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Research Article

Examining Attention Control in Pre-service EFL Teachers: Effects of A Mindfulness-Based Intervention

İngilizce Öğretmen Adaylarında Dikkat Kontrolünün İncelenmesi: Bilinçli Farkındalık Temelli Bir Müdahalenin Etkileri

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Abstract

Purpose: *In today's digital world, students often struggle with short attention spans, constant distractions, and high levels of stress. Hence, this study aimed to investigate the impact of mindfulness practices on the English Language Teaching (ELT) pre-service teachers' (PTs) mindfulness and attention control in a state university in Türkiye.* ***Method:*** *Following a mixed-methods approach with a pre-experimental design, 81 ELT PTs were administered the Freiburg Mindfulness Inventory and the Attention Control Scale before and after the 12-week mindfulness-based intervention, in addition to employing an open-ended questionnaire.* ***Findings:*** *A paired sample t-test results revealed a significant increase in general mindfulness and a highly significant improvement in attention control, suggesting that the intervention enhanced the PTs' attention control. Content analysis of the qualitative data supported these results, with a notable subset of individuals mentioned psychological comfort and readiness before lessons, reporting that mindfulness practices help them appreciate themselves, reduce their anxiety and stress, particularly before the presentations and exams, increase their emotional self-regulation and motivation in addition to helping them focus on their current activity and regain their attention through clearing their mind; thus, they become more open to learn new things.* ***Conclusion:*** *Ultimately, the study suggests that mindfulness serves as a catalyst for mitigating situational stress by enhancing PTs' emotional self-regulation strategies, as well as improves students' capacity to sustain attention focus through increased internal awareness.*

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Öz

Amaç: *Günümüz dijital çağında öğrenciler; kısa dikkat süresi, sürekli dikkat dağıtıcı unsurlar ve yüksek stres düzeyleri gibi sorunlarla sıklıkla karşı karşıya kalmaktadırlar. Bu yüzden bu çalışma, Türkiye'deki bir devlet üniversitesinde, bilinçli farkındalık temelli müdahale programının İngiliz Dili Eğitimi (ELT) öğretmen adaylarının bilinçli farkındalık ve dikkat kontrolü üzerindeki etkisini araştırmayı amaçlamıştır.* ***Yöntem:*** *Ön-deneysel desenli karma yöntem yaklaşımını izleyerek, nicel sonuçları doğrulamak amacıyla kullanılan açık uçlu anketin yanı sıra, 12 haftalık bilinçli farkındalık temelli müdahale öncesinde ve sonrasında 81 öğretmen adayına Freiburg Bilinçli Farkındalık Envanteri ve Dikkat Kontrolü ölçeği uygulanmıştır.* ***Bulgular:*** *Bağımlı örneklemler t-testi sonuçları, bilinçli farkındalık düzeyinde anlamlı bir artış ve dikkat kontrolünde yüksek düzeyde anlamlı bir iyileşme ortaya koymuş; bu da müdahalenin öğretmen adaylarının dikkat kontrolünü geliştirdiğini göstermiştir. Nitel verilerin içerik analizi de bu sonuçları desteklemiştir; katılımcıların önemli bir bölümü ders öncesinde psikolojik rahatlık ve hazır bulunuşluk hissettiklerini belirtmiştir. Katılımcılar; bilinçli farkındalık uygulamalarının kendilerine değer vermelerine, özellikle sunum ve sınavlar öncesinde kaygı ve streslerini azaltmalarına, duygusal öz-düzenleme ve motivasyonlarını artırmalarına yardımcı olduğunu rapor etmişlerdir. Ayrıca bu uygulamaların, zihinlerini boşaltarak yaptıkları işe odaklanmalarına ve dikkatlerini yeniden toplamalarına yardımcı olduğunu, böylece yeni şeyler öğrenmeye daha açık hale geldiklerini ifade etmişlerdir* ***Sonuç:*** *Sonuç olarak bu çalışma, bilinçli farkındalığın, öğretmen adaylarının duygusal öz-düzenleme stratejilerini güçlendirerek durumsal stresi azaltmada bir katalizör görevi gördüğünü ve artan içsel farkındalık yoluyla öğrencilerin dikkat odaklarını sürdürme kapasitelerini geliştirdiğini ileri sürmektedir.*

Introduction

The rapid advancement of technology has enabled 21st-century individuals to access a vast amount of information more quickly; consequently, they have begun to live at a faster pace and engage in multitasking, which has led to focus-related issues. Given the circumstances, due to the digital and cognitive overload in addition to psychological distress (Alimour & Alrabeei, 2025), people, particularly students, might have difficulties in managing their attention, mind wandering, as well as have some affective barriers such as anxiety or stress. To fully engage with life, we must cultivate heightened attention and awareness of the present moment. Attention, a psychological process, involves concentrating on a specific object, sensation, or experience while consciously disregarding distractions and consistently redirecting focus (Weare & Bethune, 2021). Since this ability is both trainable and measurable, schools need to teach students and teachers how to stay focused. Students cannot learn if they cannot pay attention. Attention is also a key for teachers to prioritize their duties, stay on task, and be fully present for their students. Therefore, as suggested by Prakash et al. (2017), mindfulness training is a promising tool to improve students' attention by alerting, orienting, and guiding their task behaviours.

Mindfulness has been defined as “an enhanced attention to and open nonjudgmental awareness of what is going on at the present moment, and it is often described as a feeling of being fully present in the here and now” (Van De Veer et al., 2016, p. 785); as the deliberate application of particular attention throughout the flow of immediate experience (Kabat-Zinn, 1990); as the intentional training of attention, anchoring one's presence and awareness toward the present moment with a spirit of curiosity, openness, and nonjudgmental acceptance (Marchand, 2012); as a mental state marked by objective self-observation, driven by the disciplined engagement of one’s own attention and awareness (Zeilhofer, 2023); and as a way to self-regulate attention (Bishop et al., 2004). Despite the conceptualization of mindfulness through various lenses, the core consensus is that mindfulness refers to the specific mode of conscious involvement with one's surroundings, ranging from simple focus to non-judgmental acceptance. Most of us are used to focusing on our thoughts, but not our feelings, our bodies, or the world around us. Accordingly, regardless of the current situation or context, mindfulness helps individuals observe their ideas, feelings, and actions in a detached manner. Cultivating a persistent awareness of the current situation requires students to be equipped with skills in maintaining prolonged attentional focus (Bishop et al., 2004). Thus, this research mostly aligns with the multidimensional definition of Marchand (2012), as this study considers conscious awareness, deliberate attention, and non-judgmental acceptance which were main pillars of practising mindfulness in this study, contributing to the development of a mindful persona. These pillars are particularly relevant to the theories providing the foundation for this study, namely the Cognitive Load Theory (Sweller, 1988) which underlines the limited capacity of working memory of the human brain and asserts that the mind becomes exhausted due to information saturation or complex problem-solving, and the Broaden-and-Build Theory (Fredrickson, 2004) which suggests that having positive emotions expand an individual's cognitive and behavioral capacity through mitigating the emotional impact of stress. Since the direction of attention is modulated either by intentional 'top-down' mechanisms aligned with task requirements or by autonomous 'bottom-up' responses to sensory-rich input (Buschman & Miller, 2007), the study is also consistent with the Attentional Control Theory (Eysenck et al., 2007) which highlights how anxiety makes it harder for the brain to stay on task, particularly the top-down and goal-directed attention due to the desire to react to every outside distraction. Taken together, as also mentioned by Alimour and Alrabeei (2025) who focused on digital aspects of cognitive loads, mindfulness training might be an efficient coping mechanism for students to mitigate cognitive load and increase positive emotions and focus.

By referring to voluntarily focusing or shifting attention, attention control might be associated with “effortful control," either innately or developing gradually as an individual matures or interacts with the environment (Verstraeten et al., 2009). The literature highlights that executive functioning, particularly attention control, tends to decline first under conditions of stress and mental fatigue (Arnsten, 2009; Reinholdt-Dunne et al., 2013; Shields et al., 2016). In their study, Abasi et al. (2017), who considered

attention control as a protective factor that may contribute to lowering anxiety, reported an acceptable negative correlation between attention control and variables such as depression, generalized anxiety disorder, social anxiety disorder, worry, and rumination. By cultivating cognitive functions, mindfulness strengthens working memory and attention focus (Gönen, 2024; Wang, 2022).

Additionally, mindfulness-based interventions (MBIs) indicated several benefits to students, teachers and pre-service teachers. Through cultivating mindfulness, students gain not only affective and self-regulatory benefits but also attentional benefits (Meiklejohn et al., 2012); they can better utilize their skills to question situations, leading to improved focus, problem-solving, and impulse control, which can positively influence students' well-being and academic success (Dong, 2024); they improve attentional regulation in female adolescents and reduces their emotional reactivity (Dumontheil et al., 2023). Among a variety of techniques, mindfulness breathing could be feasibly integrated into school routines (Schussler et al., 2021) at any time in language classrooms to enable learners to focus their attention on the present moment, as well as create a calm and positive classroom environment. (Kuru Gönen, 2022).

Likewise, mindfulness also provides advantages to teachers. As Wang (2024) asserts, the more mindful teachers become, the easier it is for them to stay focused while teaching. For instance, conducting a study with in-service EFL teachers who were found to have a moderate level of mindfulness, Karagöz and Çelik Korkmaz (2026) indicated that mindful teachers who mostly accept present situations easily maintain their focus as well as account for individual differences in their classrooms, whereas mindless teachers who usually experience challenges in regulating their emotions and managing their moods are overwhelmed by multiple tasks to do, resulting in their cognitive load and nervousness in both daily and professional lives.

In the context of research conducted with pre-service teachers (PTs), Hue and Lau (2015) indicated a significant increase in PTs' mindfulness and well-being as a result of a six-week mindfulness-based programme, reporting a positive correlation between mindfulness and well-being after the implementation of mindfulness programme, and a negative correlation between mindfulness and depression, anxiety, and stress. Likewise, evaluating a mindfulness-based professional development workshop for Turkish EFL PTs, Kuru Gönen (2023) reported that mindfulness training alleviated PTs' teaching-related anxiety by increasing their tolerance, empathy, and resilience in the classroom. There are some other studies indicating significant contributions of mindfulness practices (MPs) to in-service teachers' subjective happiness, purpose in life, and satisfaction with life (Demir et al., 2025); PTs' stress reduction and anxiety (Birchinall et al., 2019); and PTs' emotional growth, well-being, and resilience (Altan, 2021). Furthermore, indicating moderate levels of PTs' mindfulness, Çelik et al. (2025) suggest integrating mindfulness-based practices, including stress reduction, emotion regulation, and attentional focus strategies to help PTs manage the multifaceted demands of the teaching profession.

While the aforementioned studies considered mindfulness as universally beneficial, recent research highlights that practicing mindfulness can also have negative effects on individuals. For instance, Britton et al. (2021) indicated adverse outcomes of informal MPs by linking negative findings to dose-response relationship, highlighting that a higher frequency of informal MPs (e.g. twice a day) is strongly associated with lasting bad effects. The study suggests that excessive informal practices of mindfulness may overstimulate the nervous system, leading to negative results including executive dysfunction, derealization, insomnia, emotional blunting, self-disturbance, social impairment, anxiety, and panic. Additionally, based on the regional moderator analysis, Babanoğlu and Atalmış (2025) underscore that culture significantly influences the success of MBIs in education, indicating stronger correlation between mindfulness and foreign language achievement in the Far Eastern cultures in which mindfulness and meditation are more easily embraced and naturally woven into daily lives because of their long-standing historical foundations when compared to Middle Eastern contexts in which students might have resistance to practice mindfulness due to having social prejudices regarding mental health treatments, combined with a limited understanding of the potential benefits that mindfulness provides. Accordingly, taking into account program-related, participant-related and teacher related factors, Baer et al (2019) suggest some core principles to minimize negative consequences of MBIs as follows; teaching what mindfulness is and how to practice them to the participants; encouraging voluntary participation rather than applying pressure; guiding students when they apply these new skills to their personal challenges by noticing common uncomfortable experiences; conducting systematic monitoring and recording of any symptom deterioration or adverse events to enhance instructor knowledge and improve intervention quality.

Among several school stakeholders, including teachers, school managers, and policymakers, Hue and Lau (2015) placed greater emphasis on the teacher-training context, particularly PTs, whose lack of classroom experience makes them more susceptible to environmental distractions and thus more stressed. Research on PTs highlights that those at the beginning of their careers are particularly vulnerable to bottom-up attentional capture due to the high cognitive load of classroom management. Revealing moderate levels of mindfulness, Altan (2021) also underlined microteaching, or teaching practice, as a significant psychological burden, resulting in PTs' burnout. He also highlighted that PTs face demanding challenges unique to teacher education programs and the requirements of certification practices, reminding us of the importance of developing PTs' skills, such as attention focus, emotion regulation, and mindfulness.

In short, since mindfulness is conceptualized as the ability to learn how to focus and become aware of the here-and-now experiences step by step by fostering individuals' curiosity, being open to learning new things and accepting the current situation as it is (Marchand, 2012), attention control and mindfulness are two intertwined concepts that should be handled together. In addition, in her systematic review and meta-analysis study, Danış (2025), who documented several benefits of mindfulness such as stress

reduction, suggests further research that the role of MPs could be investigated in task-oriented classroom settings where instructors follow task-based instructional methodologies as well as cooperative learning, asserting that mindfulness would increase cooperation as a result of increased empathy and sustained attention focus. Current research predominantly focuses on passive state of being aware via administering the Mindfulness Attention and Awareness Scale (MAAS) (Altan, 2021; Çelik et al, 2025; Ersanlı & Ünal, 2022), and limited studies involved mindfulness and ACS together such as the studies by MacDonald and Olsen (2020) which revealed that mindfulness abilities are linked to enhanced attentional regulation, leading to attention focus that may serve as a buffer against anxiety among university students in the northeast United States, and by Taghavi-Nejad et al. (2024) which indicated the mediating role of attention control between mindfulness and academic procrastination among university EFL learners in Iran. Thus, there is a distinct lack of investigation into the active ability to switch or maintain focus during academic tasks through utilizing Attention Control Scale (ACS) in Türkiye context, particularly with PTs who have different cognitive loads as a result of being involved in task-oriented ELT classroom settings to develop their pedagogical knowledge; therefore, this study aims to fill this gap in the literature by formulating the following research questions:

1. To what extent does a mindfulness-based intervention program influence ELT pre-service teachers' levels of mindfulness and attentional control?

2. What are the perceptions and reflections of ELT pre-service teachers regarding the perceived role of mindfulness in their personal lives and attention control?

Methodology

Research Design

This study was conducted at a large Turkish university, using a mixed-methods approach with a pre-experimental design because of the principle of pedagogical equity. Prioritizing the professional growth of all PTs over rigid experimental control, this study adopted a one-group pre-post design so that every participant was granted full access to the mindfulness practices, following the Helsinki Declaration as cited in Mertens (2015). Despite validity threats like history or maturation, this design is strongly justified when attempting to change behaviors or attitudes that are unlikely to change without the specific introduction of the treatment (Mertens, 2015). According to Mertens (2015), this design choice deliberately avoids the 'manipulative nature' of rigid experimentation, favoring a closer researcher-participant relationship to better capture the 'important variations' in the students' experiences. Accordingly, the study began with a quantitative phase, in which participants completed a mindfulness survey and an attention control scale before and after a mindfulness intervention programme. In the qualitative phase, the participants were asked to answer an open-ended survey to explore how mindfulness training affects their attention control and level of mindfulness. By adopting a mixed-

methods framework, the research sought to triangulate the data for a more robust analysis.

Participants and Context

All students enrolled in the Teaching English to Young Learners (TEYLs) course were invited to participate in the study. Among 130 students, 81 (50 female, 31 male) aged 20-24 agreed to participate in the study during the fall semester of the 2023-24 academic year. Participation was entirely voluntary, and the data were only collected from the PTs who provided consent and were present during all phases of the study. A primary factor for the non-participation of the PTs was absenteeism during the pre-test administration, preventing their inclusion in the final analysis. However, the researchers were particularly mindful of the power dynamics in the classroom; thus, the PTs were invited to participate in the exercises so they would not be deprived of the experience, but we strictly ensured that providing data remained a choice, thereby protecting ethical right to non-participation.

Throughout the 14-week academic term, participants completed a 12-week mindfulness-based intervention (MBI) within a 3-hour TEYLs course, administering the pre-test and post-test instruments in the first and last weeks of the academic term. Students discussed course readings and completed group teaching tasks. Mindfulness techniques were practiced at the start of each class for 15-20 minutes. At this point it is important to keep in mind that the present intervention was not designed as a full-scale clinical or therapeutic Mindfulness-Based Stress Reduction (MBSR) program. Rather than replicating the intensive structure of MBSR, the study aimed to integrate brief mindfulness-informed practices into the TEYLs course in order to enhance PTs' present-moment awareness, attentional regulation, and well-being within an authentic educational setting. Therefore, the intervention should be interpreted as a mindfulness-informed pedagogical integration rather than a standardized clinical mindfulness protocol. The duration and structure of the intervention were intentionally adapted to the realities of higher education contexts, where lengthy clinical-format implementations are often impractical within regular coursework. The 15–20-minute practices embedded at the beginning of each class across a 12-week semester were designed to provide repeated and sustained exposure to the attentional and reflective practices while maintaining ecological validity within teacher education. Accordingly, the findings should not be interpreted as evidence regarding the effectiveness of standardized MBSR dosage requirements, but rather as evidence supporting the potential pedagogical value of low-intensity, curriculum-embedded mindfulness practices in ELT teacher education contexts.

The techniques used were as follows: (1) Focusing on Breathing; (2) Understanding the self; (3) Square Breathing; (4) 3-7-8 Breathing; (5) Mindful Eating; (6) Body Scanning; (7) Breathing Boards; (8) Mindful Listening; (9) Activating Five Senses; (10) 4-8 Breathing; (11) Watching Feelings; and (12) Ocean Breathing. Before

mindfulness practices, stretching exercises were conducted focusing mostly on the shoulders, neck, arms and legs. Although the intervention was not designed as a standardized MBSR program, the selection of mindfulness practices was theoretically informed by the foundational components of MBSR. Specifically, the practices incorporated into the study reflected the four core elements commonly associated with MBSR: (1) body-scan exercises, (2) attention-focused breathing practices, (3) bodily awareness through movement and physical awareness, and (4) mindful awareness during everyday experiences (Vibe, et al., 2010).

First, several practices directly addressed attentional regulation through breath-focused awareness, which constitutes one of the central mechanisms of mindfulness practice in MBSR. Practices such as *Focusing on Breathing*, *Square Breathing*, *3-7-8 Breathing*, *4-8 Breathing*, and *Ocean Breathing* were selected to cultivate sustained attention, present-moment awareness, and emotional regulation through conscious breathing. These practices align closely with MBSR's mental exercises that focus attention on the breath as an anchor for awareness.

Second, *Body Scanning* was included as a direct adaptation of the body-scan component of MBSR. This practice aimed to increase participants' awareness of bodily sensations, tension, and internal states while encouraging nonjudgmental observation of present-moment experiences.

Third, the intervention incorporated bodily awareness and movement-oriented components through pre-practice stretching activities conducted before each mindfulness session. Although these activities were not intended as formal yoga practices within a clinical MBSR framework, they were designed to increase embodied awareness, prepare participants for attentional engagement, and facilitate mind-body connection. In this respect, the stretching component functioned similarly to the mindful movement dimension of MBSR by directing participants' attention toward bodily sensations and physical presence.

Fourth, several activities extended mindfulness beyond formal meditation practices into everyday sensory and emotional awareness, which is another essential element of MBSR. Practices such as *Mindful Eating*, *Mindful Listening*, *Activating Five Senses*, *Watching Feelings*, and *Understanding the Self* were selected to foster awareness of daily experiences, emotions, sensory input, and self-reflection. These practices reflect the MBSR principle of cultivating mindfulness during ordinary activities rather than limiting awareness exclusively to formal meditation settings.

Importantly, the selection of these practices was also guided by the pedagogical and contextual needs of the *TEYLs* course. The practices were intentionally adapted to be brief, accessible, developmentally appropriate, and feasible within a higher education classroom setting. The intervention aimed to integrate mindfulness-informed awareness practices into teacher education in ways that could realistically support PTs' attentional

awareness, emotional regulation, reflective capacity, and well-being within the flow of regular coursework.

Implementation fidelity was ensured by maintaining weekly instructor logs, following a standardized sequence of the twelve practices, and conducting adherence checks to verify that both the duration and delivery of instructions were consistent across sessions.

Data Collection Instruments

Quantitative data were collected via two different scales, along with a consent form through Google Forms on online platforms. Firstly, the final short version of the Freiburg Mindfulness Inventory (FMI) with 14 items, which showed good statistical properties as a one-factor unidimensional scale (Walach et al., 2006), was applied before and after the intervention. The FMI, comprising four-point Likert-type questions with scores ranging from 1 (rarely) to 4 (almost always), was administered to 81 prospective teachers. The Cronbach's alpha scores were .747 for the pre-FMI and .741 for the post-FMI. While the FMI was originally validated with experienced meditators, its 14-item short form has been increasingly utilized with mindfulness-naive populations in educational settings (Walach et al., 2006). In the present study, the high internal reliability of the scale (The Cronbach's alpha scores were .747 for the pre-test and .741 for the post-test,), suggests that the participants, despite being naive to formal mindfulness training, were able to consistently interpret the items.

Secondly, the Attention Control Scale (ACS), developed by Derryberry and Reed (2002) and consisting of 20 items, has 2 dimensions: Attention Focus (first 9 items) and Attention Shift (last 11 items). A number of studies reported acceptable validity and reliability of this scale in different contexts (Abasi et al., 2017; Ólafsson et al., 2011; Reinholdt-Dunne et al., 2013; Verstraeten et al., 2009). The ACS consists of four-point Likert-type questions, with scores ranging from 1 (almost never) to 4 (always). Attention Focus and Attention Shifting are theoretically and empirically treated as distinct constructs within the ACS framework. According to the scale's original validation studies, these two subscales measure different dimensions of attentional control: one relates to the capacity to maintain concentration (Focus), while the other relates to the ability to switch between tasks (Shift). Therefore, measuring them independently does not invalidate the results for the specific construct of interest. In the context of our Task-Based Learning approach, where PTs are required to immerse themselves in a single type of task per week (e.g. Using songs to TEYLs), the decision to utilize only the Attention Focus subscale of the ACS was a deliberate methodological choice. By administering only the Focus subscale, we ensured a more precise alignment between the measured construct and the actual classroom experience. The attention focus part of the scale was found to be reliable, with .751 for the pre-scale and .710 for the post-scale, indicating that the items functioned consistently to measure the intended construct of sustained concentration.

The qualitative instrument gathered through an open-ended survey consisted of five open-ended questions. The instrument was piloted with three PTs for clarity. After ensuring that the piloting PTs comprehended the items, data were collected anonymously via a digital platform to enable the PTs sufficient time to type their responses, in Turkish to facilitate emotional depth, and immediately following the post-test to capture fresh reflections. Their responses were subsequently translated into English using a back-translation protocol. The overlapping structure of the open-ended questions was an intentional strategy to achieve data saturation through informational redundancy to elicit data on similar themes from multiple perspectives, as suggested by Saunders et al. (2018). The questions were as follows:

1. Were you able to integrate mindfulness into your life? Why? Why not?
2. Do you integrate mindfulness techniques into your daily lives?
3. Which mindfulness technique(s) do you use in your lives? When? Why?
4. Do you agree that integrating mindfulness techniques helps you focus on the lesson?
5. To what extent does implementing mindfulness techniques help you focus on the lesson?

Data Analysis

Since the data were normally distributed, a paired sample t-test was used to analyse the quantitative data. The qualitative data from the open-ended survey were analysed using a hybrid approach (Fereday & Muir-Cochrane, 2006) by utilizing both deductive and inductive content analyses. The deductive themes were 'Internalization of Mindful Habits', 'Implementation and Strategic Deployment of Mindful Regulatory Tools' and 'Self-Regulation of Attentional Orienting'. After analysing the data deductively, an inductive thematic analysis was employed to mitigate potential bias from the semi-structured framing of the open-ended questions, allowing for the systematic integration of divergent perspectives through negative and neutral stances. The sub-themes and main codes in the participants' written answers helped us clarify the participants' views on the intervention.

The researchers conducted the content analysis separately to calculate inter-coder reliability, as recommended by Miles & Huberman (1994). The compliance percentage between the two coders was 80% for the themes of the codes, indicating that the process was reliable. Following Mertens (2015), we prioritized confirmability and dependability through peer debriefing, which enhances the credibility of the thematic findings beyond what a statistical coefficient alone can provide. Accordingly, employing a rigorous consensus-building process, every instance of disagreement was revisited and discussed by both coders until a final consensus (100%) was achieved.

Findings

RQ1 investigated the extent to which the MBI has an impact on EFL PTs' levels of mindfulness. The paired-samples T-test indicated a significant difference between participants' pre- and post-scores on the mindfulness inventory.

Table 1 displays the statistically significant differences between the pre- and post-test scores of the FMI and attention control scale.

Table 1. *Paired Sample T-test Result of the pre- and post-test scores in the FMI*

Variables	Pre-PostTest	N	M	SD	T	f	P	Cohen d
Mindfulness	Pre	81	2.36	.43	2.28	80	.025	0.25
	Post	81	2.50	.39				
Attention Control	Pre	81	2.28	.29	4.16	80	.001	0.46
	Post	81	2.48	.39				

The results of the paired samples t-test indicated a significant increase in both variables following the intervention. Specifically, mindfulness scores improved from the pre-test (M = 2.36) to the post-test (M = 2.50). A notably larger enhancement was observed in attention control, which rose from a pre-test mean of 2.28 to a post-test mean of 2.48. The effect sizes were interpreted based on Plonsky and Oswald's (2014) field-specific benchmarks for L2 research (small = 0.40, medium = 0.70, large = 1.00). Accordingly, the effect size for mindfulness was modest (d = 0.25), falling slightly below the threshold for a 'small' effect (0.40), indicating an emerging yet minor shift in the PTs' mindfulness scores within the observed timeframe. Notably, the effect size for ACS (d = 0.46) exceeded the established benchmarks for L2 research for a small effect, suggesting that the MPs were particularly effective in enhancing learners' focus. The qualitative content analysis revealed three main themes such as 'Internalization of Mindful Habits', 'Implementation and Strategic Deployment of Mindful Regulatory Tools' and 'Self-Regulation of Attentional Orienting'. Table 2 displays the findings regarding the theme 'Internalization of Mindful Habits', including the sub-themes and codes emerged from the PT's responses.

Table 2. *The analysis of the first theme, "'Internalization of Mindful Habits'."*

Sub-themes	f	Codes	Related Expressions
Situational Deployment of Mindfulness Skills	52	Before presentation	It helps me reduce my stress when I have to present something in class.
		Before the exam	I use MPs to focus on the exam.
		Relaxation & Motivation	When I practice mindfulness, I feel relaxed and motivated.
		Playing a stressful game	I use breathing techniques to calm down when I play games that make me angry.
		Reducing stress	I use it when I feel stressed to relax.
		Reducing anxiety	I use the breathing method when I am anxious.
		Anger management	I can sometimes have a hard time controlling my anger, so breathing exercises help me shake that anger and focus on different things when I lose my temper.
		Before sleeping	Taking three long, deep, and nourishing breaths in and out and watching the rise of your chest and belly as you breathe relaxes me; thus, I do it before going to bed.
		When waking up	After waking up, I feel blessed and experience the moment as if it were a new day.
		Regaining attention	I use it to focus on something and regain my attention.
		Increasing awareness of one's actions	I started to be aware of my actions, my life. It is good for me.
		Appreciation of the self	Mindfulness is what I must do to keep the grind going in my life and appreciate myself.
Context-Dependent Responsivity	10	Trying to progress	It is unarguably very difficult to integrate MPs into the many aspects of life; however, I can proudly claim that I always try to move forward with it.
		Depending on the situation	I am not sure. I think being able to practice depends on the situation.
		When it comes to my mind	It is good to integrate MPs into life, but it does not always come to mind.
		When having hard times	I breathe when I have hard times.
Implementation Barriers	16	Lack of sense	MP does not make sense to me.
		Becoming nervous	It makes me distracted and feel nervous.
		Difficulty in practicing mindfulness	It is hard to be aware of the feelings and what is going on in the mind.
		Forgetting	I do not remember practicing mindfulness.
		Having ADHD	I have been living with ADHD for years, so it is more difficult to practice mindfulness for me, but sometimes I do.
Missing	3		

As indicated in Table 2, the findings on MPs' integration into daily life revealed a predominantly positive reception, with 52 PTs reporting consistent use. The primary theme identified was Relaxation and Motivation, where participants utilized mindfulness as a strategic tool for emotional and cognitive regulation. Specifically, the participants

reported using MPs to reduce stress and anxiety before high-stakes academic events like exams and class presentations, as well as for anger management and regaining attention. However, a subset of participants (f=16) highlighted significant barriers to practice mindfulness.

These individuals noted that mindfulness could occasionally "make no sense" or even induce nervousness and distraction. Practical challenges such as forgetting to practice or the difficulties of practicing with ADHD were cited as reasons for low integration. A smaller group described their use as situational, noting that while they aim to progress, successful integration often "depends on the situation" or on whether they remember to breathe during difficult times. Table 3 clarifies which techniques they use when practicing mindfulness.

Table 3. *The analysis of the second theme, "Implementation and Strategic Deployment of Mindful Regulatory Tools'.*

Codes	f	Extracts
Breathing	50	Breathing exercises help me relax quickly, no matter where I am. They provide a calming experience fast. I also used umbrella breathing in my class with the students who could not concentrate on the lesson.
Gratitude Journal	7	Writing a gratitude journal makes me feel good.
Mindful meditation	4	I usually meditate to take a break and notice what is actually happening in the present
Body scanning	3	I use body-scan techniques to stay in the moment and relax when I am overwhelmed.
Mindful eating	3	I try to use mindful eating, but I rarely experience the food I eat
Mindful listening	2	I like listening to something, and mindful listening makes the process more effective
Mindful drinking	1	When I drink coffee, I first smell it and enjoy the process
Life Jar	2	I really love the big and small stones in the jar, which represent our priorities in life. While we were doing the activity, I realised I hadn't spoken to my family in a long time, so I called them.
Mindful walking	2	I walk a lot in my life. I now walk mindfully fairly often.
Writing a negative mindscape	1	Writing down unusual negative mindscapes helps me better assimilate them into a balanced start
Praying	2	When I pray, I focus only on the relationship between God and me. I do not think about daily problems or life itself. I only live in the moment. I think praying is also a mindfulness technique.

The second theme, "Implementation and Strategic Deployment of Mindful Regulatory Tools," reveals that the participants used a wide variety of practices to enhance their well-being. The most frequently cited technique was breathing, which participants described as a highly accessible and efficient tool for rapid relaxation and classroom concentration. Other significant practices included gratitude journaling, mindful meditation, body scanning, and mindful eating. Less frequent but notable techniques included mindful listening, drinking, and walking, as well as creative or spiritual approaches like the Life Jar activity, writing negative mindscapes, and praying. Table 4 indicates the analysis of the questions regarding the PTs' attention focus.

Table 4. *The analysis of the third theme, "Self-Regulation of Attentional Orienting'.*

Sub-themes	f	Codes	f	Extracts
Integration of Focus and Well-being	73	Increased well-being	14	It motivates me mentally and psychologically to make me feel privileged and prepares me for the lesson in a very comfortable way.
		Increased focus	6	The most important part of mindfulness is being aware of how I feel, or if I am distracted or not.
		Increased ability to focus	4	When I study, realizing that I am distracted makes me focus on what I am doing.
		Increased awareness of input	4	MP makes me aware of how I respond to the input
		Distancing from negative feelings and thoughts	4	MPs help me get rid of negative feelings and thoughts.
		Clear mind	2	When you calm down and have a peaceful mind. You can notice and focus on what is happening around you and become more open to learning.
		Clear focus	2	I realize that I am disconnected from the lesson, and I try to increase my focus when distracted
		Feeling connected to the class/teacher	2	I think breathing control activities we practice before the class help me relax and thus focus on the lesson
		Controlling breathing	2	I can get away from my excitement
		Reducing excitement	1	
Uncertainty About Practice Benefits	1	Hesitant	1	I do not know. It is sometimes helpful, sometimes not.
Practical Barriers to Integration	7	Not helpful	3	I do not think it is helpful. Lots of things come to my mind while trying to do MPs.
		Classroom environment	2	I cannot say that MPs help me concentrate more on the lesson, as it is difficult to concentrate and focus on them in the classroom.
		Irrelevant to mindfulness techniques	1	My focus is not really strong or related to mindfulness, but rather on whether I love the subject.
		Over-relaxation	1	It makes me feel sleepy, not focused.

Regarding the impact of mindfulness on concentration, the qualitative data indicate that an overwhelming majority of PTs experienced improved cognitive focus. The primary sub-theme was "increased well-being and focus," with participants noting that the practices prepared them psychologically to engage more comfortably in lessons. Specifically, they reported a heightened awareness of distraction, allowing them to

redirect their attention when they noticed their minds wandering. Additionally, the practices facilitated emotional distancing, helping students detach from negative feelings to remain open to learning. Conversely, a small group indicated no benefit, reporting barriers such as a distracting classroom environment, lack of interest in the subject matter, or feeling sleepy rather than focused.

Discussion and Conclusion

Contrary to Anderson et al. (2007), who found that an 8-week Mindfulness-Based Stress Reduction course with 10-minute MPs did not yield significant improvements in attention control of healthy adults despite reporting a significant association between mindfulness and emotional well-being, this study provides empirical evidence for the effect of the MBI on both the PTs' levels of mindfulness and attention control. These divergent outcomes may be associated with our longer 12-week intervention and consistent 15–20-minute daily practice. The study populations differ significantly; while Anderson et al. (2007) recruited healthy community adults, this study focused on PTs in demanding academic contexts. This specific background is likely to create more room for training, whereas the previous sample may have been performing at a natural peak. The improvement in both mindfulness and attention control suggests that these internal qualities are malleable and can be improved through embedded developmental programs within teacher education curricula. These findings align with those of Chambers et al. (2008), who asserted that an intensive mindfulness intervention cultivated participants' self-reported mindfulness, attention, and memory and reduced depressive symptoms. By strengthening mindfulness, PTs developed a non-judgmental awareness of their micro-teaching performance by shifting from a reactive state to a more reflective and resilient professional stance.

While the increase in mindfulness score was small, the qualitative findings suggest mindfulness serves as a crucial relaxation and motivation strategy. In agreement with Hue and Lau (2015), who showed a positive correlation between mindfulness and well-being and a negative correlation between mindfulness and depression, anxiety, and stress, the PTs reported that practicing mindfulness helps them manage their anger, anxiety, and stress before high-stakes events like exams or class presentations. In a sense, MPs might lower the Affective Filter (Krashen, 1982), acting as a mediating mechanism by reducing the PTs' stress and anxiety, and regulating their negative emotions such as anger, as well as feeling connected to the class and the teacher. Additionally, MPs might help them free up their mind, leading to significant attentional focus which might facilitate noticing. As asserted in the Schmidt's Noticing Hypothesis (1990), noticing is the fundamental requirement for transforming input into intake. Thus, when emotional interference is reduced, PTs with lower affective filter and high level of focus can notice salient classroom events, learner needs, and interactional dynamics, transforming them from passive recipients of the input to active and aware practitioners. Rather than representing a shortcoming, the 'Hesitant' and 'No' feedback in the qualitative data provides vital proof of the awareness of the PTs who critically evaluate the MBI against their own needs, demonstrating an emerging pedagogical consciousness. In other words, the MBI even

helped students who did not like the MPs to become more aware of their own learning preferences.

Furthermore, the significant gains in attention control and mindfulness may support the development of 'withitness' which refers to teacher's ability to remain aware of classroom dynamics (Wolff et al., 2021). As the PTs reported being more focused and less distracted, they may be better prepared to notice and handle classroom events. This heightened awareness allows PTs to manage the busy environment of a language classroom while building the resilience needed for their professional roles. In addition, parallel to Abasi et al. (2017), who reported a negative correlation between attention control and the variables such as depression, generalized anxiety disorder, social anxiety disorder, worry, and rumination, some of the PTs underscored how mindfulness contributes to their well-being through motivating and preparing them mentally and psychologically for the lesson as well as providing feelings of comfort and a sense of being privileged. Similarly, the significant improvement in participants' attention control and mindfulness resonates with the findings of Fathi et al. (2024), who clarified the concept of the 'psychological pause,' which refers to the cognitive mechanism through which mindfulness reduces anxiety and thus enables teachers to utilize their true pedagogical competencies. Specifically, the qualitative theme of "distancing from negative feelings and thoughts" suggests that mindfulness facilitates a "psychological pause" through affective detachment.

This study suggests that practicing mindfulness might act as a "psychological buffer," allowing PTs to maintain their professional focus even when faced with the evaluative pressures of teacher training and the stressors inherent in initial teaching experience, which is consistent with the previous studies (Altan, 2021; Birchinall et al., 2019; Çelik et al., 2025; Karagöz & Çelik Korkmaz, 2026; Kuru Gönen, 2023). Supporting this, as one participant noted, mindfulness was the key to "keeping the grind going," implying that it fosters the resilience necessary for long-term professional growth. This aligns with Mercer (2023), who argues that language teachers need to draw on their psychological resources and social support to manage the demands of teaching and the emotional challenges it entails. This study indicates that mindfulness functions as a self-regulatory tool, as one participant reported that it is what an individual must follow to keep the grind going in life for the sake of self-appreciation.

The study further indicates that the PTs effectively employed a range of mindfulness-based strategies to manage the demands teacher education. As also noted by Schussler et al. (2021) and Kuru Gönen (2022), who asserted that mindfulness breathing can be easily used, the PTs reported that they mostly use breathing exercises anywhere, including in class, to quickly relax and calm down, as well as to concentrate. The overwhelming preference for breathing exercises (f=50) highlights the importance of "micro-practices" that are portable and provide immediate relief in high-stakes environments. Echoing the findings of Huff and Baliram (2025), who found that gratitude practices have the potential to strengthen PTs' resilience and well-being throughout the

teacher training phase, some PTs report that writing a gratitude journal makes them feel good. Contrary to Altan (2021), who defined mindfulness as a nonreligious activity, two participants considered praying a mindfulness technique, focusing on the moment of building a relationship between God and themselves by detaching from life and its challenges. The diversity of techniques, ranging from gratitude journals to praying, suggests that the PTs used these tools to cultivate resilience.

The negative responses emerged from the inductive content analysis were treated as critical data points for understanding the practical barriers to mindfulness integration, ensuring a high degree of interpretive credibility. Accordingly, supporting Kim (2025), who asserts that MPs do not yield the same positive results for every individual, not all PTs have positive experiences with mindfulness; for some, the practice might feel neutral or even unhelpful to some participants due to cognitive load, mind wandering, the difficulty in concentrating and focusing, and excessive relaxation responses such as sleep. This highlights that a "one-size-fits-all" approach to practicing mindfulness may be insufficient. Challenges related to ADHD or nervousness during practice suggest that mindfulness interventions in ELT departments should be flexible and offer alternative strategies that consider individual differences. However, the reported barriers, such as the classroom environment causing distraction, echo the warnings of Zenner et al. (2014) regarding the need for conducive settings to maximize the efficacy of mindfulness-based interventions in educational contexts.

Beyond the overall increase in mindfulness scores, the statistical evidence points to an even more substantial gain in attention control ($p = .001$; medium effect size, $d = -.462$), indicating that the training specifically sharpened the executive focus required for complex classroom environments. The qualitative findings regarding "Attention Focus" in this study provide a nuanced explanation for the highly significant quantitative gains in Attention Control. Consistent with Kerr et al. (2017), a notable subset of individuals specifically emphasized increased focus, increased ability to focus, and awareness of input, as well as their ability to notice their distraction. This heightened attentional focus might corroborate the concept of "pedagogical presence" proposed by Fathi et al. (2024), suggesting that teachers who are mentally centred in the present are empowered to perceive nuanced classroom dynamics rather than go unnoticed. As a result of gaining awareness and developing heightened focus, the PTs shift from an unaware, reactive state to a more conscious, proactive one, leading to cognitive readiness for teaching. Taken together, it is evident that mindfulness serves as a mental stepping stone for PTs to activate their professional skills through their internal focus in the classroom.

To sum up, by looking at the quantitative results and the PTs' feedback from the qualitative part, this mixed method study indicated a consistent pattern of improvement. The Attention Control scores showed a moderate effect size ($d = 0.46$), which aligns with the high rate of positive feedback from the PTs (90.1%), suggesting that the MBI appears to be associated with PTs' focus during tasks. In contrast, Mindfulness scores showed a smaller effect size ($d = 0.25$), mirrored by a lower adoption rate of 64.2% in the qualitative

data. This difference is consistent with the possibility that while PTs can quickly improve their task-related focus, developing a full mindfulness habit is a more gradual process that may encounter more individual resistance or cognitive barriers. In short, it is clear that the qualitative findings do not contradict the statistical results; rather, they shed light on some personal barriers to practicing mindfulness, such as "Having ADHD," "Becoming nervous," or a "Lack of sense", indicating that the success of the MBI might depend on practitioners' specific cognitive challenges and needs, and some affective barriers such as feeling "nervous" or finding mindfulness "difficult to practice", as well as some situational and contextual barriers, such as being involved in classroom environment.

Recommendations

By examining the contemporary teacher education context in which prospective teachers (PTs) engage collaboratively in practical tasks related to teaching English to young learners (TEYL), this study indicates that mindfulness practices may serve as a supportive pedagogical tool enhancing attention control and psychological well-being, thereby contributing to PTs' overall school-life balance and resilience. Accordingly, ELT departments may benefit from integrating brief and structured mindfulness-informed activities into teacher education courses, not as stand-alone therapeutic interventions, but as pedagogically embedded practices supporting attentional awareness and emotional regulation within demanding classroom environments. Based on the present intervention, short mindfulness sessions lasting approximately 15–20 minutes at the beginning of weekly classes across a semester may provide a feasible and ecologically appropriate model for higher education contexts without disrupting course flow or increasing students' workload substantially.

The findings further suggest that mindfulness-based practices should be implemented not merely as stress-reduction techniques, but also as cognitive and reflective strategies that may strengthen PTs' awareness of classroom dynamics and attentional engagement during pedagogical tasks. In this respect, instructors implementing mindfulness-informed activities may require basic orientation or professional development regarding the pedagogical purposes of mindfulness practices, attentional regulation, and classroom adaptation of mindfulness techniques. Since the intervention in the present study incorporated breathing-focused practices, body awareness activities, sensory awareness exercises, and reflective mindfulness tasks, future implementations may similarly combine multiple forms of mindfulness practices rather than relying on a single technique.

At the same time, the findings indicate that mindfulness interventions are not a "one-size-fits-all" approach. A minority of participants reported sleepiness, reduced alertness, or limited perceived benefit from some practices. This finding suggests that instructors should explicitly explain the distinction between passive relaxation and active mindful awareness before implementing mindfulness activities. For example, students may be guided to understand that mindfulness involves sustaining intentional attention

to present experiences rather than disengaging cognitively or entering a resting state. To maintain attentional engagement, mindfulness sessions may incorporate brief stretching activities, sensory-awareness tasks, guided reflection, or short interactive transitions before and after breathing exercises. Furthermore, participants who do not respond positively to breathing-focused activities may benefit from alternative mindfulness modalities such as mindful listening, movement-based awareness, or sensory-focused exercises.

The findings also revealed that some participants perceived their attentional engagement to be influenced more strongly by their intrinsic interest in course content than by mindfulness practices themselves, suggesting that motivation remains an important interacting factor in attentional regulation. Therefore, mindfulness practices may be most effective when integrated into pedagogically meaningful, interactive, and cognitively engaging learning environments rather than implemented as isolated exercises detached from course content.

Despite yielding statistically significant and pedagogically meaningful findings, several limitations should be acknowledged when interpreting the results. First, the study employed a one-group pretest–posttest design, which limits causal inference. Second, the data relied primarily on self-report instruments, which may be subject to social desirability bias and may not fully reflect actual cognitive or behavioural changes in attentional regulation. Third, the intervention was implemented within a single course, which constrains contextual generalizability. Institutional culture or course structure may have influenced participants' experiences and outcomes.

Future research can build on the present findings in several directions. First, experimental and longitudinal designs incorporating control groups and delayed post-tests are needed to establish causal relationships and examine the sustainability of attentional and mindfulness gains over time. Reporting only average group scores may obscure individual variations in responsiveness, particularly among participants who reported limited benefit or reduced attentional engagement. Therefore, future studies may incorporate in-depth interviews, classroom observations, reflective journals, and field notes to better understand individual differences in responses to mindfulness practices.

Second, incorporating behavioural, observational, or neurocognitive measures (e.g., attentional tasks, eye-tracking, physiological stress indicators) alongside self-report instruments may provide a more comprehensive understanding of how mindfulness practices influence attentional processes in teacher education contexts. Future research may also compare the relative effectiveness of different mindfulness modalities (e.g., breathing-focused, sensory-focused, movement-based, or reflective practices) and examine how intervention duration, frequency, and instructor guidance influence participant outcomes across diverse ELT teacher education settings.

Ethical Approval

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Social and Human Sciences Research and Publication Ethics Committee of Bursa Uludağ University (dated September November 30, 2022, number 8). Informed consent was obtained from all individual participants included in the study.

Author Contributions

Şule Çelik Korkmaz: Conceptualisation, Literature review, Methodology, Data Collection, Data Analysis, Data Visualisation, Writing, Review and Editing.

Esim Gürsoy: Conceptualisation, Theoretical Background, Data Collection, Recommendations, Limitation, Writing, Review and Editing.

Conflict of Interest

The authors declare no conflict of interest.

Plagiarism Checks

The article was reviewed using the relevant tools and met the BUEFAD similarity standards.

Artificial Intelligence Usage Statement

The authors used Gemini 3 flash to check the language used in the article to help ensure conformity with international academic English standards. The authors used OpenAI (ChatGPT 5.2) to check the language used in the article.

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