

Understanding Research in Meditation and its Effects on the Students' Performance: A Literature Review

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Abstract: Meditation has a rich history and is deeply integrated into Indian civilization. Its diverse applications have attracted the attention of researchers across disciplines, revealing that meditation offers powerful and transformative benefits for the mind and spirit. In the post-pandemic period, there has been heightened awareness of mental health and psychosocial well-being, as the long-term effects of prolonged uncertainty, isolation, and digital dependence continue to influence daily life. The recent pandemic has dramatically affected the well-being of a large percentage of the population, and efforts to restore it are ongoing. In this context, the practice of meditation for general and mental well-being is on the rise. The young demographic, which is techno-savvy and digitally proficient, is the one most prone to the adverse effects of overuse of digital platforms and the maintenance of an ever-increasing online presence. Numerous studies indicate that this issue has negatively impacted mental health, highlighting a concern that must be addressed to promote psychosocial wellness. This affects performance and overall well-being. This paper reviews the effects of meditation on education to develop a nuanced understanding of the multiple perspectives involved. Increasingly, meditation is being explored as part of practice and pedagogy, enabling students to navigate the fallacies of emerging digital futures and to enhance their academic performance, particularly in creative fields. This review examines prior studies and articles to develop a nuanced understanding of the topic from multiple perspectives. Analysis of the reviewed articles indicated that meditation has significantly affected learners' well-being and performance.

Keywords: Meditation, Performance, Creativity, Psycho-Social Issues, Well-Being, Academics.

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I. INTRODUCTION

Meditation is no longer a religious or spiritual practice. Over time, it has transformed into a wellness practice. Its practice has expanded into many areas, including health care, education, and workplaces, as a wellness concept. It is a common subject of interest in this age of stress and strain. Meditation, also known as mindfulness, has attracted the attention of the general public and professionals across various fields because of its potential to promote overall and emotional well-being, enhance cognition, and improve academic performance. It has evolved into more of a management practice in many organizations. In India, meditation in education is as old as education itself. Over time, due to the decline in gurukuls and ancient universities, this meditation practice has gradually reduced. With the mushrooming of secular education, this has almost disappeared. In recent times, meditation has emerged as a

powerful tool. Its effects are evident across nearly all domains. Especially in the field of teaching and learning, its effects were well noted. Stress and other affective factors among learners in higher education are widespread. Sometimes, these issues become unbearable. Meditation in this context offers a scientifically approved and research-supported strategy that enhances focus, reduces stress, and fosters resilience. This paper undertakes a critical review of existing research on meditation and mindfulness in educational contexts to examine their effects on students' psychological well-being, cognitive functioning, and academic performance. In particular, there is a need for an integrated understanding of how meditative practices influence performance-related outcomes in higher education, especially within creative and design-based learning environments.

II. MEDITATION AND MINDFULNESS - AN INSIGHT

The Sanskrit term equivalent to meditation is *Yuj/Yog*, which means to connect and join in oneness. Mindfulness is closely associated with meditation practices that focus on present-moment consciousness as a psychological habit [1]. Berkeley's Greater Good Science Center (n.d.) defines "Mindfulness as a means to maintain a moment-to-moment awareness of thoughts, emotions, feelings, physical sensations, and surroundings, through a very gentle, nurturing lens." In this paper, mindfulness and meditation are used interchangeably to refer to the state of mind that emerges from meditative practices.

During the mindfulness exercises, participants gear up to gain natural feelings of positivity and learn to empathize with one another. Most people think meditation is learning to concentrate, but it is learning to relax, thereby learning to focus automatically. In addition, self-compassion and compassion for others are gained in the process [2]. This makes mindfulness exercises therapeutic as self-care and care for others emerge. Meditation is a powerful means to break the cycle of restlessness and endless thoughts. As said, as self-compassion grows, more positive emotions evolve, which makes one feel well, leading to wellness. Persons with high levels of self-compassion may have better effective emotional well-being, regulation ability, and coping strategies, particularly when experiencing negativity, than those with less self-compassion [3]. Sirois (2014) outlines the efficacy of self-compassion in mediating stress and procrastination [4]. fStudies indicate that learning mindfulness helps peers gain strength and skills to develop collaboration skills and experience shared growth instead of wild competitiveness and inhuman judgment. Meditators showcased higher levels of mindfulness, better performance, attentiveness, cognition, and flexibility. In this context, attention, performance, and cognitive flexibility were positively correlated to levels of mindfulness [5]. Meditation is key in helping individuals develop these practical qualities. It leads to a distinct state of psychological and physiological awareness and development, which affects the working of the brain. It promotes a sense of self-regulation skills, enhances emotional balance, and fosters relaxation of the mind [6]. Hence, meditation has a crucial role to play in promoting wellness in general and performance in particular.

III. MEDITATION IN EDUCATION

Meditation till recent times is very much associated with spirituality, and religion and is considered so sacred, that people initiate learning with a ritual or a few minutes of meditation invoking the nature of the energy that one believes in. With the increasing secularization of education and the growing emphasis on evidence-based well-being practices, meditation has gradually been reframed as a non-religious, universal strategy for addressing contemporary lifestyle challenges such as stress, anxiety, and cognitive overload. As a result, mindfulness-based practices are now being incorporated into educational and healthcare institutions as

tools to enhance focus, emotional regulation, and overall student well-being.

Especially, Mindfulness is part of the curriculum in higher education in most disciplines such as art, architecture to most contemplative disciplines [7]. Research findings indicate that mindfulness has statistically significant positive outcomes.

IV. RESEARCH IN MEDITATION

Research findings in the area of meditation reported that meditation has a significant positive impact on learners. The body of research examining meditation in educational settings can broadly be categorized into studies focusing on

- Psychological and emotional well-being,
- Cognitive and attentional processes,
- Neurophysiological correlates, and
- Academic performance and learning outcomes.

Together, these strands of research provide converging evidence of the multifaceted effects of meditation on student functioning. The effects of the intervention of meditation on psychological and physiological well-being [8] [9], include reduced fear, worry, anxiety, unwanted distress, hyper-reactivity, difficult behaviours, improved sleep and self-esteem, and a boost in calmness, happiness, relaxation of mind, self-regulation of skills and awareness [9] [10] [11] [12] [13] [14].

Hallahan and Kauffman (1991) stated that learning disturbances usually result from an inability to concentrate, especially when the learning process is lengthy [15]. Zeidan et al. (2010) reported that even brief mindfulness training (four days of meditation) can significantly enhance the ability to sustain attention [16]. Students who can concentrate are better able to use existing knowledge effectively, better able to pay attention, and exhibit improved recall of teaching content [17]. Weare (2013) also reported that students who are focused and 'present' can pay attention and learn efficiently, contributing directly to enhancing cognitive skills and academic performance [9]. Improvement in academics is mediated by the reduction in the wavering of the mind [18]. Studies report that training in mindfulness meditation helps manage stress and improves focus and concentration, which support learning [19]. Thus, mindfulness training is a powerful and efficient learning strategy. Roth (2014) reported that the students who took part in 12 weeks of training in mindfulness meditation displayed improved attention, and self-judgement, a decrease in issues such as self-reported depression and anxiety, and an increase in aspects of mindfulness and the Five Facet Mindfulness Questionnaire [20] [21] [22]. This transformation in emotional information processing was closely associated with increased psychological well-being and lower levels of depression and anxieties as measured by the 'Scales of Psychological Well-being' [23] and the 'Mood and Anxiety Symptom Questionnaire' [24]. Recent findings in this field report that meditation is vital to complement and enhance abilities to achieve current education goals, which include

holistic development by fostering and nurturing interpersonal and intrapersonal skills and intelligence.

Nargundkar (2020) [6] collectively highlights the growing body of evidence supporting the role of meditation, mindfulness-based stress reduction programs (MBSR), and related contemplative practices in enhancing academic performance, emotional regulation, and cognitive functioning among students across diverse educational contexts. A study conducted with school-going students using semi-structured interviews demonstrated enhanced academic performance accompanied by heightened levels of self-control and self-reflection. This study, undertaken by Rosaen, C. et al. (2006), spanned one year and underscored the positive academic implications of mindfulness interventions [25].

Further, interventions of MBSR carried out by Shapiro, et al., (2008) and Shapiro, et al., 2011 yielded significant results in reducing stress and rumination [26] [27]. These studies reported increased levels of forgiveness, empathy, and hope, along with improvements in subjective well-being. The participants in these experiments were undergraduate students, divided into MBSR and control groups. The researchers employed a range of measurement instruments, including the Perceived Stress Scale (PSS), Rumination and Reflection Questionnaire (RRQ), Heartland Forgiveness Scale (HFS), Mindful Attention Awareness Scale (MAAS), and the Positive and Negative Affect Schedule (PANAS).

Similarly, Travis et al, 2009 conducted a 10-week study on a group of 50 college students using the Epworth Sleepiness Scale (ESS), Brain Integration Scale (BIS), and Connor's Continuous Performance Task-Identical Pairs [28]. Findings indicated that quicker habituation rates were negatively correlated with higher BIS scores. Another notable observation was that students who meditated regularly exhibited lower sympathetic reactivity compared to those who delayed meditation practice, particularly under conditions of heightened stress.

Experiments conducted by Kang, et al.(2009); Jian & Li, 2016 and Xu, et al., 2017 produced similar results, with consistent evidence of reductions in anxiety and stress levels [29] [30] [31]. However, these studies did not observe significant differences in depression levels or benefits across different mood states. An additional finding was that meditation helped prevent task deterioration during episodes of off-task thinking amongst the subjects. Across these studies, undergraduate students participated in various tasks, and outcomes were measured using scales such as Chang's PWI-SF, STICSA, MAAS, PANAS, and MRT.

Ching, et al. (2015), conducted a semester-long experiment involving 152 first-year university students in the intervention group and 30 in the control group [32]. The study reported notable cognitive advancements, particularly in attention, memory, reaction time, and spatial working memory, among the intervention group. Comparable findings were reported by Patel et al., 2018, where 72 college students were studied using instruments such as the Emotion Regulation Questionnaire (ERQ), MAAS, PANAS, and the

Self-Compassion Scale (SCS) [33]. This two-week intervention, known as the Mastering Emotions Technique (MEMT), involved 45-minute daily sessions and demonstrated measurable improvements in emotional regulation.

Earlier work by Wallace, et. al. (1984), extended over 48 months and identified a positive correlation between H-reflex and academic performance, independent of verbal IQ, thereby dismissing H-reflex as a reliable indicator of intelligence [34]. Takahashi et al. (2005), investigated the effects of Zen meditation on 20 novice undergraduate students. Remarkably, even a single 15-minute session produced significant augmentation of both slow alpha and fast theta power [35].

Similar findings have been echoed by several studies [36] [37] [38]. Collectively, these studies reported the following outcomes:

- Enhanced concentration and awareness, improvements in long-term memory, and greater optimism associated with increases in alpha, delta, and theta brainwave activity.
- Reduction in respiration rate during meditation, contributing to lower stress levels.
- Higher kurtosis values in non-meditators compared to meditators.
- A general tendency toward reduced left-hemisphere power and increased right-hemisphere power during meditation.

Additional contributions to this field include studies by *Bhayee et al. (2016)* and *Jadhav, et al. (2017)*, both of which involved interventions spanning 6–8 weeks [39] [40]. These studies reported improvements in attention, emotional regulation, and overall well-being. They also identified notable changes in subjective ratings, emotional arousal, functional connectivity, and accuracy in cognitive task performance, underscoring the multifaceted benefits of meditation practices.

V. CONCLUSION

The reviewed literature collectively demonstrates that meditation and mindfulness-based practices exert a consistent and positive influence on students' psychological well-being, contributes to reductions in stress, anxiety, emotional dysregulation, and mind-wandering, while simultaneously enhancing attention, memory, emotional balance, and self-regulatory capacities. These outcomes are particularly relevant in contemporary higher education environments, where students are increasingly exposed to academic pressure, digital overstimulation, and psychosocial challenges.

The current educational pedagogies, especially in the Indian Sub-continent, have traditionally emphasized competition, performance metrics, and outcome-driven learning. While such approaches have contributed to academic achievement, they have also been associated with heightened stress levels, leading to a surge in suicides among the young demographic. This, along with the rise of social

media platforms, has impacted the attention spans of most of the populace.

The findings highlight the relevance of meditation for performance-oriented and creative disciplines. By cultivating present-moment awareness, cognitive flexibility, and emotional regulation, meditation supports conditions that are conducive to creative thinking, reflective learning, and deeper engagement. These qualities are central to fields such as art, architecture, and design education. Rather than functioning solely as a stress-reduction technique, meditation emerges as a pedagogical tool capable of enriching both intrapersonal and interpersonal dimensions of learning.

In this context, the recently amended National Education Policy 2020 takes a radical view of the purpose of education. The call for shaping well-rounded young personas could be possible by systemic rethinking and introducing reflective pedagogies. Research on how meditation could help the young demographic navigate the choppy waters of academic pressure and psycho-social issues arising from increased social media presence toward personal well-being through mindful practices is in progress.

The various kinds of research undertaken have more than established a nuanced understanding of the different types of meditations and their impact. There is enough evidence that this can be a most accessible pavilion and an immediate need of the hour, but the large-scale implementation in spirit seems essential. While the existing body of research provides substantial evidence of the benefits of meditation, there remains a need for context-specific, longitudinal, and discipline-sensitive studies, particularly within Indian higher education and creative learning settings. Large-scale implementation, supported by institutional commitment and pedagogical alignment, is essential for realizing the full potential of meditation-based practices. As educational systems continue to evolve in response to contemporary challenges, meditation stands out as an accessible, scalable, and research-supported approach for promoting student well-being and optimizing academic and creative performance.

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