Dirasat: *Educational Sciences*, Volume 51, No. 1, 2024

Deanship of Scientific Research

Psychometric Properties of the Arabic Version of the Mindfulness in Teaching Scale

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Received: 6/10/2023
Revised: 7/1/2023
Accepted: 24/10/2023
Published: 15/3/2024

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Citation: Almeqdadi, F., Al-Shurafat, S. S., Afari, E., & Khine, M. S. (2024). Psychometric Properties of the Arabic Version of the Mindfulness in Teaching Scale. *Dirasat: Educational Sciences*, *51*(1), 1–11. https://doi.org/10.35516/edu.v51i1.5028

Abstract

Objectives: Interest in Mindfulness in several professions including teaching has increased. To develop the techniques and methods based on mindfulness, several research papers were carried on this topic in teaching according to a comprehensive definition that takes into account awareness, memory and retention to describe a variety of teaching practices, processes and features.

Methods: The original version of the Mindfulness in Teaching Scale (MTS) was in English. The researchers translated it into Arabic and administered it to a sample of 554 Jordanian teachers. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) supported a two-factor structure (teacher intrapersonal mindfulness and teacher interpersonal mindfulness) as proposed by the scale's authors.

Results: The results have demonstrated that the Arabic version of the mindfulness in teaching scale consisting of 14 items and two subscales is valid and reliable for teachers in Arabic speaking countries. The means, standard deviations, skewness, and kurtosis of the MTS-A items were obtained. Mean and standard deviation values ranged from 1.58 to 3.65 and 0.841 to 1.21, respectively, indicating a narrow dispersion in participant responses around the mean.

Conclusions: The primary goal was to assess the MTS-A's validity and reliability among teachers in Jordan. With 9 items representing teachers' intrapersonal mindfulness and 5 items indicating teachers' interpersonal mindfulness, the 14-item two-factor CFA demonstrated that the model fit the data well. The findings show that the Arabic mindfulness in teaching scale, which consists of 14 questions and two subscales, is valid and trustworthy for use by instructors in Arabic-speaking regions.

Keywords: Confirmatory factor analysis, factor analysis mindfulness, reliability, validity.

الخصائص السيكومترية للنسخة العربية من مقياس اليقظة الذهنية في التدريس

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ملخّص

الأهداف: لقد زاد الاهتمام باليقظة الذهنية في مهن كثيرة في المجتمع منها التعليم. ومن أجل تطوير التقنيات والأساليب القائمة على اليقظة الذهنية في التدريس، فقد أجريت أبحاث علمية متعددة حول إنشاء وتطبيق اليقظة الذهنية في التدريس وفق تعريف شامل لها يأخذ في الاعتبار قدرات الانتباه والوعي والذاكرة والاحتفاظ ، وذلك من أجل وصف مجموعة متنوعة من الممارسات والعمليات والسمات التدريسية. وقد كان الغرض من الدراسة الحالية هو استكشاف موثوقية وصدق النسخة العربية من مقياس اليقظة الذهنية في التدريس لدى معلمي المدارس الحكومية في الأردن إضافة الى ما يمكن ان تحققه هذه الدراسة من فوائد على العملية التربوية في الأردن بشكل عام.

المنهجية: لقد كانت النسخة الأصلية من مقياس اليقظة الذهنية في التدريس مكتوبة باللغة الإنجليزية ثم قام الباحثون بترجمتها الى اللغة العربية وتم تطبيقها على 554 معلما في المدارس الحكومية في الأردن. وقد تم تحليل عامل استكشافي (التعليم للجميع) وتحليل عامل تأكيدي دعم هيكل عاملين (يقظة المعلم الذهنية داخل الشخص نفسه ويقظة المعلم الهنية بين الأشخاص) وذلك على النحو الذي وضعه واضعو المقياس الأصلي.

النتائج: لقد أظهرت نتائج الدراسة أن النسخة العربية من مقياس اليقظة الذهنية في التدريس المكون من 14 فقرة ومقياسين فرعيين أنها صالحة وموثوقة للمعلمين في البلدان الناطقة بالعربية ومنها الأردن، كما تم الحصول على المتوسطات الحسابية والانحرافات المعيارية. وقد تراوحت قيم المتوسط والانحراف المعياري من 1.58 إلى 3.65 ومن 0.841 إلى 1.21، على التوالي، مما يشير إلى تشتت ضيق في استجابات المشاركين في الدراسة حول المتوسط. وكذلك فإن جميع العوامل في نموذج المقياس لها صلاحية متقاربة ومعقولة.

الخلاصة: كان الهدف الأساسي لهذه الدراسة هو تقييم صحة وموثوقية مقياس اليقظة الذهنية في التعليم لدى معلمي المدارس في الأردن. وقد استخدم 9 عناصر تمثل اليقظة الذهنية للمعلمين و 5 عناصر تشير إلى اليقظة الشخصية للمعلمين، وقد أظهر العامل الثنائي المكون من 14 عنصرا أن النموذج يناسب البيانات جيدا بشكل عام، واظهرت نتائج هذه الدراسة أن مقياس اليقظة الذهنية في التدريس، والمكون من 14 فقرة ومقياسين فرعيين انه صالح وجدير بالثقة للاستخدام من قبل المعلمين في المناطق الناطقة بالعربية ومنها الأردن.

الكلمات الدالة :تحليل عامل تأكيدي، تحليل عاملي اليقظة الذهنية، الموثوقية، والصلاحية.

Introduction

Mindfulness is a concept that has been around for centuries in Asian culture, but it has recently gained popularity in the West as a way to improve mental health and well-being. Mindfulness is the practice of paying attention to the present moment, without judgment. It is about being aware of one's thoughts, feelings, and bodily sensations, without getting engrossed in them. Some evidences indicate that there are discernible benefits to mindfulness. It can help to reduce stress, anxiety, and depression. In addition, it can also improve focus, concentration, and memory. Mindfulness is a skill that can be learned and developed with practice. There are many different ways to practice mindfulness in everyday life, and the best way depend on individual preferences and needs.

Over the past two decades, mindfulness has attracted attention in a variety of professions, from healthcare workers to operations managers to school teachers. There is a growing body of research in the psychological and educational literature on the development and use of mindfulness inventories with the aim of providing intervention strategies and mindfulness-based therapies. Mindfulness has been used as an umbrella term to characterize many practices, processes, and traits that are broadly defined in terms of the skills of attention, awareness, memory, and retention. Mindfulness is also commonly defined as the ability to intentionally pay attention to the present moment and unfold moment-to-moment experience with an open mind. (Kabat-Zinn, 1994).

Mindfulness in teaching

In recent years, the teaching profession has encountered mounting challenges, stemming from increased demands from stakeholders, expanded curricula mandated by education authorities, and higher expectations of accountability. These events have taken a toll on teachers' well-being and mental states, underscoring the need to delve into teachers' emotional regulation and mindfulness as they navigate their multifaceted daily tasks. This work aims to present the psychometric properties of the Arabic version of the Mindfulness in Teaching Scale, initially developed by Frank, Jennings, and Greenberg in 2016.

Mindfulness in teaching is the practice of being fully present in the classroom, devoid of judgment, and attuned to one's thoughts, emotions, bodily sensations, and the surrounding environment. Teachers have various ways to incorporate mindfulness into their routines, such as starting each day with a few minutes of mindfulness meditation. This practice can help teachers calm their minds and sharpen their focus. Furthermore, teachers can infuse mindfulness throughout the day, using techniques like deep breaths when they feel stressed or overwhelmed. Importantly, teachers can extend their mindfulness practices into the curriculum, sharing exercises with students to teach relaxation techniques, enhance focus, and manage emotions.

MacPherson and Rockman (2023) emphasize that mindfulness is the practice of intentionally paying attention to the present moment, encompassing an awareness of time's passage. They highlight that mindfulness is emerging as a distinctive practice with promising applications in educational and organizational settings, a recognition that educational institutions have started to acknowledge for its potential to empower both teachers and students in their daily endeavors.

Mindfulness holds immense importance in teaching, as it provides teachers with various tools to enhance their daily tasks. These benefits encompass stress and anxiety reduction, improved focus and concentration, heightened patience and compassion, stronger relationships with students, and the creation of a more positive and conducive learning environment. Additionally, mindfulness empowers teachers to augment their emotional intelligence, engagement in teaching, and the promotion of social-emotional learning among students.

Mindfulness has recently gained prominence in studies aimed at cultivating positive learning environments. Germer et al. (2005) note mindfulness's link to reducing pain levels and bolstering overall well-being in both positive and negative experiences. Similarly, Grabovac et al. (2011) found that mindfulness diminishes clinical symptoms while enhancing well-being through various aspects like conscious awareness, acceptance, compassion, and attentional regulation. Khoury (2017) elucidates the mechanisms of attention and consciousness that underlie mindfulness, uniting both internal processes (e.g., bodily sensations) and external stimuli.

Moreover, mindfulness serves as an effective method to elevate overall teacher effectiveness, boost student achievement, and rekindle the joy of teaching and learning. Mussey (2021) introduces eight mindful principles that support social and emotional learning for teachers and students, resulting in heightened empathy, kindness, self-awareness, integrity, self-control, and honesty in classrooms. Felver and Singh (2020) share their experiences with mindfulness in the classroom, showcasing its role in reducing disruptive behavior and enhancing academic achievement. DiCarlo, Meaux, and LaBiche (2020) present a study assessing the impact of mindfulness practices on positive classroom climate and reduced perceived stress among early childhood teachers. The study reveals that teachers participating in the mindfulness program experienced an improvement in positive classroom climate and a decrease in negative climate.

In Meyer and Eklund's (2020) study, seven elementary school classrooms participated in a 10-week mindfulness intervention, matched with seven control classrooms. Teachers were trained to implement a 2-minute mindfulness-based intervention three times a day. The study showed an increase in classroom satisfaction among students participating in the intervention. While both control and intervention groups saw improvements in student reading fluency, teachers in the intervention group reported higher levels of classroom cohesion following the intervention.

In conclusion, mindfulness is a vital tool in the teaching profession, offering numerous benefits to both teachers and students. As educators navigate the challenges of modern education, the incorporation of mindfulness practices can contribute to improved well-being, classroom dynamics, and overall educational outcomes.

Mindfulness in teaching scale

The Mindfulness in Teaching Scale (MTS) is a self-report measure designed to assess teachers' mindfulness in the classroom. The MTS consists of 14 items that are rated on a 5-point Likert scale. The scale has two factors:

Intrapersonal mindfulness: This factor measures teachers' ability to be aware of their own thoughts, feelings, and bodily sensations, and to accept them without judgment.

Interpersonal mindfulness: This factor measures teachers' ability to be aware of their students' thoughts, feelings, and bodily sensations, and to respond to them with compassion and understanding.

The MTS is considered to have good psychometric properties, with high internal consistency and test-retest reliability. The scale has also been shown to be associated with several positive outcomes for teachers, such as reduced stress and anxiety, improved focus and concentration, and increased compassion and empathy for students.

In the literature review, you will find many research studies that have been conducted and reviewed on the topic of mindfulness in the classroom. One such study was the study by Kim and Singh (2017) who conducted a study exploring the factor structure and psychometric properties of the Korean version of the Mindfulness in Teaching Scale (MTS) published by Frank et al. (2016). They used 2 samples of Korean teachers, with sample 1 for exploratory factor analysis and sample 2 for confirmatory factor analysis and concurrent validity. Sample 1 included 161 teachers (female 62.7% and male 37.3%), while sample 2 included 243 teachers (female 59.7% and male 40.3%). All teachers in the two samples taught in several educational cycles from kindergarten to high school.

In addition, Kim & Singh used two instruments in their study. The first was the Korean version of the Mindfulness in Teaching Scale (MTS-K), which consists of 14 items and is rated on a Likert scale from 1 (never applies) to 5 (always applies). The second instrument was the Five Facet Mindfulness Questionnaire – Korean version (FFMQ), which consisted of 39 items (Baer et al. 2006). The results of Kim and Singh's study showed that the MTS-K version of the Mindfulness in Teaching Scale - Korean Version has the same two-factor structure as the original MTS. The internal consistency of the MTS-K was acceptable, indicating that the MTS-K is reliable instrument.

Another study was the study by Grdesli et al. (2019) who investigated the psychometric properties of the Mindfulness in teaching – Turkish Version scale among Turkish educators. The researchers started with the linguistic equivalence study to show whether the Turkish version corresponds to the scale of the original version. The study sample consisted of 409 educators working in two different districts in Istanbul, Turkey, at different levels of education. The number of women in this study was 302 (78.9%) and the number of men was 107 (21.1%). The researchers used a personal information form to

collect the data on the study participants' sociodemographic variables, and this form was developed by the researchers themselves. They also used two different instruments for their study: The Mindful Attention Awareness Scale (Brown & Ryan, 2003) and the Mindfulness in Teaching Scale (Frank et al. 2016).

For construct validity, researchers used Confirmatory Factor Analysis (CFA). The results showed that the two-factor structure of goodness-of-fit was excellent, but the one-factor structure was at an acceptable level. In addition, the internal coefficient of consistency of Cronbach's alpha was found to be 0.64 for the Interpersonal Mindfulness subscale, 0.80 for the Intrapersonal Mindfulness subscale, and 0.78 for the full scale. Another result of the study by Grdesli et al. (2019) showed that the Mindfulness in teaching Scale – Turkish Version was a valid and reliable measurement tool for Turkish educators.

A third study by Li et al version (MTS-C). The sample of this study included two independent samples: sample 1 included 151 in-service teachers, while sample 2 included 229 prospective teachers completing the MTS-C. In addition, the sub-sample of sample 2 completed the MTS-C again after one month of its initial completion. The results of both the exploratory factor analysis and the confirmatory factor analysis supported the two-factor model of the MTS-C. Another result of the study by Li et al. showed that the MTS-C was reliable and valid among Chinese teachers for both research and applications.

In further detail of the Li et al. (2019), researchers examined the factorial validity, concurrent validity, internal reliability, and test-retest reliability of the MTS-C in both prospective and in-service Chinese teachers. The results of this study provided evidence for the usefulness of the MTS-C in trainee teachers, meaning that the MTS-C could be used in mindfulness research and practice by trainee teachers. This result means that student teachers must be enrolled in teaching internships or training programs.

Problem of the Study

This study was conducted in Jordan. Education in Jordan has evolved since the country's founding in the 1920s. The number of teachers and students grew to thousands and millions respectively over the years. The teacher is the most important person dealing with the learning-teaching processes. Therefore, as one of the developing countries, Jordan has established many colleges and universities to prepare and graduate teachers for all levels from kindergarten to secondary school. These colleges and universities have teacher training programs to provide future teachers with all the resources and opportunities to be qualified teachers who have all the knowledge and skills needed to be effective teachers.

Jordan followed the most advanced countries in education until it became the first rank in all Arab countries asking for Jordanian teachers. On the other hand, among all 57 countries that are members of the Organization of Islamic Cooperation (OIC, 2005; UNESCO, 2005), Jordan has the highest number of researchers in research and development per million. In addition, all teachers in Jordanian public or private schools have a bachelor's master's or Ph.D. Degree. The qualified teachers take the approach of studying at the teacher training college, where they learn many courses that include learning theories, teaching methods, assessment methods, use of technological tools and classroom management. Other students who finished High school and likes to be teachers, can study any major (subject) at colleges or universities. Then they have to study High Diploma in Education or a Master's in Education to acquire the required knowledge and skills to be a good teacher.

In addition, to study after high school and get a degree in teaching in Jordan, you need to attend training and professional meetings before being hired as a teacher or during their career. These sessions help all teachers engage with the new curriculum, develop their teaching strategies, and integrate technology into their lessons. On the other hand, the teacher training programs help teachers to be effective wherever they teach in any of the educational cycles. In Jordan, there are three cycles of education (levels): elementary (K-6), intermediate (7-9), and secondary (10-12). In addition, in grades 11-12, secondary education was divided into three streams: Academic, Literary, and Business. All students should take a general secondary examination in all streams at the end of grade 12 (QRCEIT, 2020).

The current study was designed to benefit several groups:

1. **Researchers:** The primary beneficiaries of this study are researchers in the fields of education, psychology, and mindfulness. They benefit by gaining a validated and reliable tool, the Arabic version of the Mindfulness in Teaching Scale (MTS-A), for assessing mindfulness in Arabic-speaking teachers. This tool enhances the quality of research in these fields by providing a standardized measure of mindfulness, enabling more accurate and comparable data collection across studies.
2. **Educators and Teachers:** Arabic-speaking educators and teachers can benefit from this study because it leads to the development of a culturally and linguistically adapted mindfulness assessment tool. The MTS-A can be used by educators to self-assess their mindfulness levels, which can, in turn, help them better manage stress, improve focus, enhance emotional regulation, and create more positive learning environments for their students.
3. **Educational Institutions:** Schools, colleges, and universities can utilize the MTS-A to assess the mindfulness levels of their teaching staff. This information can inform professional development programs aimed at enhancing teacher well-being, effectiveness, and classroom management. It can also guide the implementation of mindfulness-based interventions in educational settings to benefit both teachers and students.
4. **Students:** Students indirectly benefit from this study through improved teaching practices. Teachers who are more mindful are often better equipped to create a positive and conducive learning environment, which can enhance the overall learning experience for students.
5. **Policy Makers:** Those involved in educational policy-making can use the results of this study to inform decisions related to teacher training, well-being programs, and policies aimed at improving the quality of education. Data on teachers' mindfulness can be considered in policy discussions to promote a more holistic approach to teacher development.

The study's benefits are realized through the establishment of the reliability and validity of the MTS-A, ensuring that it accurately measures mindfulness in Arabic-speaking teachers. This validated tool can then be used for various purposes, including research, teacher self-assessment, professional development, and educational policy formulation. Ultimately, the goal is to improve the well-being of teachers and the quality of education in Arabic-speaking contexts by promoting mindfulness as a valuable practice.

In addition, exploring the reliability and validity of the Arabic version of the Mindfulness in Teaching Scale (MTS-A) is fundamental to ensure its accuracy, relevance, and applicability in assessing mindfulness in Arabic-speaking teachers. This process helps enhance the credibility of research findings and informs educational practices and policies effectively

Method

Participants of the Study

The population of the current study was all teachers in secondary Jordanian schools. The sample of the study consisted of 554 teachers who teach Arabic Language and Mathematics, who were selected randomly. All the teachers in the sample responded to the instruments of the study. The scale from Frank et al. (2016) was used for this study. The MTS measures how teachers can demonstrate mindfulness in educational settings (Kim & Singh, 2018). The MTS consists of 14 items, based on two main factors: teacher's intrapersonal mindfulness (9 items) and teacher's interpersonal mindfulness (5 items), with a five-point Likert scale from 1 = never to 5 = always. The two subscales of the MTS had acceptable internal reliability as follows: teacher's intrapersonal mindfulness (Cronbach alpha = 0.818; omega coefficient = 0.819) and teacher's interpersonal mindfulness (Cronbach alpha = 0.801; omega coefficient = 0.802).

A sample item of the teacher's intrapersonal mindfulness is: When I'm teaching, I find myself doing things without paying attention to them. Also, a sample item of the teacher's interpersonal mindfulness is: I listen carefully to my students' ideas even when I disagree with them. Furthermore, the teacher's intrapersonal mindfulness items reflect awareness, attention, and being in the present moment, while the teacher's interpersonal mindfulness subscale consists of items representing an open, accepting, and receptive attitude and approach to student-teacher interactions (Frank et al. 2016, p. 161).

Translation

The Mindfulness in Teaching Scale (MTS) was originally developed in English, and ~~although all of the teachers~~

~~involved in the study spoke English as a second language, an Arabic translation was produced for those who felt more comfortable with the Arabic answer.~~ A professional translator from Jordan translated ~~each article~~ into Arabic. An independent back-translation of the Arabic version into English was performed by another professional translator who was not involved in the original translation. Elements of the original English version of the MTS and the back-translated version were then compared by the authors to ensure that the Arabic version (MTS-A) retained the meanings and concepts of the original version.

Data Analysis

Item analysis

The means, standard deviations, skewness, and kurtosis of the MTS-A items are listed in Table 1. Mean and standard deviation values ranged from 1.58 to 3.65 and 0.841 to 1.21, respectively, indicating narrow dispersion in participant responses around the mean.

Exploratory factor analysis

Principal axis factorization with oblique rotation was used to examine the validity of the MTS when translated into Arabic. The suitability of the data for exploratory factor analysis (EFA) was assessed using the Kaiser-Myer-Olkin (KMO) Measure of Sampling Adequacy and the Bartlett test for Sphericity. The eligibility criteria are KMO > 0.8 and a p-value for Bartlett's 2 less than 0.01 (Tabachnick and Fidell, 2021). A scree plot was inspected, and an item was considered loading on a factor if it had a factor loading in the pattern matrix greater than 0.3 and did not load any other component.

Confirmatory factor analysis

Confirmatory factor analysis (CFA) with AMOS version 24 (Arbuckle, 2013) was used to study the factor structure of MTS-A. Chi-square statistics and fit indices include the Comparative Fit Index (CFI: Bentler, 1990) and the Tucker Lewis Index (TLI: Bentler & Bonett, 1980). For the CFI and TLI indices, a value above 0.90 indicates psychometrically accepted agreement with the data (Hu & Bentler, 1999). Root mean square error of approximation (RMSEA) is one of the absolute fit indices, where an RMSEA value of 0.05 or less indicates a tight fit, less than 0.08 indicates a fair fit, ~~and less than 0.10 indicates a fair fit adjustment shows.~~ and greater than 0.10 indicates an unacceptable fit (Brown & Cudeck, 1993). Another fit index used in the present study was the standardized root mean square residual (SRMR), with SRMR value of less than 0.05 indicating a reasonable fit (Kline, 2016).

Discussion

A principal axis factorization with oblique rotation (direct oblique) was performed on the 14-point mindfulness classroom scale. First, the suitability of the data for factor analysis was assessed before performing the principal axis factorization. The KMO measurement confirmed the suitability of the sample for the analysis, KMO = 0.849, which is very good (Tabachnick & Fidell, 2021). Bartlett's Test of Sphericity (91) = 2294.856, $p<0.001$, indicated that the correlations between items were sufficiently large for major axis factorization (Tabachnick & Fidell, 2021). Initially, the analysis revealed the presence of three components with eigenvalues above Kaiser's criterion of 1 and, when combined, explained 55.81% of the variance. The scree plot showed a clear break after the second component. It was decided to keep two components for further investigation using the Catells (1966) scree test.

The two-component solution explained a total of 47.72% of the variance (factor 1 = 28.02%, factor 2 = 19.70%). According to Gorsuch (2014), a variance value of more than 40% is sufficient for social science studies. The interpretation of the two factors was consistent with previous research on the teacher mindfulness scale, with teachers' intrapersonal mindfulness items being heavily loaded at factor 1 and teachers' interpersonal mindfulness items being heavily loaded at factor 2 (Frank et al., 2016; Kim & Singh, 2018; Li et al., 2019).

In Table 1, the absolute values for skewness and kurtosis are less than 3 and less than 10, respectively, confirming that the data met the normality assumption (Kline, 2016).

Table 1. Mean scores, standard deviation, skewness, and kurtosis for the MTS-A items

Item	Mean	SD	Skewness	Kurtosis
M1	2.09	1.045	.628	-.533
M2	1.68	.858	1.194	.938
M3	1.72	.880	1.220	1.123
M4	2.53	1.212	.215	-1.113
M5	2.43	1.115	.383	-.756
M6	1.78	.909	.956	.040
M7	2.30	1.058	.553	-.334
M8	1.58	.841	1.420	1.324
M9	1.90	.989	.927	.092
M10	3.09	1.084	-.201	-.571
M11	3.65	.990	-.886	.669
M12	3.12	1.146	-.281	-.765
M13	3.13	1.028	-.198	-.465
M14	2.88	1.139	-.049	-.749

To keep an item for further analysis, it must have a factor loading of at least 0.40 on its own scale and less than 0.40 on the other factor (Field, 2009; Thompson, 2004). Table 2 shows the results of the factorization analysis of the major axis with oblique rotation. All 14 items on the teacher's mindfulness scale had a factor loading of at least 0.40 on their prior scale and on no other scale.

Table 2. EFA results for the mindfulness in teaching scale.

		Factor Loadings
Item	**Intrapersonal mindfulness**	**Interpersonal mindfulness**
M1	.607	
M2	.687	
M3	.634	
M4	.540	
M5	.566	
M6	.728	
M7	.443	
M8	.543	
M9	.504	
M10		.671
M11		.826
M12		.555
M13		.736
M14		.575
Eigenvalues	3.923	2.758
% of variance	28.022	19.697

Convergent and Discriminant Validities

`The convergent validity of the measurement items of the MTS-A was evaluated by examining the item reliability of

each construct, the composite reliability of each construct, and the extracted mean variance (AVE) (Fornell & Larcker, 1981). The results in Table 3 showed that all of the standardized factor loadings of the 14-item mindfulness classroom scale compared to those of Hair et al. the proposed minimum requirement of 0.50. (2019), from 0.588 to 0.804. This indicates good convergent validity at the item level. The composite reliability results of each construct, as reported in Table 3, showed that all two factors exceeded the minimum reliability value of 0.70 as suggested by Fornell and Larcker (1981), indicating high reliability. The extracted mean variance (AVE) measures were all above the recommended level of 0.50 (Fornell & Larcker, 1981; Hair et al., 2019; Nunnally & Bernstein, 1994), indicating good convergent validity. Therefore, all factors in the measurement model had reasonable convergent validity. It shows the correlations between the constructs and the square root of the AVE. For each construct, the square root of the AVE is greater than the correlation between the constructs, indicating that discriminant validity is supported (Schumacker & Lomax, 2016).

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) with maximum likelihood estimation method was performed using Analysis of Moment Structures (AMOS) version 24 (Arbuckle 2013) to examine the factor structure of the MTS-A. As indicated in Table 3 and Figure 1, all standardized factor loadings for the items were statistically significant ($p<0.05$) as indicated by t-values greater than 1.96. In addition, all factor loadings are significant at the 0.01 or 0.001 level. The 14-point two-factor model as identified in the EFA was examined. Although the 2nd test was significant [$2(71) = 207.109$, $p<0.001$], the other fit indices, CFI = 0.939, TLI = 0.922, SRMR = 0.058, and RMSEA = 0.059, showed a good fit to the data.

Table 3. Confirmatory factor and reliability analysis

Constructs	Standardized factor loading
Intrapersonal mindfulness (C.R. = .901; AVE = .506) M1. When I am teaching it seems I am "running on automatic" without much awareness of what I am doing.	.588
M2. When I am in the classroom, I have difficulty staying focused on what is happening in the present.	.782
M3. When I am teaching, I find myself doing things without paying attention.	.658
M4. When I am teaching, I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.	.693
M5. At school I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	.599
M6. I rush through activities with my class without being really attentive to them.	.773
M7. When something painful happens at school I tend to blow the incident out of proportion.	.788
M8. I am often so busy thinking about other things that I am not really listening to my students.	.798
M9. When I am really struggling with teaching, I tend to feel like other teachers must be having an easier time of it.	.682

Constructs	Standardized factor loading
Interpersonal mindfulness (C.R. = .840; AVE = .513) M10. Even when it makes me uncomfortable, I allow my students to express their feelings.	.695
M11. I listen carefully to my student's ideas, even when I disagree with them.	.804
M12. I am aware of how my moods affect the way I treat my students.	.665
M13. When I am upset with my students, I notice how I am feeling before I take action.	.729
M14. When I am upset with my class, I calmly tell them how I am feeling.	.681

Model Fit Statistics (χ^2 = 207.109, df = 71; CFI = .939, TLI = .922, SRMR = .0587, RMSEA =.059).

** = Items constrained for identification purposes.

C.R. = Composite reliability; AVE = Average variance extracted.

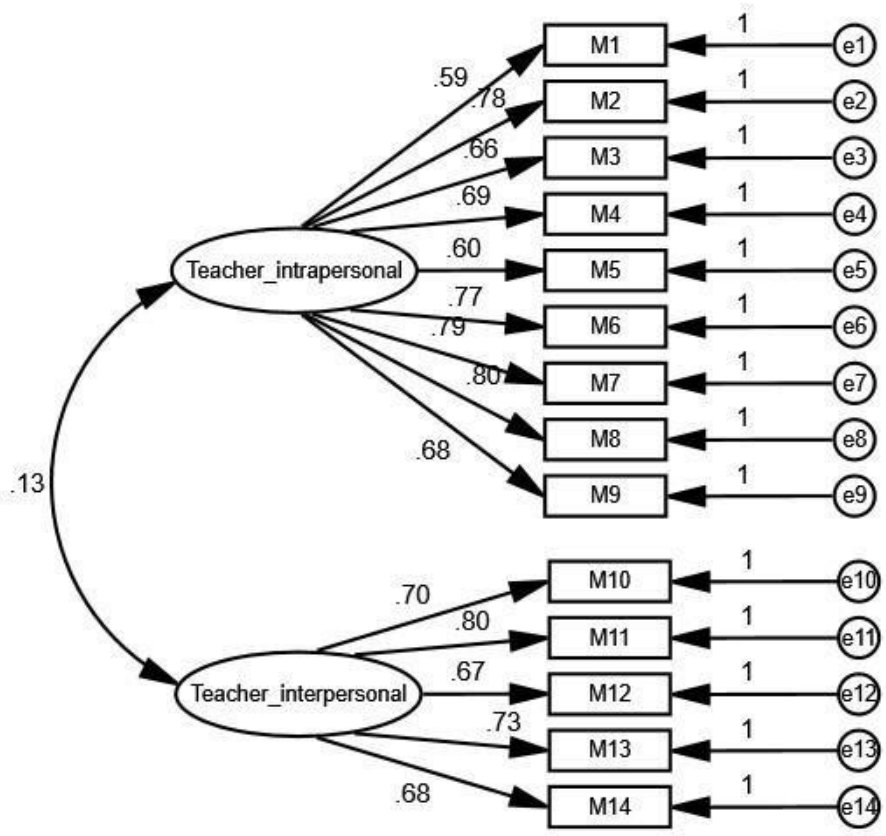

Figure 1. Confirmatory factor analysis model and standardized factor loadings

Conclusion

The main purpose of this study was to evaluate the reliability and validity of the MTS-A among Jordanian teachers. The 14-item two-factor CFA showed that the model fitted the data well, with 9 items representing teachers' intrapersonal mindfulness and 5 items representing teachers' interpersonal mindfulness. The two-factor solution obtained in this study adds to the growing number of studies that have examined the factor structure of mindfulness in the instructional scale (Frank et al., 2016; Kim & Singh, 2018; Li et al., 2019). Overall, the results of the current study have demonstrated that the Arabic version of the mindfulness in teaching scale consisting of 14 items and two subscales is valid and reliable for teachers in Arabic-speaking countries. There are some limitations of the current study such as the researchers can add more items to the scale that was used in it. The sample of the study included only teachers from public schools. So, in a future study, researchers can include more participants from both primary and secondary public and private schools in Jordan. In addition, future studies might investigate the effect of gender on Mindfulness in teaching.

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