Mindfulness levels among pre-service English language teachers: a comparative analysis of KIMS and MAAS scales

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Abstract

Mindfulness practices have gained increasing attention in educational settings, including language classrooms, for their potential to benefit both learners and teachers. While research highlights the positive impact of mindfulness on language learners, its role in the professional development of language teachers remains an area of interest. This study explores mindfulness levels among pre-service English language teachers and examines the comparability of two widely used mindfulness assessments: the Kentucky Inventory of Mindfulness Skills (KIMS) and the Mindful Attention Awareness Scale (MAAS). A total of 148 pre-service English language teachers from a Turkish state university participated in this quantitative study. Data were collected through online self-reported questionnaires, with both KIMS and MAAS demonstrating acceptable reliability for this sample. Descriptive and inferential statistical analyses revealed that participants exhibited moderate mindfulness levels across both scales. While overall mindfulness levels did not significantly vary based on demographic factors, notable differences emerged in specific subcomponents of KIMS and MAAS concerning gender and class level. Additionally, significant relationships were found between mindful attention awareness and the 'describe' and 'act with awareness' dimensions of KIMS. These findings suggest that pre-service English language teachers generally demonstrate moderate mindfulness levels, regardless of demographic characteristics. Moreover, the comparability of KIMS and MAAS results indicates that both instruments can be effectively used to assess mindfulness in this population.

KEYWORDS: Pre-Service Teachers, English Language Education, Mindfulness Assessment, Teacher Wellbeing.

1. Introduction

As a way of activating the mind, body, and spirit, meditation dates back to ancient times and is associated with Hinduism and Buddhism (Cullen, 2011; Didonna, 2009; Hyland, 2014; Kabat-Zinn, 2003). Meditation aims to reach a particular state of mind, i.e., mindfulness, documented with diverse conceptualizations. Kabat-Zinn (2003) offers an operational working definition of mindfulness as a technique in Buddhist meditation when he describes it as "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (p. 145). Zeilhofer (2023), highlighting the common themes of the existing definitions, shares the conceptualization of the term "as a state of mind in which one is observing one's own actions in a way that is detached and non-reactionary and, most notably, with an emphasis on utilizing one's

awareness and attention" (pp. 97-98). Baer et al. (2006) tend to conceptualize mindfulness as a "multifaceted construct" (p. 42), including observe, describe, act with awareness, non-judge, and non-react. This five-dimension-conceptualization covers related abilities to notice experiences, express thoughts and feelings, fully engage in one's experiences, stay away from judgments, and accept feelings and thoughts as they are.

Synthesizing the existing research, Roeser (2014) lists five types of mindfulness practices as "a process of skill and disposition development" (p. 394), including body scan, focused attention meditation, open monitoring meditation, loving-kindness meditation, and mindful movement. In body scan, attention is directed to the body and sensation of the individual sitting or lying down to relax the muscles, which avoids mindlessness and helps self-awareness and focused attention. Focused attention requires focusing on a single point such as a breath, a sound, or an image to observe nonjudgmentally and thus avoid mind-wandering. Open monitoring, on the other hand, generally occurs after focused attention and requires cultivating awareness and observing their awareness without focusing on one single point. In loving-kindness meditation, one repeats positive affirmations, directing them to both themselves and others, to have positive feelings such as kindness, empathy, harmony, and so forth. Lastly, in mindful movements, intentional physical activities such as yoga, tai-chi, and walking foster a deep connection with the body.

Rooted in Eastern psychology, mindfulness-based interventions aim to maintain "a fine balance of maintaining the integrity of the Buddhas' teachings whilst applying it to the needs of the present day" (de Zoysa, 2016, p. 368). Mindfulness practices have gained significant popularity, particularly following the development of the mindfulness-based stress reduction program by Jon Kabat-Zinn at the University of Massachusetts Medical School in 1979 (de Zoysa, 2016; Hyland, 2014). Since then, mindfulness practices have found their way into various domains, spanning clinical and research programs, such as mindfulness-based stress reduction (Cullen, 2011; Didonna, 2009; Hyland, 2014; Kabat-Zinn, 2003), as well as education, where they are regarded as "a promising emerging approach to enhancing teaching, learning, and well-being in schools" (Roeser, 2014, p. 379). The current literature extensively highlights the potential benefits of mindfulness-based interventions across various educational domains. These interventions have been associated with improved knowledge recall (Bennett et al., 2018), reduced test anxiety (Tekin & Satan, 2024), and increased resilience among learners (Bennett et al., 2018; Tekin & Satan, 2024). Moreover, they facilitate learners in self-regulating their emotions and behaviors during the learning process (Bockmann & Yu, 2023), mitigating burnout levels for both learners and educators (de Carvalho et al., 2021; Gao, 2023; Yıldız-Akyol & Demir, 2019), enhancing attention, and

alleviating stress (Baena-Extremera et al., 2021; Morgan & Katz, 2021). Additionally, mindfulness practices have shown promise in improving overall well-being (Kuru Gönen, 2022), fostering creativity (Cheng, 2023), and boosting self-regulation, self-efficacy, and well-being among teachers (de Carvalho et al., 2021). These interventions also contribute to creating a nurturing classroom environment (de Carvalho et al., 2021) and aiding teachers in coping with job-related stress and burnout (Taylor et al., 2016; Taylor et al., 2021). Furthermore, mindfulness approaches have been linked to character development, moral values, and adaptive thinking and behavioral patterns (Ergas & Hadar, 20203). This is merely a glimpse into the wealth of benefits documented in the literature. Such interventions have been welcomed in foreign language education, particularly anxiety and burnout as two negative emotions need to be addressed to ensure positive learning outcomes (Gao, 2023). Unlike proponents of mindfulness, critics of mindfulness-based interventions, particularly in educational settings, identify various perceived barriers. These barriers include the heavy workload on teachers, time constraints, concerns about mindfulness being associated with Buddhism leading to potential religious conflicts, limited understanding among both teachers and students, insufficient physical space within educational settings, potential hindrance to student engagement due to embarrassment, the necessity of informing all stakeholders, the requirement for support from school administration, the unique nature of mindfulness, and the importance of teacher training (Wigelsworth & Quinn, 2020).

Despite numerous studies examining the effects of mindfulness and meditation-based interventions in various contexts such as general learning, and medical and health settings (Baer et al., 2006), the incorporation of such interventions in foreign language classrooms remains relatively rare and innovative (Gao, 2023; Kuru Gönen, 2022; Zeilhofer, 2023). Among these limited applications, Zeilhofer (2023) investigated the role of meditative practices, specifically guided meditation and the count-to-ten method, within a German learning environment in Japan. The study revealed that implementing such interventions led to heightened language awareness and improved academic performance among the participants. Besides, the participants found the intervention quite pleasing. Similarly, in a descriptive and correlational study with Chinese English learners, Gao (2023) found that learners with a low level of mindfulness tended to suffer from burnout, thereby feeling less proficient in English. The study, therefore, justifies the employment of mindfulness-based interventions "as a tool to break the vicious circle of students' negative emotions and their perception of their language competence" (Gao, 2023, p. 12). In another quasi-experimental study, Moghadam et al. (2020) investigated the role of mindfulness-based instruction on reading and writing

as well as burnout for Iranian English learners. Their treatment aimed at helping learners retain consciousness and develop a tolerant attitude toward how they think, feel, and behave, which all were expected to teach them how to regulate their emotional states and become academically successful. They found that the treatment depleted the burnout levels of the participants and enhanced their reading and writing skills. Among the other positive outcomes, they listed high interest and engagement in language learning, enhanced ability to express feelings, motivation towards learning outside classroom borders, positive attitudes towards in-class language activities, positive classroom atmosphere, willingness to speak, positive traits including self-confidence, self-satisfaction, self-concept, and courage, and positive vision of their future career. Zeilhofer and Sasao (2022) conducted another related study where they found that a high level of mindfulness helps productive and receptive vocabulary learning. Besides, studies exploring participants' mindfulness levels have not reached a consensus, in that there are several documenting a low level of mindfulness (see, for instance, Ulivia et al., 2022). Yet, the existing literature presents studies with an opposite picture, i.e., participants with a moderate or above moderate level of mindfulness (Tural & Küçükkaragöz, 2021).

In addition to the positive outcomes of mindfulness practices for students, it has been recently documented that such practices could enhance teachers' well-being and motivation (Pan & Liu, 2022), increase their immunity and work engagement (Li, 2022), encourage pre-service teachers to reflect on their practices, contribute to the construction of self-care, and supportive interaction, which are all assumed to contribute to personal growth and decrease teacher burnout (Dirghangi, 2019), as well as contribute to language teachers' professional development (Roeser et al., 2012). In a correlational study, Hermana et al. (2021) found that mindfulness and social-emotional competence could enhance the academic achievement of pre-service English teachers, for they encourage positive mood and motivation to further knowledge. Mindfulness-based interventions are thus suggested as a way to endure the training of professionally qualified language teachers. In another study, Hue and Lau (2015) found that their mindfulness program enhanced the psychosocial condition of pre-service English teachers in Hong Kong, letting them suggest that such interventions are feasible to improve pre-service teachers' well-being and decrease their anxiety. However, pre- and in-service teachers' perceptions of mindfulness-based interventions are under-researched (Wigelsworth & Quinn, 2020), and empirical investigations into the role of mindfulness within teacher education are notably scarce in the extant literature (Yuan et al., 2023). Moreover, English teachers' understanding of the concept is still partial, thereby creating the need to raise awareness levels among all stakeholders in education, including administrators, teachers, students, and parents (Khalid et al., 2023; Wigelsworth & Quinn, 2020).

As evidenced by research, meditation and mindfulness-based interventions have recently received much attention in Türkiye. The related previous research in this area can be broadly categorized into five categories. One category consists of studies investigating the effects of mindfulness-based programs or interventions. The studies collectively showed that mindfulness interventions benefit EFL teachers' resilience, well-being, and interactions (Çiçek & Gürbüz, 2023), improve teachers' well-being and immunity (Karanfil, 2023), enhance EFL students' academic resilience and attitudes toward mindfulness (Erdemir et al., 2024), increase students' willingness to communicate, emotion regulation, concentration, mindfulness awareness, and decrease speaking anxiety (Yangın-Ersanlı & Ünal, 2022), improve English teachers' motivation (Olgun-Pamuk, 2021), boost EFL students' speaking performance (Öz, 2017), and reduce anxiety while enhancing vocabulary test proficiency among English-majoring freshmen (Önem, 2015).

In addition to quasi-experimental studies, there are a few descriptive studies investigating the mindfulness levels among language students. These studies revealed varying levels of mindfulness. To illustrate, Demirci (2022) found preparatory program students with moderate mindfulness and learner autonomy, Koçali (2020) observed moderate mindfulness levels alongside anxiety, Tural and Küçükkaragöz (2021) described preparatory program students with above-moderate mindfulness levels unrelated to achievement or gender, and Altan (2021) identified high mindfulness levels among EFL pre-service teachers using the MAAS scale.

Alongside the examination of mindfulness interventions and descriptive studies, another focal point of research focuses on scale validity studies, evaluating the effectiveness of recent scales in measuring mindfulness-related constructs. For instance, Deniz et al. (2023) examined the concurrent validity of the Fears and Resistances to Mindfulness Scale (FRMS), developed by Gilbert et al. (2023), revealing a negative correlation between fear, resistance, depression, anxiety, stress, and life satisfaction, while Arslan et al. (2020) validated the Adolescent and Adult Mindfulness Scale (AAMS) by Droutman et al. (2018) for Turkish undergraduate university students.

In addition to the aforementioned categories, there are systematic review studies that have explored the impact of mindfulness on foreign language education, emphasizing its positive effects (see, for example, Koçali & Asik, 2022; Pektaş, 2023), and several other studies focusing on mindfulness applications, suggesting mindfulness-informed language leaching tasks and activities for EFL educators (e.g., Kuru Gönen, 2022).

Diverse challenges of the modern and interconnected world including isolation resulting from technological advancements, poor nutrition, various discriminatory acts, environmental problems, economic issues and problems, conflicts, wars, and illnesses all worsen this picture for not only teachers but also students. Besides, the interactive and imaginary nature of English teaching in the evolving globalized world makes teachers feel unsure about their teaching content and actual and practical situations students need to be prepared for, which all cause discomfort and burnout in teachers (Kramsch, 2014).

Therefore, to create a conducive learning environment, it is essential for teachers to be mindful of mindfulness practices, given their potential to yield various positive outcomes as listed above. Additionally, as Schelhorn et al. (2023) state, teachers' emotional competence, mental health, and self-regulation skills directly affect teacher-student relationships, thereby creating the need for emotional competence training. The preliminary step of such training should be incorporating mindfulness and mindfulness-based pedagogies into teacher preparation, benefiting both their awareness and their own well-being. As Dirghangi puts it, "pre-service English teachers enter their teaching careers already at risk of burnout," given the nature and demands of their roles during student teaching. Therefore, recognizing the significance of mindfulness practices in mitigating stress and enhancing well-being among pre-service teachers, it is crucial to address the specific challenges they face. These challenges include the imminent threat of burnout, as "with little experience and in a short time, pre-service English teachers in their student teaching must build trusting relationships, identify areas of need in developing student literacy, familiarize themselves with curricular materials, and perform alongside decades-old school testing pressures" (Dirghangi, 2019, p. 72).

Furthermore, through the examination of pre-service teachers' mindfulness levels and emotional awareness, a deeper understanding of their needs and challenges can be gained. This insight could guide administrators and teacher educators in expanding teacher education curricula and programs to incorporate strategies and practices aimed at enhancing pre-service teachers' awareness and understanding of these issues. Such efforts do not only benefit pre-service teachers but also positively impact their future students (Altan, 2021; Chen et al., 2024).

Moreover, existing studies have reported contradictory findings regarding the correlation between mindfulness levels and gender (e.g., Alispahic & Hasanbegovic-Anic, 2017; Sipahutar et al., 2023), highlighting the need for further research to clarify this relationship. Accordingly, in response to recent calls to investigate mindfulness and related issues in the foreign language classroom, the current study aims to explore the

mindfulness levels of pre-service teachers across all levels.

Accordingly, in response to the recent calls to investigate mindfulness and related issues in the foreign language classroom, the current study aims to explore the mindfulness levels of pre-service teachers from all levels. To that end, two oft-cited scales, i.e., the Kentucky Inventory of Mindfulness Scale (KIMS) developed by Baer et al. (2004; 2006) and the Mindful Attention Awareness Scale (MAAS) developed by Brown and Ryan (2003), were used to see whether there is a significant correlation between these scales. To achieve these aims, the following research questions and sub-questions were devised:

1. What are the mindfulness levels of pre-service English language teachers in different class levels, ages, and genders?
    1.1. How do the overall mindfulness levels vary among different class levels, ages, and genders?
    1.2. Are there specific facets of mindfulness that differ significantly across class levels, ages, and genders?
2. Do the two different mindfulness scales (KIMS and MAAS) yield comparable results among pre-service English language teachers?
    2.1. How do the individual subscales of KIMS correlate with the scores obtained from MAAS?
    2.2. Can the scores from the KIMS subscales predict the scores obtained from MAAS?

These research questions aim to investigate both the levels of mindfulness among pre-service English language teachers and the comparability of results obtained from different mindfulness scales. By addressing these questions, the study seeks to contribute to understanding mindfulness among this particular group and assessing the soundness of the selected measurement tools.

2. Material and Methods

To answer the research questions of the current study, a quantitative research approach was opted for several reasons (Dörnyei, 2007). Describing the mindfulness levels of the participants required gathering data centering around numbers with scales covering the predetermined categories of the measured concept. The researchers' interest in describing the mindfulness level of the whole group with all five levels rather than unique cases and their aim at following a standardized procedure with the two predetermined scales to gather reliable, replicable, and generalizable data to different settings required the adoption of a quantitative approach.

The setting of the current study was the English Language Teaching Department of a Turkish state

university, located in the northeast of the country. The sample of the study included 148 pre-service teachers studying in different levels of the teacher training program to get their BA degree in teaching English: preparatory program students (N=25), freshmen (N=27), sophomores (N=21), juniors (N=28), seniors (N=22), and recent graduates (N=25). The sample included 72% female and 28% male pre-service teachers. The majority, comprising 90%, were aged 24 years and younger, while the remaining 10% were 25 years old and above.

To collect the data, the researchers asked the participants to fill in two self-report scales converted into Google Docs questionnaires, using their institutional e-mails at their convenience. The researchers opted for two well-documented scales in the field. The first one is a five-facet-mindfulness questionnaire (FFMQ) developed by Baer et al. (2004, 2006), which is accepted as the most prominent mindfulness scale (Zeilhofer, 2023). The 5-item Likert scale in the form of a self-report questionnaire covers 39 items grouped under four facets of mindfulness: (1) observing, (2) describing, (3) acting with awareness, and (4) accepting without judgment. The second scale used to describe the participants' mindfulness level is the Mindful Attention Awareness Scale (MAAS) developed by Brown and Ryan (2003). This self-report questionnaire covers 15 items and a 6-point Likert scale to find out individuals' attention and awareness of their current daily life experiences. The two scales were chosen, for they are documented as the most popular mindfulness scales and reported as reliable and valid measurement tools with a high internal consistency to allow meaningful, consistent, and appropriate interpretations of the scores (see, for instance, Christopher et al., 2012, for the former and Hue & Lau, 2015, for the later). Still, the researchers attempted to ensure quantitative quality standards by choosing those two scales documented as a reliable and valid measurement tool as well as calculating Cronbach's alpha coefficients. The reliability analysis conducted on the subscales of the KIMS, encompassing Observe (α=.833), Describe (α=.829), Act with awareness (α=.763), Accept without judgment (α=.848), along with the MAAS (α=.909), demonstrated strong internal consistency within the current study sample. All Cronbach's alpha coefficients exceeded the threshold of .70, indicating a high level of reliability, as widely accepted in the field (Tabachnick & Fidell, 2007).

Prior to data analysis, thorough checks were performed to ensure data integrity. This included scrutinizing for missing values, and outliers, and assessing normality. Notably, no missing values or outliers were detected, and assessments for normality, including skewness and kurtosis, indicated a normal distribution of the data. These preparatory steps were essential for organizing the data effectively and determining appropriate statistical tests for analysis. Statistical Package for the Social Sciences (SPSS) 29 was used to analyze the data,

using both descriptive and inferential statistics. Descriptive statistics were calculated to find out the overall mindfulness levels of the participants in both scales. Inferential statistics, on the other hand, were calculated to compare the means across the year of study, gender, and age variables. One-way ANOVA was used to compare the means based on the year of study variable including six categories (from prep to graduate), thus leading to select the Bonferroni post-hoc test, which is one of the conservative ways to control Type-1 error in addressing multiple comparisons (Sauder & DeMars, 2019). Besides, a t-test was used to do the analyses based on gender and age variables. The researchers also performed the Pearson Product-Moment Correlation Analysis to determine the relationship between scores obtained from the MAAS and KIMS with all five subscales. Lastly, a multiple linear regression analysis was performed to determine the predictive power of KIMS subskills to predict MAAS.

3. Results

Descriptive statistics regarding the scores obtained from KIMS subscales and the MAAS to determine the mindfulness levels of pre-service teachers were examined, and the findings are presented in Table 1.

Table 1 - Descriptive statistics for KIMS subscales and MAAS scale.

Scale/Subscales	n	$\bar{X}$	SD	Min	Max
KIMS/Observe	148	3.36	.652	1.67	4.92
KIMS/Describe	148	3.32	.654	1.63	5.00
KIMS/Act with awareness	148	2.91	.637	1.00	4.30
KIMS/Accept without judgment	148	2.93	.745	1.11	4.78
MAAS	148	3.66	.975	1.40	5.67

Upon examination of the mean scores obtained by pre-service teachers from the KIMS subscales and MAAS, it was evident that they all exhibited moderate levels of mindfulness across all measures.

The differences between the pre-service teachers' mindfulness skills and mindful attention awareness according to their educational class levels were examined. Descriptive statistics pertaining to this investigation are presented in Table 2, while the results of the One-Way ANOVA analysis regarding the differentiation status are provided in Table 3.

When examining Table 2, it is observed that graduate students exhibit the highest average score for the observe ($\bar{X}$=3.72) and describe ($\bar{X}$=3.65) skills.

Table 2 - Descriptive statistics regarding the class (year of study) variable.

Scale/Subscales	Year of Study	n	$\overline{X}$	SD
KIMS/ Observe	Prep	25	3.11	.582
	Freshman	27	3.32	.623
	Sophomore	21	3.44	.597
	Junior	28	3.27	.717
	Senior	22	3.31	.524
	Graduate	25	3.72	.720
KIMS/ Describe	Prep	25	3.29	.536
	Freshman	27	3.21	.556
	Sophomore	21	3.40	.680
	Junior	28	3.04	.610
	Senior	22	3.39	.662
	Graduate	25	3.65	.769
KIMS/ Act with awareness	Prep	25	3.04	.705
	Freshman	27	2.71	.617
	Sophomore	21	3.07	.669
	Junior	28	2.88	.538
	Senior	22	3.00	.575
	Graduate	25	2.82	.702
KIMS/ Accept without judgment	Prep	25	3.01	.717
	Freshman	27	2.86	.674
	Sophomore	21	3.00	.840
	Junior	28	2.86	.761
	Senior	22	3.06	.797
	Graduate	25	2.85	.753
MAAS	Prep	25	3.52	.953
	Freshman	27	3.45	1.016
	Sophomore	21	3.97	1.224
	Junior	28	3.67	.764
	Senior	22	3.38	.758
	Graduate	25	4.03	1.015

In contrast, sophomore students demonstrate the highest average score for the act with awareness skill ($\overline{X}$=3.07), and senior students for accept without judgment ($\overline{X}$=3.06). Additionally, the highest average score for the MAAS is observed among graduate

students ($\overline{X}$=4.03). In other words, graduates are the group with the highest average mindful attention awareness.

Table 3 - ANOVA results for KIMS subscales and MAAS scores by class (year of study) variable.

Scale/ Subscales	Year of Study	Sum of Squares	df	Mean Square	F	p	Sig.
KIMS/ Observe	Between groups	5.134	5	1.027	2.537	.031*	Prep-Graduate
	Within groups	57.473	142	.405			
	Total	62.606	147				
KIMS/ Describe	Between groups	5.447	5	1.089	2.686	.024*	Junior-Graduate
	Within groups	57.596	142	.406			
	Total	63.043	147				
KIMS/ Act with awareness	Between groups	2.433	5	.487	1.205	.310	-
	Within groups	57.338	142	.404			
	Total	59.770	147				
KIMS/ Accept without judgment	Between groups	1.000	5	.200	.351	.881	-
	Within groups	80.799	142	.569			
	Total	81.798	147				
MAAS	Between groups	8.700	5	1.740	1.883	.101	-
	Within groups	131.180	142	.924			
	Total	139.879	147				

As shown in Table 3, the one-way analysis of variance (ANOVA) conducted to determine whether there was a significant difference in pre-service teachers' scores on KIMS subscales and the MAAS according to the class variable revealed that there was no significant difference in pre-service teachers' scores on the MAAS scale based on class level ($F(5, 142) = 1.883$; $p > .05$). In other words, the mindful attention awareness of pre-service teachers remained consistent across different class levels. However, significant differences across class levels were identified between the participants scores for KIMS/Observe and KIMS/Describe skills [KIMS/Observe ($F(5, 142) = 2.537$; $p < .05$)], [KIMS/Describe ($F(5, 142) = 2.686$; $p < .05$)].

Subsequent Bonferroni test outcomes, aimed at identifying specific group discrepancies, are presented in Table 4 and Table 5.

Table 4 - Bonferroni test results for KIMS/observe scores by class (year of study) variable.

(I) Year of Study	(J) Year of Study	Mean Difference (I-J)	Std. Error	p
Prep	Freshman	-.20765	.17658	1.000
	Sophomore	-.32317	.18832	1.000
	Junior	-.15750	.17506	1.000
	Senior	-.20106	.18598	1.000
	Graduate	-.60333*	.17994	.015
Freshman	Prep	.20765	.17658	1.000
	Sophomore	-.11552	.18510	1.000
	Junior	.05015	.17160	1.000
	Senior	.00659	.18272	1.000
	Graduate	-.39568	.17658	.399
Sophomore	Prep	.32317	.18832	1000
	Freshman	.11552	.18510	1.000
	Junior	.16567	.18365	1.000
	Senior	.12211	.19409	1.000
	Graduate	-.28016	.18832	1.000
Junior	Prep	.15750	.17506	1.000
	Freshman	-.05015	.17160	1.000
	Sophomore	-.16567	.18365	1.000
	Senior	-.04356	.18125	1.000
	Graduate	-.44583	.17506	.179
Senior	Prep	.20106	.18598	1.000
	Freshman	-.00659	.18272	1.000
	Sophomore	-.12211	.19409	1.000
	Junior	.04356	.18125	1.000
	Graduate	-.40227	.18598	.483
Graduate	Prep	.60333*	.17994	.015
	Freshman	.39568	.17658	.399
	Sophomore	.28016	.18832	1.000
	Junior	.44583	.17506	.179
	Senior	.40227	.18598	.483

Table 5 - Bonferroni test results for KIMS/describe scores by class (year of study) variable.

(I) Year of Study	(J) Year of Study	Mean Difference (I-J)	Std. Error	p
Prep	Freshman	.07667	.17677	1.000
	Sophomore	-.11976	.18852	1.000
	Junior	.24482	.17524	1.000
	Senior	-.10136	.18617	1.000
	Graduate	-.36000	.18013	.714
Freshman	Prep	-.07667	.17677	1.000
	Sophomore	-.19643	.18530	1.000
	Junior	.16815	.17178	1.000
	Senior	-.17803	.18292	1.000
	Graduate	-.43667	.17677	.220
Sophomore	Prep	.11976	.18852	1.000
	Freshman	.19643	.18530	1.000
	Junior	.36458	.18385	.739
	Senior	.01840	.19430	1.000
	Graduate	-.24024	.18852	1.000
Junior	Prep	-.24482	.17524	1.000
	Freshman	-.16815	.17178	1.000
	Sophomore	-.36458	.18385	.739
	Senior	-.34619	.18145	.876
	Graduate	-.60482*	.17524	.011
Senior	Prep	.10136	.18617	1.000
	Freshman	.17803	.18292	1.000
	Sophomore	-.01840	.19430	1.000
	Junior	.34619	.18145	.876
	Graduate	-.25864	.18617	1.000
Graduate	Prep	.36000	.18013	.714
	Freshman	.43667	.17677	.220
	Sophomore	.24024	.18852	1.000
	Junior	.60482*	.17524	.011
	Senior	.25864	.18617	1.000

Upon review of Table 4, it becomes apparent that there exists a statistically significant difference favoring graduate students in their *observe* skill scores compared to prep students. This suggests that graduate students have higher observe skills.

When reviewing Table 5, it is evident that there is a statistically significant advantage for graduate students over junior students in their *describe* skill scores. This implies that graduate students tend to exhibit higher levels of the describe skill.

The findings regarding the gender-based differences in pre-service teachers' mindfulness skills and mindful attention awareness are presented in Table 6. Upon reviewing the table, it is evident that there is no statistically significant difference between male and female students' MAAS scores, as determined by an independent samples t-test (t(146)=.927; p>.05). Consequently, there was no substantial fluctuation in the mindful attention awareness of pre-service teachers concerning gender. However, concerning the Act with awareness skill, a significant difference emerges between male ($\bar{X}$=3.14) and female ($\bar{X}$=2.82) students' mean scores (t(146)=2.783; p<.05). Similarly, a significant difference is observed between male ($\bar{X}$=3.15) and female ($\bar{X}$=2.85) students' mean scores in the Accept without judgment skill (t(146)=2.229; p<.05).

Upon reviewing Table 7, it is observed that there is no statistically significant difference in the mean scores of KIMS subscales and MAAS between students aged 24 and below compared to those aged 25 and above. Put differently, the mindfulness skills and mindful attention awareness of pre-service teachers did not show variation according to age.

The findings of the correlation analysis conducted to determine the relationship between mindfulness skills in the KIMS and mindful attention awareness for the second research question are presented in Table 8.

As seen in Table 8, significant correlations were found between the MAAS and KIMS subscales of describe and act with awareness. In other words, significant relationships have been observed between mindful attention awareness and the skills of describing and acting with awareness. Accordingly, a moderate, positive, and significant correlation was identified between pre-service teachers' MAAS scores and KIMS/Describe scores (r=.316, p<.001). Similarly, a moderate, positive, and significant correlation was determined between students' MAAS scores and KIMS/Act with awareness scores (r=.388, p<.001).

The findings of the multiple linear regression analysis conducted to determine the prediction of pre-service teachers' mindful attention awareness as determined by the MAAS by mindfulness skills in the KIMS are presented in Table 9.

Table 6 - Independent samples t-test results for KIMS subscales and MAAS scores by gender variable.

Scale/ Subscales	Gender	n	$\bar{X}$	SD	df	t	p
KIMS/ Observe	Male	42	3.22	.606	146	-1.681	.095
	Female	106	3.42	.665			
KIMS/ Describe	Male	42	3.26	.684	146	-.650	.517
	Female	106	3.34	.645			
KIMS/ Act with awareness	Male	42	3.14	.548	146	2.783	.006
	Female	106	2.82	.651			
KIMS/ Accept without judgment	Male	42	3.15	.858	146	2.229	.027
	Female	106	2.85	.682			
MAAS	Male	42	3.78	.957	146	.927	.356
	Female	106	3.62	.983			

Table 7 - Independent samples t-test results for KIMS subscales and MAAS scores by age variable.

Scale/ Subscales	Age	n	$\bar{X}$	SD	df	t	p
KIMS/ Observe	24 and below	133	3.34	.653	146	-1.305	.194
	25 and above	15	3.57	.634			
KIMS/ Describe	24 and below	133	3.29	.647	146	-1.668	.097
	25 and above	15	3.58	.690			
KIMS/ Act with awareness	24 and below	133	2.89	.658	146	-1.610	.120
	25 and above	15	3.08	.393			
KIMS/ Accept without judgment	24 and below	133	2.95	.724	146	.773	.441
	25 and above	15	2.79	.933			
MAAS	24 and below	133	3.65	.976	146	-.381	.704
	25 and above	15	3.76	1.000			

Table 8 - Pearson Product-Moment Correlation analysis results for the relationship between MAAS and KIMS subscale scores.

		MAAS	KIMS/ Observe	KIMS/ Describe	KIMS/ Act with awareness	KIMS/ Accept without judgment
MAAS	r	1	.018	.316**	.388**	.128
	p			.832	.000	.000	.122
	n			148	148	148	148

Note: **p<.001, *p<.05

Table 9 - Multiple linear regression analysis for predicting MAAS from KIMS.

	B	Standard Error	β	t	p
Constant	1.21	.70		1.75	.082
KIMS/ Observe	-.08	.15	-.053	-.53	.595
KIMS/ Describe	.40	.14	.27	2.88	.005
KIMS/ Act with awareness	.48	.13	.31	3.77	.000
KIMS/ Accept without judgment	.00	.12	.00	.04	.972
Note: $R=.453$ $R^2=.205$ Adj. $R^2=.183$ $F(4, 143)=9.23$, $p<.001$					

A multiple linear regression was conducted to determine the predictability of independent KIMS skills on mindful attention awareness, with a Durbin-Watson test result of 1.71, indicating that there was positive autocorrelation (Flatt & Jacobs, 2019). Using the enter method (i.e., forced entry) of regression, the analysis revealed that the model established to explain MAAS was significant ($F(4, 143)=9.23$, $p<.001$), explaining 18% of the variance in total by the KIMS skills. According to the standardized regression coefficients (β), the relative importance of KIMS skills on mindful attention awareness was observed in the following order: Act with awareness, describe, observe, and accept without judgment. As per the established model, the describe skill was the best predictor for mindful attention awareness ($β = .27$, SE $= .14$, $t = 2.88$, $p < .001$). Likewise, the skill of act with awareness also showed a significant association with mindful attention awareness ($β = .31$, SE $= .13$, $t = 3.77$, $p < .001$). However, no other variables demonstrated a significant explanatory relationship with mindful attention awareness.

4. Discussion and Conclusions

The aims of the present study were twofold. First, it sought to assess the mindfulness levels of pre-service English language teachers, considering various factors such as class levels, ages, and genders. Second, it intended to compare the results obtained from two different mindfulness scales, namely the KIMS and MAAS. The findings revealed moderate levels of mindfulness across all measures among the pre-service teachers, indicating a consistent level of mindfulness awareness within this cohort and confirming Altan (2021). These results suggest that regardless of their demographic characteristics, mindfulness exists among pre-service teachers as a trait. Therefore, it could be concluded that Turkish pre-service English language teachers could focus on the moment and overcome their current problems (Altan, 2021).

The quantitative findings showed that the overall mindfulness levels did not significantly differ across class levels, ages, or genders. However, notable differences in specific aspects of mindfulness concerning class levels, ages, and genders were identified. This highlights the significance of considering demographic factors in assessing their levels of mindfulness. Consequently, there arises a need to devise mindfulness-based interventions in pre-service teacher training programs that account for such demographic differences.

Firstly, the examination of variances in mindfulness skills and mindful attention awareness based on educational class levels yielded interesting insights. The findings highlighted the absence of significant differences in overall mindful attention awareness across different class levels. This suggests that academic standing (i.e., grade level) does not significantly alter the overall level of mindfulness attention awareness among pre-service teachers of English. However, the participants' mindfulness skills in all four areas in KIMS, including the skills to observe, describe, act with awareness, and accept without judgment, were found to be meaningfully different across various levels, highlighting the role of educational succession.

The highest average score for the skills of observing and describing belonged to the graduate participants, showing heightened abilities in perceiving and articulating experiences. On the other hand, the sophomores exhibited superior scores in the act with awareness skill, suggesting active involvement in present-moment experiences rather than dwelling on the past. Furthermore, graduates demonstrated the highest average score for mindful attention awareness, illustrating an enhanced overall awareness. In general, these education-level dependent findings highlight the potential impact of educational progression on the cultivation of specific mindfulness skills among pre-

service teachers, recognizing mindfulness as a skill that can be improved over time (Altan, 2021).

Another purpose of the present research was to see whether both scales indicated any gender-based variations in mindful attention awareness and mindfulness skills. The analysis of MAAS did not prompt any significant differences between male and female participants. However, the statistical analysis of KIMS highlighted important gender disparities in two sub-skills, namely act with awareness and accept without judgment, with male participants' mean scores surpassing those of their female counterparts. The present study corroborates those of the previous ones (e.g., Alispahic & Hasanbegovic-Anic, 2017) that found gender-related differences, yet, it has conflicting result with other earlier studies disproving the hypothesis that there is a correlation between gender and mindfulness (see, for instance, Sipahutar et al., 2023).

On the other hand, the finding of the present study portraying older participants as highly mindful (e.g., Alispahic & Hasanbegovic-Anic, 2017) conflicts with earlier studies. The consistent level of mindfulness across different age groups allows researchers to conclude that age-related development may not affect mindfulness levels, contrary to previous suggestions.

Finally, the present study aimed to evaluate the effectiveness and compatibility of two mindfulness scales, the KIMS and MAAS, in assisting researchers to measure mindfulness levels among pre-service English language teachers. The absence of significant differences in overall mindfulness scores obtained from both the KIMS and MAAS indicates that these scales yield comparable results. This supports the conclusion that researchers can use either scale interchangeably to assess the extent to which pre-service language teachers are mindful of the present moment, accept both their own and others' actions nonjudgmentally, and regulate their emotions.

Additionally, the significant correlations between the two subscales of the KIMS (namely, describing and acting with awareness) and the overall scores of the MAAS highlight a strong relationship between the specified subscales of the former and the overall mindful attention awareness of the latter. This finding supports earlier studies that disclosed the potential utility of the KIMS in predicting overall mindful attention awareness, thereby evidencing its internal consistency, reliability, and construct validity (e.g., Baer et al., 2004).

Overall, the findings of the present study indicated that pre-service teachers consistently demonstrated moderate mindfulness levels across all measures, reflecting a uniform mindfulness awareness within this group. Besides, it was found that the two scales could efficiently evaluate the mindful awareness levels of pre-service English language teachers and be used interchangeably.

Mindfulness has been largely documented to play a key role in shaping teacher outcomes and functioning (Chen et al, 2024), thereby influencing the learning environment and student outcomes. A higher level of mindfulness is often associated with increased self-cognition and self-acceptance, which, in turn, can predict teachers' subjective well-being (Dirghangi, 2019). It is also acknowledged that a high level of mindfulness can predict teachers' engagement in critical thinking, cognitive maturity, and proficiency in problem-solving and decision-making (Chen et al., 2024). Therefore, it is essential to expand the scope of initial teacher education programs by implementing mindfulness-based interventions and practices. This could help pre-service teachers by enhancing their mindfulness awareness, alleviating their stress, and promoting their overall well-being, as suggested by Altan (2021). This preparation also equips them with the familiarity, skills and competence needed to effectively support their future students' emotional development, and mental health and resilience. However, such training should be provided by individuals with a pertinent attitude and mindset, along with the necessary academic and personal expertise in this area. This ensures that pre-service teachers receive guidance from knowledgeable and empathetic instructors who can effectively impart mindfulness techniques and strategies.

The insights provided into the mindful awareness levels of pre-service English language teachers strongly support integrating mindfulness-based interventions into pre-service teacher training programs. Such initiatives could enhance both teachers' well-being and their effectiveness within the school environment.

While the current findings could provide valuable support for implementing training programs aimed at enhancing the moderate mindfulness levels of pre-service teachers, further research is warranted to explore the longitudinal effects of mindfulness training on the development of mindfulness skills and mindful attention awareness among pre-service teachers. Such inquiry may provide valuable insights into the sustained benefits and potential long-term impacts of incorporating mindfulness practices into teacher education programs.

To conclude, the present study indicates that pre-service English language teachers are moderately mindful regardless of their demographic characteristics. Additionally, the compatible results offered by the MAAS and KIMS in identifying the mindfulness levels of individuals entering the teaching profession allow researchers to conclude that both instruments can be used interchangeably to determine the mindfulness levels of pre-service teachers. Portraying pre-service teachers' existing mindfulness levels should be regarded as the initial step toward devising and integrating mindfulness-based interventions into pre-service teacher training

programs, benefiting not only pre-service teachers but also their future students (Altan, 2021; Chen et al., 2024). As observed by Altan (2021), the potential of this conscious awareness to enhance the lives of teachers, their students, families, colleagues, and the broader society has become more important than ever, especially in light of recent epidemics, disasters, and social challenges over the past few years.

Educational institutions can contribute to the holistic development of pre-service teachers by prioritizing mindfulness in teacher education, equipping them with the personal and interpersonal skills needed to thrive in the complex and demanding field of education. Integrating mindfulness into teacher education offers a range of benefits for pre-service teachers. By cultivating mindfulness practices, such as stress reduction techniques, emotional regulation skills, and increased focus, pre-service teachers can better manage the demands of their profession. Moreover, mindfulness fosters empathy, compassion, and improved communication, enabling teachers to connect with students and create a supportive learning environment. Additionally, mindfulness contributes to better classroom management by promoting self-awareness and self-regulation. Ultimately, incorporating mindfulness into teacher education programs enhances pre-service teachers' professional development, equipping them with valuable tools for ongoing growth and adaptation in their upcoming careers. Consequently, pre-service teachers who receive mindfulness training may experience improved learning outcomes and develop valuable life skills such as emotional regulation and effective communication. These students are more likely to create positive classroom environments and provide emotional support to their future students. Furthermore, through the examination of pre-service teachers' mindfulness levels and emotional awareness, a deeper understanding of their needs and challenges can be gained. This insight could guide administrators and teacher educators in expanding teacher education curricula and programs to incorporate strategies and practices aimed at enhancing pre-service teachers' awareness and understanding of these issues. Such efforts could not only benefit pre-service teachers but also positively impact their future students. Moreover, existing studies have reported contradictory findings regarding the correlation between mindfulness levels and gender (e.g., Alispahic & Hasanbegovic-Anic, 2017; Sipahutar et al., 2023), highlighting the need for further research to clarify this relationship. Accordingly, in response to recent calls to investigate mindfulness and related issues in the foreign language classroom, the current study aims to explore the mindfulness levels of pre-service teachers across all levels.

In addition to the benefits for pre-service teachers and their future students, integrating mindfulness into teacher education can also positively impact teacher educators. Teacher educators who incorporate mindfulness practices into their own teaching can model its benefits, fostering a supportive and collaborative learning environment. By reducing burnout and enhancing well-being, mindful teacher educators are better equipped to guide and mentor pre-service teachers effectively. Thus, integrating mindfulness into teacher education can create an all-inclusive approach to teacher development, leading to a virtuous circle and benefiting the entire educational community.

The study has several limitations that could guide future research. One limitation is the sample size, which may impact the generalizability of the findings. Future research should aim to include a larger and more diverse sample to enhance the representativeness of the results. Despite this limitation, the findings provide preliminary insights into mindfulness levels among pre-service teachers, suggesting the need for further investigation in this area. Additionally, the current sample offers a valuable picture that can guide future studies in refining methodological approaches and expanding the scope of research.

While overall mindfulness levels did not differ significantly by gender, specific facets showed marked disparities. With a sample comprising 72% female and 28% male pre-service teachers, future studies could replicate with a more gender-balanced sample. In addition, although the study relied on commonly used self-reported instruments with satisfactory internal consistency, the risk of social desirability bias remains, indicating the importance of replication with additional inventories and methods to observe participants physically, as suggested by Chen et al. (2024).

Datasets and reproducibility

Dataset is available upon reasonable request from the corresponding author.

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