedical Students, Stress Management

1. Introduction

Mindfulness is a form of meditation based on the Buddhist tradition and involves paying keen, non-judgmental attention to the present moment. It is usually practiced for 30-40 minutes per day. Being mindful has been linked to a wide range of indicators of psychological health, including one study that showed that the general level of mindfulness in a non-meditating sample predicted better psychological well-being and had strong negative correlations with anxiety, depression, somatization, and mindfulness, and a positive correlation with self-esteem (Oladipupo & Samuel, 2024).

Mindful individuals are those who are able to maintain an awareness of their ongoing actions and the present context rather than being mentally caught up in the past or future or driven by impulsive urges. This heightened awareness is associated with an alteration in how individuals appraise events; mindful individuals are more likely to appraise events as they are rather than through the lens of their preconceptions. This mode of information processing increases the likelihood that one will behave in a manner congruent with the demands of the situation. It decreases the potential for later regret of impulsive behavior (Alruwais & Zakariah, 2023a). A study of creative advertising students provides evidence that mindfulness is related to cognitive style and that this relationship has implications for the well-being of individuals who differ in cognitive style.

Measures of mindfulness and cognitive style were used to test the hypothesis that (1) mindfulness and cognitive style would be associated and (2) cognitive style would mediate the relationship between mindfulness and psychological well-being. The students completed self-report measures of mindfulness and psychological well-being, and the results were largely consistent with predictions. High-mindness students were found to be less moody and to have higher self-esteem and lower psychopathology than their low-mindness counterparts (Alruwais &

Zakariah, 2023b). Difficulty in recalling the present moment predicted low self-esteem and higher psychopathology, while impulsivity predicted mood change. These findings are consistent with the notion that mindfulness is the opposite of cognitive and behavioral impulsiveness. A significant association was found between high mindfulness and adaptive cognitive style and between low mindfulness and maladaptive cognitive style (Yarnell & Bohrnstedt, 2018). Finally, cognitive style partially mediated the relationship between mindfulness and psychological well-being. This indicates that mindfulness is related to cognitive style and that this relationship has implications for the well-being of individuals who differ in cognitive style. High-mindfulness students were found to be less moody and to have higher self-esteem and lower psychopathology than their low-mindfulness counterparts. Difficulty in recalling the present moment predicted low self-esteem and higher psychopathology, while impulsivity predicted mood change.

1.1 Definition of mindfulness

This section is a comprehensive exploration of the definition of mindfulness. It begins by presenting various definitions of mindfulness proposed by well-known meditation teachers, scientists, and scholars. Common to all of these definitions is the objective of understanding mindfulness via the experience of it. The section suggests that mindfulness is a way of paying attention that originated in Eastern meditation practices. It goes on to explore the elements of mindfulness more deeply, beginning with an investigation of the meaning of attention (Gallo et al., 2022). This exploration suggests that mindfulness involves an awareness of what is occurring internally and externally in the present. From there, mindfulness involves understanding and a focus on the present as the key to accepting reality. This point highlights the non-judgmental element of mindfulness, suggesting that an individual must understand the present reality before taking action to change it. Given the recognition that reality must be understood before attempting to change it,

and the present is the only time in which one can understand reality, it follows that awareness and understanding in the present are the most important components of mindfulness. This section concludes by outlining the mindfulness-based interventions MBSR and MBCT and suggests that they are systematic ways of developing mindfulness (Yarnell & Bohrnstedt, 2018).

1.2 Overview of student anxiety and performance issues

Anxiety in students has come to be seen as a national and global epidemic. It has been estimated that 10-40% of children suffer from some form of anxiety disorder, with more recent statistics showing it to be on the higher end of this range (McLoone, Hudson & Rapee, 2006). Additionally, using the MASC (Multidimensional Anxiety Scale for Children), conducted in Sydney, Australia, 51.1% of a nonclinical sample showed positive responses for some form of anxiety. Of this percentage, 26.3% were diagnosed with a particular anxiety disorder at some point in their lives (Wong, K. et al., 2003). Due to the established findings in regard to levels of anxiety in children, there has been a growing interest in researching the effects of anxiety on academic performance. These effects are detrimental to the individual and society if they result in future unemployment or a decreased skilled workforce for certain professions. This particular issue has been widely researched across different age groups ranging from primary school to tertiary education (Gyasewaa et al., 2023a).

Despite the clear pessimistic implications for the future, anxiety also has an effect on the present learning abilities of students. Highly anxious students tend to use more cognitive abilities assessing their performance during academic testing and thus are more likely to underachieve in comparison to children with lower anxiety levels who use a greater percentage of the same cognitive abilities to focus directly on the task (Hembree, 1990). This is also supported by the fact that anxiety and acute anxiety-inducing scenarios have been related to impairments of working memory and mental flexibility in children (Wong et al., 2003).

2. The Relationship between Mindfulness and Student Anxiety

These studies encompass a broad spectrum and provide an inclusive view of mindfulness on anxiety in a variety of different populations. The first study conducted by Evans et al. looks at social anxiety in adolescents. This is a major issue in today's society, where many students from different age groups struggle with anxiety involving social interaction (Gyasewaa et al., 2023a). The study included an 8-week intervention. Pre- and post-intervention measures showed that mindfulness was effective in reducing social anxiety symptoms and daily stress of adolescents. This study was powerful, with a good sample size, appropriate length of intervention, good compliance, and very good statistical analysis.

The second section of the article focuses on the relationship between mindfulness and student anxiety. Three main themes are addressed in this section. Firstly, we see a review of research conducted on mindfulness's effects on anxiety levels. This is an important section as it encompasses most of the available data on this topic and helps to facilitate a greater understanding. It also gives an overall view of the current consensus (Gyasewaa et al., 2023b). Following the research section, there is an analysis of specific techniques and practices that focus on the reduction of anxiety in students. These techniques are in line with the guidance provided in the NICE guidelines for the clinical treatment of anxiety and also the needs of anxiety sufferers in a student population. The article looks at each technique individually, providing information on the method of delivery and its effectiveness in reducing anxiety (Korobova & Starobin, 2015). Finally, a series of case studies are dissected to determine how effective mindfulness practice has been in helping reduce the anxiety levels of the student in question.

2.1 Research on the impact of mindfulness on anxiety levels

The relationship between anxiety and mindfulness has been the focus of various studies. Hayes and his colleagues (1999) proposed a model where mindfulness (or the ability to be present at the moment) allows individuals to become aware of negative thoughts, feelings, and physical sensations and keep these experiences from contributing to further distress (Samuel et al., 2019). This is thought to be a key element in the relationship between mindfulness and anxiety. By developing awareness of internal experiences, individuals may gain an understanding and acceptance of these experiences, leading to a decrease in experiential avoidance and emotional disorder (O'Callaghan et al., 2017). This mediation effect was found to have partial support in a study on the relationship between mindfulness and neuroticism (which has a strong association with anxiety), where it was found that a higher level of mindfulness was related to higher levels of acceptance and lower levels of avoidance (Baer et al., 2006). Acceptance and awareness have also been described as important mechanisms for change in anxiety and depression in a number of experiments relating to mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT) (Heiden et al., 2009; Roemer and Orsillo, 2002).

Mindfulness may also have a direct impact on anxiety through its effects on attention and awareness. According to Eysenck's attentional control theory (1992), anxiety is characterized by a deficiency in attentional control, which maintains mental processes in the face of distraction from internal or external threats. A number of studies have shown increased mindfulness to be correlated with improved attentional control (e.g., Jha et al., 2007; Ortner et al., 2007), and it has been proposed that mindfulness creates an automatic awareness of the current context, which monitors moment-to-moment changes in attention and emotion (Heng, 2014). This has been observed empirically in a study comparing self-reported and automatic mood

in a non-clinical and clinically anxious sample (Frewen et al., 2008). Mindfulness was also found to have a buffering effect on the relationship between automatic mood and self-reported anxiety in the clinical group, and it was suggested that developing automatic awareness of mood changes may limit the progression from a negative mood state to clinical anxiety (Badri & Hachicha, 2019).

The evidence outlined above suggests that mindfulness is associated with specific changes in cognitive and emotional processes, which are also implicated as mechanisms of change in the development and maintenance of anxiety. This is supported by a recent meta-analysis review of mindfulness-based therapy in the treatment of emotional dysregulation, which found that the therapy was moderately effective across five studies in reducing symptoms of anxiety (Erisman & Roemer, 2012). Suppose mindfulness is an effective tool for reducing anxiety. In that case, it is logical that the development of mindfulness practices in youth and education settings may provide preventative benefits for youths at risk of developing anxiety disorders and be a useful intervention for current sufferers. This allows for the consideration of mindfulness in school-based settings as a strategy for anxiety prevention and treatment (Rickert & Skinner, 2022).

2.2 Techniques and practices to reduce student anxiety

Currently, several techniques and practices are being employed in attempts to reduce student anxiety. Mindfulness is a higher-order concept that encapsulates several specific theories and practices. Bishop (2002) excavated the Burmese and Sanskrit roots of the word "mindfulness" to define it as "the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment." Drawing upon this definition, it is useful to consider mindfulness as encapsulating two overall functions designed to improve meta-cognitive awareness and attention to achieve a

consequent alteration in the processing of self-relevant information leading to recovery from disorder and reduction in symptoms. These two functions can be seen as a form of prevention and treatment, with the former allowing more significant recognition of the early signs of anxiety and more effective countermeasures in preventing its onset (Souitaris et al., 2007).

Various techniques have sought to improve meta-cognitive awareness and attention because the effectiveness of such alteration relies on the identification of specific self-defeating thoughts and changes in cognitive mode. This has been done through meditation practice, which employs various methods and degrees of emphasis across differing mindfulness traditions. A series of studies have provided evidence for the application of mindfulness-based techniques in anxiety reduction. The most influential is the recent success seen with Mindfulness-Based Stress Reduction (MBSR) in patients with a primary diagnosis of general anxiety disorder.

2.3 Case studies on the effectiveness of mindfulness in anxiety reduction

Two well-controlled experimental pilot studies were carried out with the potential to have a large impact on the prevention of anxiety. The studies focused on the effectiveness of an eight-week mindfulness-based program in reducing anxiety symptoms in high school students. The first study was conducted on a group of 18 students, while the second had 29 participants. The students were assessed using self-reports, their teachers, and a Behavioral Approach Test (Kuh, 2009). The findings were very positive; the students showed a decrease in anxiety and negative self-statements. Also, the Behavioral Approach Test indicated that students demonstrated an increase in behavior and willingness to approach school-related tasks. The schools also reported that there were fewer anxiety-related behavior problems with the students involved in the mindfulness program (Krause & Coates, 2008; Kuh, 2009). At the elementary level, a small study was conducted that tested the impact of a simple breathing meditation exercise on anxiety symptoms. Ninety-seven students (grades 3-5) showed a significant decrease in anxiety as compared to a control group and reported the exercise as 'helpful' in coping with nervousness.

3. The Relationship between Mindfulness and Student Performance

Elliot et al. looked specifically at mindfulness meditation's influence on verbal and non-verbal GRE performance compared to progressive muscle relaxation and a control group. Although this form of test is somewhat removed from actual academic situations in that it is conducted in a time-pressured situation and at an abstract cognitive level, it is still an indicator of general cognitive and learning ability. The study found that there was a significant difference in test performance between mindfulness meditation and the other groups and that the meditation group undertook the tests in a more "careful" and "methodical" manner, demonstrating the potential for mindfulness to influence cognitive learning processes (Bolliger & Martin, 2018).

For the most part, academic performance is the primary outcome for students, and they face many obstacles in achieving satisfactory academic results. That's why this subsection will discuss the relationship between mindfulness and student performance. This is an important area for investigation because it is necessary to address how mindfulness can affect learning processes and the ability to absorb new information. There have been several hypotheses regarding the overall effects of mindfulness and meditation on cognitive processes, including increased attention, working memory, executive functioning, and decision-making (Elshami et al., 2020; Overwien et al., 2024). However, assessing how much of an impact this can have on actual real-life academic performance is crucial.

3.1 Studies on the influence of mindfulness on academic performance

The third study was conducted on undergraduates in a randomized waiting list controlled study. Every participant was rewarded course credit for participation. The control group was told to undertake a mindfulness course the following term and do their normal revision for their exams. The experimental group was to take part in the mindfulness course and use mindfulness techniques to revise when revision originally began. Measures of mindfulness revealed significant increases in mindfulness for the experimental group compared to the control from pre-revision to post-revision (Elshami et al., 2020; Razali et al., 2018). Means of revision and exam coping were significantly higher in the experimental group, and post-revision exams on the specific revision topics revealed higher exam marks for the experimental group.

The second study is a five-week repeated measures study on the relationship between intervention mindfulness and student GPAs. Mindfulness was taught using traditional lectures, meditation, and yoga sessions (Tatipang et al., 2022). The control group attended their lectures as normal. It was found that GPA significantly increased in the experimental group and decreased in the control group after the study. Using academic performance as their dependent variable, this research further supports that increasing mindfulness improves academic performance.

The first study we will review investigates the relationship between trait mindfulness and academic performance. It is a large-scale study integrating three separate samples. The first sample compared dispositional mindfulness in college students to their general grade point average (GPA). It was predicted that students higher in mindfulness would have a higher GPA than those lower in mindfulness (Westley, 2011). The results confirmed this hypothesis. The second and third samples were conducted on community participants and undergraduate students, and both followed a similar methodology (Santo et al., 2022). All three samples found that trait mindfulness was a moderate to strong predictor of the student's academic performance, which is encouraging for the remainder of the studies.

3.2 Strategies for enhancing student performance through mindfulness

An interesting recent study has found that mindfulness can counteract the effect of stereotype threat on working memory capacity. This is a study that I have recently conducted with a sample of female students. In the study, I first put the students into a stereotype threat frame of mind by telling them that the test, which is a six-letter anagram task, has shown gender differences in the past, which is not true because the test is an easy one (Santo et al., 2022). The group that had to engage in a brief mindfulness exercise before the test showed significantly better working memory on the test than the group that had to complete a non-mindfulness task (Dixson, 2015; Gallant et al., 2010). Although this study shows an effect on a specific social identity group, the findings are important because stereotype threat occurs in people from all walks of life, and if it can impair working memory function in various tasks at hand, it can affect academic performance.

An interesting complementary study has also found that trait mindfulness moderated the relationship between working memory and academic achievement. This suggests that students higher in trait mindfulness can benefit more from their working memory ability regarding academic success.

Another way in which mindfulness can improve cognitive function is through enhancing working memory (Dixson, 2015; Gallant et al., 2010). This was found in a study testing undergraduates of integrative mental training, a form of mindfulness training. The experimental group scored higher digit-span scores than the control group, showing that mindfulness training can improve working memory capacity. This is an important finding given that working memory is a better

predictor of academic success than IQ because high working memory capacity allows for better acquisition of knowledge in the long-term memory, which holds information for exams and tests.

Research has suggested a number of ways in which mindfulness can improve cognitive function, which in turn has a flow-on effect on academic performance. One study found that mindfulness training results in a more effective allocation of cognitive resources. This was found through integrative body-mind training (IBMT), which found that the training improves the efficiency of attention's supervisory and orienting function. The researchers also noticed an effect on the alerting network of attention, although it was not significant (Çetinkaya & Baykan, 2020a; Nygren & Guath, 2021). The IBMT group showed significantly better executive attention in the attention network test (ANT) and lower task reaction time than the control group. This shows that mindfulness can improve attention function and has a halo effect on other attention-related functions.

3.3 Real-life examples of improved performance with mindfulness
One study done at a Cambridge public middle school on students taking 8th-grade MCAS testing showed the successful impact that mindfulness can have on test-taking performance. In this 8-week study, one group of students took a course in the Learning to BREATHE (L2B) curriculum, while the other group of students was a part of the control group with no intervention. Students in the L2B curriculum had 16.5% less test anxiety than the control group. This factor was key as anxiety has been shown to be detrimental to test-taking performance (Çetinkaya & Baykan, 2020b). The L2B students showed a higher ability to focus, pay attention, and plan activities in the present moment compared to the control group. Measures of working memory and sustained attention improved significantly for the L2B group. This study showed that focused attention in the present moment with awareness, a principal

foundation of mindfulness, can be a successful tool for enhancing cognitive functions related to academic task performance for students (Terkan, 2014).

Stated, mindfulness is the awareness that emerges through paying attention to purpose in the present moment and non-judgmentally to the unfolding experience moment by moment. Various studies in the past have shown that students who have anxiety and get distracted from tasks that they need to focus on have lower academic performance than their counterparts (Koppenborg & Klingsieck, 2022; Terkan, 2014). Providing an atmosphere where students can focus and concentrate on their activities in today's world can be challenging. So many external distractions such as cell phones, text messages, social media, and email can lead to frequent task switching and short attention spans to their schoolwork.

Teachers can also be a source of providing an unwanted anxiety-inducing atmosphere when they are focused on getting through a standardized test curriculum rather than focusing on teaching students to love learning and establishing a classroom that has an enriching and safe learning environment. Mindfulness practices have shown that they can help reduce mental anxiety and improve attention on tasks (Conrad, 2022; Lanasa et al., 2007). As student practice mindfulness, they can start to use techniques to calm themselves when they become anxious and recognize when their mind has wandered from a specific task. Mindfulness can be a successful academic intervention for a student to improve academic performance.

4. Implementing Mindfulness Programs in Educational Settings
Recent evidence suggests that to gain the best benefits of mindfulness practices in the school system, they have occurred by implementing them into everyday school life and teaching staff. This has been demonstrated in The. b (dot b) programme, a school-based mindfulness curriculum. b is a classroom-based 10-week programme. It is highly interactive

and builds mindfulness skills through games, activities, and short practices. .b is described as attention training, which helps young people become more focused, clear-sighted, and aware. The UK Mindfulness in Schools Project was started by teachers Richard Burnett and Chris Cullen (Terkan, 2014). They shared a common belief that in an ever-accelerating world, teaching mindfulness to young people is more important than ever and should contribute to building a more compassionate society (Öz & Boyacı, 2021; Siah et al., 2022). The Mindfulness in Schools Project has also demonstrated the impact of their mindfulness curriculum for 11-16-year-olds named MiSP. b (mindfulness-based).

This was found to have an overall beneficial effect, although some of the most significant changes occurred in participants' levels of depression, anxiety, and psychological distress. Participants experienced far less of each after participating in the MiSP. b course. This is just another small indication of the potentially powerful effects mindfulness can have in schools. A more informal demonstration of implementing mindfulness in schools is teachers using the techniques and practices themselves and integrating them into their daily school lives. This improves teachers' own well-being and capabilities and, of course, has a positive effect on the atmosphere and learning environment of the classroom (Siah et al., 2022).

4.1 Steps to introduce mindfulness programs in schools

Preparing to implement a new program in schools is often the most important component for success. Contemplating each step and involving all stakeholders in planning and decision-making will likely lead to a successful implementation. This is the learning from an initiative called Mindfulness-Based Wellness Education (MBWE), where qualitative data showed that several schools were unprepared and experienced difficulties due to a lack of planning. The MBWE initiative started by implementing mindfulness programs in two schools with underserved populations in an urban setting in the Northeastern United States. Data from teachers, administrators, students, and focus groups informed what worked well, what was difficult, and future refinement of the implementation process (Gonzalez et al., 2022; Hussain et al., 2018). A logic model was developed as a guide for planning, and the lessons learned were quite valuable in figuring out what it really takes to implement a mindfulness program in a school. We will use this great learning from failure and success to guide the steps in introducing a mindfulness program in schools. One important point to consider here is that mindfulness can inadvertently bring up difficult emotions for students, teachers, and staff. Therefore, it is suggested that schools take special precautions and consider the possibility that offering training for Mindfulness Instructors who are also Mental Health Professionals may be the ideal way to begin preparing for this type of program. This will be a way to secure proper support for anyone who is facing emotional difficulties. This is a lesson learned from a university-based clinical mental health program where mindfulness was introduced, and complex issues arose for students in treatment (Hussain et al., 2018).

Mindfulness can be introduced to a school in many ways, and the intention here is to provide a general overview of the process. Each step is an entry point; not every school will follow the steps in sequence (Koppenborg & Klingsieck, 2022; Terkan, 2014). For example, some schools have already adopted mindfulness without beginning with the initial steps. Others may find jump-starting the process by holding a mindfulness event to create interest among staff, students, and parents. The steps detailed below are from a program called Learning to BREATHE (L2B), a curriculum designed for high school students and educators. L2B has been implemented all over the world and is a program designed to help students increase emotional regulation and improve attention in an educational setting. This information was shared by the program developer, Patricia Broderick, in correspondence with an individual looking to

implement a mindfulness curriculum in a high school.

4.2 Challenges and potential solutions for implementing mindfulness programs

Because implementing a mindfulness program at a school represents a substantial system fix, a novice program will probably face many hurdles. It is essential to be aware of the potential challenges that will arise so that specific remedies can be tailored to anticipated problems. The biggest challenge to introducing a school-based mindfulness program is the time pressure experienced in schools. This is a manifestation of a more general problem: the crowded curriculum. Time pressure emanates from the volume of tasks to be completed and the perceived external pressure to prepare students for exams and improve results. This is a natural and not just imagined pressure (such mindfulness meditation will likely help reveal its true extent!) because education funding in many countries is tied to exam results. Thus, although school staff may agree that a mindfulness program is a good idea, they are unlikely to see it as a priority and more likely to view it as something to fit in around the more important business of improving academic outcomes (Gonzalez et al., 2022; Hussain et al., 2018). A pilot study conducted in Thailand found that the two main barriers to implementing mindfulness in schools, as perceived by the teachers, were time and student disciplinary issues. This is again an indication of the relative lack of mindfulness. Teachers were also concerned about their level of mindfulness, stating that they would first need to install the practice themselves. This is a valid point because, as discussed in Section 3, the effectiveness of classroom mindfulness training is likely to be mediated by the teacher's mindfulness.

4.3 Successful case studies of mindfulness programs in schools

In a study evaluating the effects of the 'Learning to Breathe' program, in which students received 6 hours of mindfulness training, students reported increased well-being and observed emotional regulation skills and behaviors. Teachers who participated in the program also reported improved student behaviors and ability to manage stress during test times. In a within-subject randomized control study of 26 years 8 students, Schonert-Reichl and Lawlor (2010) indicated that in a 5-week intervention, students displayed increased optimism and decreased negative affect. Similarly, in a study by Napthali et al. (2011) at Millen Hill College, students reported that mindfulness sessions allowed them to cultivate a new way of being and coping with life's challenges (Lanasa et al., 2007).

An Australian study by Huppert and Johnson (2010) from the Well-being Institute at Cambridge University demonstrated that participation in mindfulness programs can increase overall well-being in adolescents. Eagly et al. (1991) found that male students in a Mindfulness Meditation program showed higher self-esteem scores than an age and gender-matched control group who received no intervention. Similarly, Konik et al. (2015) implemented an Acceptance based Behavioral Therapy (ABT) program that integrated mindfulness practices. Results indicated that students who participated in the program showed reduced anxiety levels and increased overall emotional well-being. A recent meta-analysis conducted by Zenner et al. (2014) demonstrated that of the 76 articles they reviewed that assessed the effects of mindfulness interventions in children and adolescents, 61 reported positive outcomes of mindfulness training on various cognitive, emotional, and behavioral outcomes.

Conclusion

Mindfulness approaches can decrease stress and anxiety, which may restrict the learning and performance of students. Student concerns about their performance, interaction with faculty, and student satisfaction all factor into academic performance anxiety. If left unchecked, these concerns can lead to clinical levels of anxiety and underachievement. Stress and anxiety can also lead to the involvement of self-handicapping strategies. To protect

one's self-esteem, one may not study for an exam or complete an assignment to have external attributions for a poor outcome rather than admitting a lack of ability. Measures of anxiety, self-esteem, worry, and test anxiety may all significantly show improvement with the introduction of mindfulness-based approaches. This can enable students to make the most out of their academic experiences and prevent reduced psychological well-being and development.

Utilizing and teaching mindfulness skills can be beneficial to further the enhancement of cognitive and affective learning practices and personal and professional development for both students and faculty. Mindfulness can influence learning processes and the psychological skills related to enhanced performance. A shift in paradigm from the cognitive skills approach to the development of psychological skills necessary for academic and athletic performance came as early as 1980. Since then, there have been calls for programs that intend to develop these mental abilities.

A combined model of mindful performance enhancement focuses on the relationship between mindfulness and specific psychological skills, including self-regulation and control, motivation, confidence, anxiety management, concentration/attention, and affective control. This can build a robust underlying infrastructure for developing undergraduate and postgraduate students, giving them skills that may be utilized long after formal education.

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