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Efficacy of an Online Course to Build Mindfulness in Adolescents

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Abstract: Mindfulness intentionally focuses and sustains attention on immediate experience and adopts a curious, open, and accepting orientation towards that experience (Kabat-Zinn, 2005). Increasing research shows that students equipped with mindfulness can demonstrate higher levels of attention, awareness, obtain higher test scores, and report lower stress levels. This paper explores digital activities to build mindfulness in an online course on global citizenship administered to adolescents between 12-14 years. A total of 68 students from India took the course over twelve weeks. A pre-post paired t-test revealed a significant increase in the overall score of mindfulness ($p < 0.05$) as measured by the Five-Facet Mindfulness Questionnaire (FFMQ). Additionally, significant increases were seen on the subscales of "observing" ($p < 0.05$), "describing" ($p < 0.05$) and "non-judging" ($p < 0.05$) facets of mindfulness. Thematic analysis of the open-ended responses supported the findings from the pre-post.

Keywords: Mindfulness, Digital course, Global Citizenship, Social and Emotional Learning (SEL), Efficacy

1. Introduction

The adolescent years are periods of development where children face a myriad of physiological and psychological changes leading to an upsurge in their stress levels (OECD, 2017). According to the National Institute of Health, 1 in 8 children suffer from stress and anxiety disorders (Kessler R. C., 2005), and more than 25% of 13- to 18-year-olds will experience it by the time they turn 18. This data is alarming, especially when a growing body of literature informs us of the negative impacts of prolonged stress. Accumulating Social and Emotional Learning (SEL) research has shown that mindfulness training decreases stress, anxiety, and disruptive behaviors and even reduces depression (Hofmann, S. G., 2010). Mindfulness is intentionally focusing and sustaining attention on immediate experience, adopting a curious, open, and accepting orientation towards that experience (Kabat-Zinn, 2005). In addition, students with mindfulness training score higher grades (Franco, C., 2010), are more attentive (Weare, K., 2012) than their counterparts, and are less likely to engage in disruptive behaviour. These students have also demonstrated higher self-esteem and social skills that help them build deep and meaningful relationships (Durlak, J. A. et al., 2011).

These powerful effects of mindfulness have led to several studies exploring mindfulness-based intervention in the classroom. However, with worldwide school closures and online, exploring ways to teach mindfulness through digital modalities also becomes imperative. Increased research shows that using multiple digital pedagogies results in fun, playful, motivational, and rewarding learning experiences. We sought to harness this potential of technology and utilized the Libre pedagogical framework (Rautela et al., 2019) to cultivate different facets of mindfulness. Using this learning, activities on digital storytelling, dialogue, journaling, and games focused on Mindfulness were embedded in a course on global citizenship. The course is hosted on Framerspace (www.framerspace.com/course/global-citizenship), a free AI-based learning platform.

2. Efficacy of Digital Activities to Cultivate Mindfulness

To evaluate the efficacy of digital activities to cultivate mindfulness, a research study was conducted using a pre-post research design. It was hypothesized that adolescent students who undertook the course would demonstrate a higher understanding of self-awareness and mindfulness and its role in calming the brain.

2.1 Participants, Study Procedure, Data sources and Analysis Technique

Participants for the study were recruited from schools in India and were selected based on convenience and ease of course implementation. A total of 68 participants took part in the study. The mean age of the participants was 12.9 years (SD = 0.72 years and comprised of 40 females and 28 males). The research was conducted over five weeks in 4 phases – An induction workshop and a Pre-Assessment questionnaire, followed by participants undertaking the course and completing the post-Assessment questionnaire. The self-report Five-Facet Mindfulness Questionnaire (FFMQ) (Baer et al. 2006) was used to measure the course's efficacy. FFMQ measures mindfulness as a five-factor construct comprising describing, observing, non-judging, acting with awareness, and non-reactivity to inner experiences. Participants responded to these items on a 3-point Likert scale (Never, Sometimes, Always). Paired t-tests on students' responses to the FFMQ Questionnaire was performed using R version 4.0.2. Non-reactivity was not measured in this research study, as there was no activity in the course associated with it. Additionally, a deductive thematic analysis of two open-ended questions was conducted to gauge participant's understanding of mindfulness and their ability to identify mindfulness-based activities. Two independent coders carried out the coding process with one student response as the unit of analysis.

2.2 Results

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2.2.1 Quantitative Analysis

After the intervention, an increase in the score on overall mindfulness was seen ($p < 0.05$). Additionally, increases were seen on the subscales of "describing" ($p < 0.05$), "observing" ($p < 0.05$), and "non-judging" ($p < 0.05$) (Figure 1). Besides this, no statistically significant difference was found in the construct of acting with awareness.

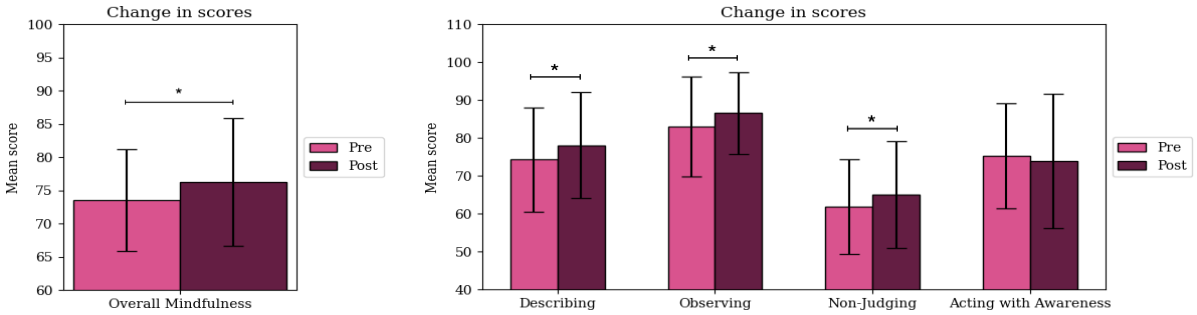

Figure 1. FFMQ Questionnaire Mean Score Variation Across Pre and Post Tests

2.2.2 Thematic Analysis

Data analysis of the response to questions on evaluating participants' understanding of mindfulness revealed that participants could identify instances when they were not mindful and the techniques, they could use to enhance calmness (Table 1).

Table 1: *Themes and Respective Sample Excerpts*

I am going to introduce you to a new way of life, 'Mindfulness'. This will help you to be attentive and aware of the moment and also help you to fully give yourself to whatever you do…..Tell me something about the times that you are not paying attention or are distracted…….		
S. No.	**Themes**	**An instance of response from participants artefacts**
1	**Place** (Where I am not mindful?)	I always get distracted during class. I can sit in one place and stare at a wall and daydream for an entire period straight. it happens at home too. my parents might be talking to me but I will just nod my head as if I heard everything but in reality, I was just looking at the floor. and I'm being 100 % honest. I go to auto-pilot mode A LOT.
2	**Instance** (When I am not mindful?)	
3	**Cognitive processes** (What do I do when I am not mindful?)	
How would you help Vivaani be calm? Would you have done something similar or different?		
S. No.	**Themes**	**An instance of response from participants artefacts**
1	Perspective-taking/Empathy	I would have told her to focus on what she is going to do and not to focus on the negative aspects....and to meditate for a while to calm down her mind.
2	Motivating/Positive intention	
3	Becoming calming/Focus	

3. Discussion and Conclusion

The research study reported in this paper explores the efficacy of a digital course in building mindfulness in adolescents. The quantitative analysis of the FFMQ scores revealed a significant increase in the overall score of mindfulness ($p < 0.05$) suggesting the course's efficacy in cultivating mindfulness. Additionally, significant increase was seen in three subscales of describing, observing, and non-judging facets of mindfulness. This significant difference can be attributed to the digital activities that were used in the course. The thematic analysis of open-ended responses supports the quantitative findings. The findings from this research study present promising opportunities for spurring the development of mindfulness competency among students through online interactive courses. An important limitation of this research is that the results presented in this study must be corroborated with results obtained from other behavioral/neuroscientific measures.

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