International Journal of Instruction *January 2027 ● Vol.20, No.1*
e-ISSN: 1308-1470 ● www.e-iji.net *p-ISSN: 1694-609X*
pp. 437-452

Article submission code: 20260417083004
Received: 17/04/2026 Revision: 16/07/2026
Accepted: 27/07/2026 OnlineFirst: 01/10/2026

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

Petra Dolenc
University of Primorska, Faculty of Education, Slovenia, *petra.dolenc@upr.si*

Blaž Simčič
University of Primorska, Faculty of Education, Slovenia, *blaz.simcic@upr.si*

Given the growing importance of mindfulness in educational research and practice, the use of measurement instruments with robust psychometric properties and cultural relevance is essential. The present study aimed to adapt and validate the Slovenian version of the Mindfulness in Teaching Scale (MTS-SL). The scale was administered to a sample of Slovenian teachers (n = 425; aged 24–64 years), together with self-report measures of dispositional mindfulness, teacher self-efficacy, perceived stress, and work engagement. Confirmatory factor analysis supported the two-related-factor structure of the MTS-SL (χ^2/df = 1.48, CFI = 0.99, TLI = 0.99, RMSEA = 0.03, SRMR = 0.06), distinguishing Teacher Intrapersonal Mindfulness and Teacher Interpersonal Mindfulness. Multi-group CFA demonstrated configural, metric, and scalar invariance across educational levels taught and years of teaching experience (ΔCFI $\leq$ .01; ΔRMSEA $\leq$ .02). The internal consistency for the intrapersonal subscale was good (α = 0.86, ω = 0.86), and for the interpersonal subscale was acceptable (α = 0.70, ω = 0.67). Intrapersonal and interpersonal mindfulness were significantly positively correlated with dispositional mindfulness, teacher self-efficacy, and work engagement ($p < 0.01$), and significantly negatively correlated with perceived stress ($p < 0.01$), providing evidence for convergent and divergent validity. Overall, the findings provide preliminary support for the reliability and validity of the MTS-SL and its use in research involving Slovenian teachers. Further studies are needed to establish its applicability across diverse educational settings and to support its broader practical use.

Keywords: mindfulness in teaching scale, intrapersonal and interpersonal mindfulness, psychometric validation, teachers

INTRODUCTION

Teaching involves not only the organization of effective learning environments that facilitate students' knowledge acquisition and skill development, but also the maintenance of supportive interpersonal relationships and the creation of conditions that promote optimal overall development and well-being of students (Tuxford & Bradley,

Citation: Dolenc, P. & Simčič, B. (2027). Psychometric properties of the Slovenian version of the mindfulness in teaching scale. *International Journal of Instruction*, *20*(1), 437-452.

2015). Although teaching is a highly rewarding profession, it is also emotionally demanding and requires sustained dedication and professional commitment (Horner et al., 2020). Teachers are involved in continuous and intense social interactions with students, parents, colleagues, and other stakeholders within the educational environment, which increases the risk of higher levels of stress and mental health problems (Genoud & Waroux, 2021).

Stress among teachers is commonly associated with the experience of negative emotional states, including anger, anxiety, tension, and frustration (Carroll et al., 2022). Chronic exposure to occupational stress may contribute to the development of burnout (Bottiani et al., 2019), and is further linked to increased levels of anxiety, depressive, and psychosomatic symptoms (Gibson & Carroll, 2021), a higher prevalence of physical health problems (Madigan et al., 2022), reduced job satisfaction (Woods et al., 2023), and a greater intention to leave the teaching profession (Brunsting et al., 2024). Continued stress and impaired coping strategies in teachers negatively affect teacher-student relationships, which may further contribute to poorer academic achievement and lower quality of student motivation (Madigan & Kim, 2021). Therefore, it is important to examine psychological resources that may mitigate the adverse effects of occupational stress and enhance teachers' adaptive functioning in the classroom.

Results from broader psychology literature indicate that mindfulness may be a highly valuable personal resource in dealing with stress and improving mental health in individuals (Menardo et al. 2022; Ong et al., 2024). Mindfulness can be defined as the mental capacity to intentionally direct attention and awareness to one's experience in the present moment, while maintaining a nonjudgmental and non-evaluative stance toward one's own emotions, thoughts, and feelings (Brown et al., 2015). The concept of mindfulness, which originated from Buddhist tradition, is now primarily regarded as a specific psychological intervention technique, such as Mindfulness-based stress reduction and Mindfulness-based cognitive therapy (Khoury et al., 2015; Sipe et al., 2012). These mindfulness practices have been demonstrated to facilitate more effective identification, acceptance, and regulation of emotions, as well as a reduction in rumination (i.e. repetitive consideration of negative thoughts or experiences). Furthermore, mindfulness has been shown to enhance the ability to reappraise unpleasant emotions, thereby contributing to a reduction in anxiety and depressive symptoms (Parmentier et al., 2019; Skelly & Estrada-Chichon, 2021).

Mindfulness-based programs have demonstrated effectiveness in enhancing subjective well-being (Sujarwanto et al., 2022) and improving emotion regulation skills among teachers (Lensen et al., 2021). By strengthening emotion regulation and related self-regulatory capacities, mindfulness training may support greater emotional self-awareness and reduce symptoms of emotional exhaustion and physical fatigue (Donker et al., 2020; Luken & Sammons, 2016). Furthermore, teachers with stronger emotion regulation skills tend to develop more supportive relationships with students, demonstrate higher psychological resilience, and report increased positive affect and job satisfaction (Hidajat et al., 2023; Jennings et al., 2017).

Until recently, teacher intervention studies have typically relied on general mindfulness measures, such as the Mindful Attention and Awareness Scale (MAAS; Brown & Ryan, 2003) and the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2008). Although these instruments have proven to be psychometrically sound and have been widely used in various research contexts (Sauer et al., 2013), they conceptualize mindfulness primarily as a dispositional tendency to be mindful in daily life and focus largely on intrapersonal processes, emphasizing individuals' internal experiences rather than interpersonal dynamics (Frank et al., 2016). Consequently, they were not specifically designed to capture mindfulness as it is enacted in the educational settings. In the field of teaching, however, it is particularly important to assess also interpersonal mindfulness as it manifests in teachers' interactions with students and within classroom contexts.

In order to address this gap, the Mindfulness in Teaching Scale (Frank et al., 2016) was developed to assess teachers' mindfulness in the school context, particularly in relation to their attentional processes and interactions with students. The scale comprises two dimensions: *Teacher Intrapersonal Mindfulness* and *Teacher Interpersonal Mindfulness*. The intrapersonal dimension reflects a present-centred awareness and includes items assessing teachers' awareness, attentiveness, and focus on present-moment experiences in the school setting (e.g., classroom situations). The interpersonal dimension focuses on the quality of teacher–student interactions and captures teachers' openness, acceptance, and receptivity during classroom engagement with students (Frank et al., 2016). In the original validation study, the scale demonstrated sound psychometric properties, including support for its two-factor structure through confirmatory factor analysis, and satisfactory test–retest reliability. The internal consistency of both subscales was sufficiently high for intrapersonal dimension and interpersonal dimensions, 0.87 and 0.71, respectively. Additionally, the original MTS showed evidence of concurrent and predictive validity, with teacher interpersonal mindfulness positively associated with teacher efficacy and negatively associated with teacher burnout (Frank et al., 2016). Subsequent validation studies in different countries, including Korea (Kim & Singh, 2018), China (Li et al., 2019), Turkey (Gördesli et al., 2019), Spain (Moyano et al., 2021), Portugal (Barata-Gonçalves et al., 2024), and Iran (Azadi et al., 2024) have provided support for the two-factor structure, as well as the appropriate reliability of the MTS. The validity of the adapted MTS has been further demonstrated by its associations with related constructs, including dispositional mindfulness (Barata-Gonçalves et al., 2024; Gördesli et al., 2019), job satisfaction (Kim & Singh, 2018), self-esteem, and life satisfaction as well as negative associations with teacher perceived stress (Li et al., 2019).

Recent empirical evidence suggests that context-specific mindfulness measures are more sensitive and informative in capturing domain-relevant outcomes than general mindfulness scales (Al-Rousan et al., 2025). Within educational settings, the Mindfulness in Teaching Scale (MTS) has been shown to be an appropriate instrument for assessing both intrapersonal and interpersonal dimensions of mindfulness among teachers (Frank et al., 2016). Given the growing importance of mindfulness within educational research and practice, it is essential to employ measurement instruments with sound psychometric properties that are culturally appropriate for the contexts in

which they are applied. However, validated instruments specifically designed to assess mindfulness in teaching contexts remain scarce within the Slovenian educational setting. Accordingly, the present study aimed to adapt and validate the Mindfulness in Teaching Scale among Slovenian teachers. Specifically, the study examined the factor structure of the Slovenian version of the MTS (MTS-SL), its measurement invariance, and reliability. Subsequently, to assess convergent and divergent validity, relationships between MTS-SL scores and dispositional mindfulness, teacher self-efficacy, work engagement, and perceived stress were examined. Based on previous studies (Azadi et al., 2024; Barata-Gonçalves et al., 2024; Kim & Singh, 2018; Moyano et al., 2021; Tao, 2022), positive associations were expected with dispositional mindfulness, teacher self-efficacy, and work engagement, whereas a negative association was expected with perceived stress.

METHOD

Participants

A total of 425 Slovenian teachers participated in the study. The participants were predominantly female (93.2%), with a mean age of 44.6 years (SD = 10.9, range: 24–64 years) and an average teaching experience of 19.3 years (SD = 11.8, range: 1–42 years). The majority of teachers were recruited from primary schools (76.2%), while a smaller proportion represented teachers from secondary schools (23.8%). Participants were recruited from schools located across all Slovenian statistical regions.

Instruments

The Mindfulness in Teaching Scale (MTS; Frank et al., 2016) comprises 14 items organized into two dimensions: Intrapersonal mindfulness (9 items) that reflects the extent to which teachers remain attentive and aware of their thoughts, feelings, and actions in the classroom (e.g., "When I am in the classroom, I have difficulty staying focused on what is happening in the present" and "When I am teaching I find myself doing things without paying attention"), and Interpersonal mindfulness (5 items) that reflects mindful engagement in relationships with students and teachers' capacity to listen attentively and respond receptively to students' needs (e.g., "I listen carefully to my student's ideas, even when I disagree with them", "When I am upset with my class, I calmly tell them how I am feeling"). All items are rated on a 5-point Likert scale ranging from 1 (*never true*) to 5 (*always true*). After reverse coding relevant items, subscale scores are calculated by summing the respective item responses, with higher scores indicating greater levels of mindfulness.

The MTS-SL was obtained using the back-translation method. Initially, the original scale was translated from English into Slovenian by two psychologists and one expert in social science methodology. Independent translations were compared and some discrepancies were resolved through consensus. The resulting Slovenian version was then back-translated into English by a native English speaker with extensive experience in Slovenian–English translation and no prior knowledge of the original scale. The back-translated version was compared with the original instrument, confirming semantic equivalence. The preliminary version of the scale was pilot tested with ten

teachers (five primary school teachers and five secondary school teachers) to assess clarity of instructions and item comprehension. Participants completed the scale and provided feedback on the clarity, comprehensibility, and wording of the items. Based on their comments, minor wording modifications were made to improve linguistic clarity and cultural appropriateness before the final version was administered.

The Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) is a 15-item measure designed to assess dispositional mindfulness, defined as a person's general tendency to attend to and be aware of present-moment experiences in daily life (e.g., "I find it difficult to stay focused on what's happening in the present", "I do jobs or tasks automatically, without being aware of what I'm doing"). Response options ranged from 1 (*almost always*) to 6 (*almost never*), with higher scores indicating greater mindfulness. The original scale MAAS and other language adaptations showed strong psychometric properties within different samples. The Slovenian version of MAAS (Simčič, 2022) a stable unidimensional factor structure and an adequate internal consistency ($\alpha = 0.86$).

The Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001) is a widely used instrument designed to measure teachers' perceived self-efficacy. The short form of the scale consists of 12 items assessing three core dimensions of professional teaching practice: Efficacy in Instructional Strategies (4 items; e.g., "To what extent can you craft good questions for your students?"), Efficacy in Classroom Management (4 items; e.g., "How much can you do to get children to follow classroom rules?"), and Efficacy in Student Engagement (4 items; e.g., "How much can you do to help your students value learning?"). The scale uses a 9-point Likert scale ranging from 1 (*nothing*) to 9 (*a great deal*). The original validation study provided evidence for the scale's sound factorial structure, reliability, and validity (Tschannen-Moran & Woolfolk Hoy, 2001; Duffin et al., 2012). Slovenian version of the TSES demonstrated good reliability with values of internal consistency of subscales ranging from 0.78 to 0.81(Čotar Konrad & Lebeničnik, 2019).

The Perceived Stress Scale (PSS-10; Cohen & Williamson, 1988) measure the level of stress experienced by individuals in different life situations during the last month. The scale comprises 10 items (e.g., "In the last month, how often have you felt nervous and stressed?"and "In the last month, how often have you felt confident about your ability to handle your personal problems?") that are rated on a 5-point response scale (0 – *never*; 4 – *very often*), The total PSS-10 score ranges from 0 to 40, with higher scores indicating greater perceived stress. In this study, participants were asked to self-assess their perceived stress levels at work. The PSS-10 has been translated and validated across numerous languages and cultural contexts, supporting its broad cross-cultural applicability (Lee, 2012). The Slovenian version of the scale used on samples of educational professionals (Košir et al., 2014; Dolenc & Sabadin, 2024) demonstrated good reliability (α above 0.84).

The short version of the Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006) was used to assess work engagement which is defined as a positive, fulfilling state characterized by vigor (high levels of energy and mental resilience at work),

dedication (a sense of importance, enthusiasm, and inspiration in one's work), and absorption (complete immersion in professional activities, where time passes quickly). The scale consists of nine items (e.g., "When I get up in the morning, I feel like going to work", "I am enthusiastic about my job"). which are rated on a 7-point scale (0 – *never*; 6 – *always*). The scale can be scored in two ways: either by summing all items, or by creating subscale scores. The Slovenian version of the UWES-9 was obtained from the author personal website (https://www.wilmarschaufeli.nl/). The internal reliability of the adapted scale was suitably high ($\alpha = 0.93$; Boštjančič & Petrovčič, 2019).

Data collection

The study was conducted between March and June 2024 using an online questionnaire. To ensure broad geographical representation across the country, schools from all Slovenian statistical regions were included in the sampling process. Within each region, schools were randomly selected from official school lists and invited to participate in the study. Teachers employed at participating schools were subsequently invited to complete the online questionnaire on a voluntary basis. Prior to completing the questionnaire, all participants provided informed consent, indicating their agreement to participate in the study and to the use of their responses for research purposes. The study was conducted in accordance with the Ethical Code of the University of Primorska.

Data analysis

Confirmatory factor analysis (CFA) in JASP was conducted to examine the factor structure of the instrument. Given the ordinal nature of the Likert-type items, the model was estimated using the Diagonally Weighted Least Squares (DWLS) estimator based on polychoric correlation matrices, as recommended for ordinal indicators in factor-analytic models. Model fit was evaluated using multiple fit indices, including the chi-square to degrees of freedom ratio (χ^2/df), the Root Mean Square Error of Approximation (RMSEA), the Standardized Root Mean Square Residual (SRMR), the Comparative Fit Index (CFI), and the Tucker–Lewis Index (TLI). Good model fit was indicated by $\chi^2/df < 3$, CFI ≥ 0.95, TLI ≥ 0.95, RMSEA and SRMR < 0.08 (Kline, 2016). Measurement invariance across education level taught and teaching experience was examined using multigroup CFA. The existence of invariance was established by comparing the CFI and RMSEA indexes between the models, where differences less than 0.01 in CFI or less than 0.02 in RMSEA are indicative of invariance in comparison to a less-restrictive model (Putnick & Bornstein, 2016). The reliability of the MTS-SL was assessed using internal consistency coefficients, including McDonald's omega (ω) and Cronbach's alpha (α). Descriptive and inferential statistical analyses were performed using IBM SPSS. Pearson correlations were computed between the MTS-SL and other constructs to assess convergent and divergent validity.

FINDINGS

Missing data ranged from 0% to 0,7 % across variables. Missing values were handled using the Expectation–Maximization (EM) algorithm, which provides unbiased estimates under the missing-at-random assumption and retains the full sample. Mean

values of the MTS-SL items were between 3.31 (Item 5) and 4.24 (Item 8). Since the response range was between 1 and 5, all the values were above the midpoint of the scale. Skewness (−1.04 to –0.27) and kurtosis (−0.54 to 1.46) were within acceptable limits of ±2, (Hair et al., 2014), indicating no substantial deviations from normality.

Confirmatory factor analysis (CFA) was conducted to examine the factor structure of the MTS-SL. Previously, the assumptions for conducting CFA were verified, including the adequacy of the sample size and the absence of multicollinearity. Given the ordinal nature of the response scale, model parameters were estimated using the DWLS method.

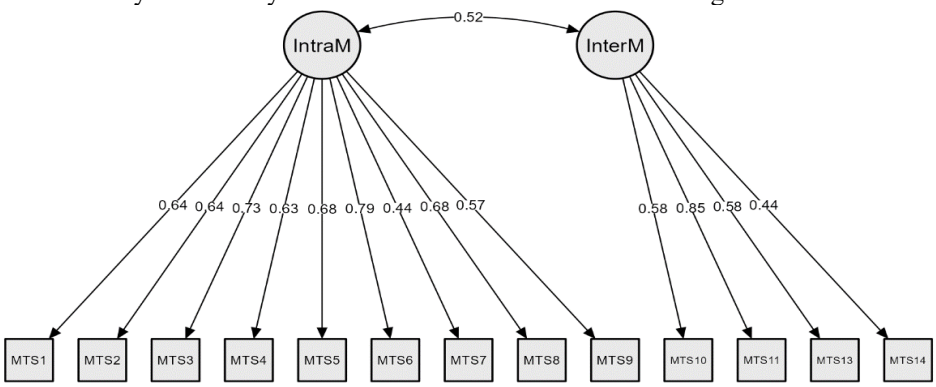
Table 1
Model fit indices across tested models

	χ^2/df	CFI	TLI	RMSEA [90 % CI]	SRMR
M1: One factor model	3.87	0.93	0.91	0.08 [0.07; 0.09]	0.09
M2: Two-related-factor model	1.79	0.98	0.98	0.04 [0.03; 0.05]	0.06
M2b: Two-related-factor model without item 12	1.48	0.99	0.99	0.03 [0.02; 0.05]	0.06

Initially, two models were proposed: a one-factor model, which was compared to two-related-factor model, originally proposed by Frank et al. (2016). As demonstrated in Table 1, the one-factor model (M1) exhibited an inadequate fit, as evidenced by a higher than acceptable χ^2/df value and CFI and TLI values both below the 0.95 cut-off threshold. Compared to M1 the two-related-factor model with 14 items (M2) achieved an excellent fit (χ^2/df = 1.79, CFI = 0.98, TLI = 0.98, RMSEA = 0.04, and SRMR = 0.06). Although this model demonstrated adequate fit, inspection of the parameter estimates indicated that item 12 was problematic due to its very low factor loading (0.20). Additionally, the retention of this item reduced the average variance extracted (AVE) of the Interpersonal mindfulness subscale. Therefore, we tested the two-rated-factor model without item 12 (M2b), which showed slightly improved fit indices (χ^2/df = 1.48, CFI = 0.99, TLI = 0.99, RMSEA = 0.03, and SRMR = 0.06). Based on these results, the 13-item MTS-SL was retained for further analysis.

Standardized factor loadings for the MTS-SL items ranged from 0.44 to 0.79 for the Intrapersonal mindfulness subscale and from 0.44 to 0.85 for the Interpersonal mindfulness subscale. According the recommendations of Hair et al. (2014), all the items showed acceptable loadings (above 0.40).

Figure 1
Confirmatory factor analysis model and standardized factor loadings



Multigroup CFA was conducted to examine whether the two-related-factor model for MTS-SL was invariant across different groups of teachers (Table 2). Based on education level taught (primary school teachers vs. secondary school teachers) and teaching experience (three levels: 1–5 years, 6–15 years, and 16+ years), the configural, metric and scalar invariances were evaluated. Constraining factor loadings (metric invariance) and item intercepts (scalar invariance) resulted in only minor changes in model fit (ΔCFI $\leq$ 0.01, ΔRMSEA $\leq$ 0.02), while overall model fit remained excellent. In line with current reporting recommendations summarized by Putnick and Bornstein (2016), these findings support measurement invariance of the MTS-SL across groups of teachers.

Table 2
Measurement of invariance of MTS-SL across education level taught and years of teaching experience

Model	χ^2	*df*	SRMR	RMSEA [90% CI]	CFI	ΔCFI	ΔRMSEA
Education level taught							
Configural invariance	129.93	126	0.07	0.01 [0.00; 0.04]	0.99		
Metric invariance	160.02	139	0.07	0.03 [0.00; 0.04]	0.99	0.00	0.02
Scalar invariance	169.83	150	0.07	0.03 [0.00; 0.04]	0.99	0.00	0.00
Years of teaching experience							
Configural invariance	159.57	188	0.07	0.00 [0.00; 0.01]	1.00		
Metric invariance	214.63	214	0.08	0.01 [0.00; 0.04]	1.00	0.00	0.01
Scalar invariance	27121	236	0.08	0.03 [0.01; 0.05]	0.99	0.01	0.02

The reliability results for the two subscales of the MTS-SL are shown in Table 3. The Intrapersonal mindfulness subscale demonstrated excellent internal consistency (α = 0.86, ω = 0.86), while the Interpersonal mindfulness subscale showed acceptable reliability (α = 0.70, ω = 0.67). Item-total correlations were moderate to strong for both subscales, indicating that individual items contributed meaningfully to their respective constructs.

Table 3
Internal consistency of the MTS-SL subscales

MTS-SL	α	ω	Item	I-T	α^{-}
Intrapersonal mindfulness	0.86	0.86	MTS1	0.61	0.85
			MTS2	0.59	0.85
			MTS3	0.67	0.84
			MTS4	0.57	0.85
			MTS5	0.64	0.84
			MTS6	0.73	0.83
			MTS7	0.43	0.86
			MTS8	0.60	0.85
			MTS9	0.54	0.86
Interpersonal mindfulness	0.70	0.67	MTS10	0.52	0.60
			MTS11	0.57	0.59
			MTS13	0.45	0.65
			MTS14	0.41	0.69

Note. I-T – item-total correlation, $\alpha^{-} = \alpha$ if item deleted

Correlations between the MTS-SL and measures of dispositional mindfulness (MAAS), perceived stress (PSS), teacher self-efficacy (TSES), and work engagement (UWES) are presented in the Table 4. Both intrapersonal and interpersonal mindfulness scores were significantly positively correlated ($p < 0.01$) with dispositional mindfulness, teacher self-efficacy, and work engagement, and significantly negatively correlated ($p < 0.01$) with perceived stress, supporting convergent and divergent validity.

Table 4
Correlation between the MTS-SL subscales and MAAS, PSS, TSES, and UWES

Construct	Intrapersonal mindfulness	Interpersonal mindfulness
Dispositional mindfulness	0.71**	0.25**
Perceived stress	−0.62**	−0.27**
Teacher self-efficacy	0.46**	0.47**
Work engagement	0.50**	0.35**

** $p < 0.01$

DISCUSSION

The objective of this study was to adapt and validate the Slovenian version of the Mindfulness in Teaching Scale (MTS-SL) and examine its suitability for the population of Slovenian teachers. Results from CFA confirmed the two-factor structure of the original scale proposed by Frank et al. (2016), distinguishing intrapersonal mindfulness and interpersonal mindfulness. These findings are consistent with previous validation studies conducted in various cultural settings (Barata-Gonçalves et al., 2024; Gördesli et al., 2019; Kim & Singh, 2018; Li et al., 2019; Moyano et al., 2021). Mindfulness among teachers can thus be reflected in an intrapersonal aspect, which includes the capacity to focus on the present moment and to be accepting and non-judgmental during their teaching practice, and in a more interpersonal aspect, which is reflected in how well teachers listen and remain open and receptive when engaging with students. A positive moderate correlation between the MTS-SL dimensions provided support for construct validity, which is in line with the findings from the original scale and different

validations. We can thus understand the two dimensions as related, although conceptually distinct and independent. The Intrapersonal mindfulness subscale was made up of nine items (1, 2, 3, 4, 5, 6, 7, 8 and 9), as observed in the original version, while the Interpersonal mindfulness subscale was made up of four items (10, 11, 13 and 14), since item 12 was removed for statistical and conceptual reasons, as explained in the Results section. Similar to our findings, very low factor loadings for this item were also reported in the Spanish and Portuguese validations (Barata-Gonçalves et al., 2024; Moyano et al., 2021). This may indicate that the interpretation of items is somewhat culturally dependent. The content analysis of the item under consideration ("I am aware of how my moods affect the way I treat my students") suggests that it is more closely related to the intrapersonal aspect of mindfulness, defined as the awareness of one's own emotions, than to the interpersonal aspect, which refers to mindful interaction with students (such as items: "I listen carefully to my student's ideas, even when I disagree with them"; "When I am upset with my class, I calmly tell them how I am feeling").In accordance with the findings of previous studies (Azadi et al., 2024; Barata-Gonçalves et al., 2024), we confirmed the measurement invariance of the MTS-SL across teachers' educational level taught and teaching experience, which allows for the comparison of the MTS-SL scores between teacher groups. Some validations have also confirmed the factor structure stability across gender (Azadi et al., 2024; Barata-Gonçalves et al., 2024). However, this could not be ascertained in our study due to an insufficient number of male participants in the sample.

The MTS-SL demonstrated adequate internal consistency, with the Intrapersonal mindfulness subscale exhibiting slightly higher reliability than the Interpersonal mindfulness subscale. This discrepancy can be partly attributed to the smaller number of items in the second subscale compared to the first one. These findings are consistent with those reported in other validations (Barata-Gonçalves et al., 2024; Kim & Singh, 2018; Moyano et al., 2021).

The present study demonstrates that mindfulness in teaching is associated with several psychological constructs, thereby confirming its convergent and divergent validity. Specifically, MTS-SL was positively correlated with dispositional mindfulness, as measured by the MAAS. Consistent with Portuguese and Turkish validations (Barata-Gonçalves et al., 2024; Gördesli et al., 2019), the highest positive correlation was found with the Intrapersonal Mindfulness subscale, which was expected given that the MAAS emphasizes the internal aspect of mindfulness. In addition, some MAAS items have been adjusted for the intrapersonal mindfulness in teaching context (e.g., "I find it difficult to stay focused on what's happening in the present" was adapted to "When I am in the classroom I have difficulty staying focused on what is happening in the present").

Furthermore, the MTS-SL was found to be significantly associated with teachers' self-efficacy and perceived stress, as reported in previous validation studies (Azadi et al., 2024; Kim & Singh, 2018; Moyano et al., 2021). Specifically, teachers with higher levels of both intrapersonal and interpersonal mindfulness reported greater perceived efficacy in using teaching strategies, managing the classroom, and engaging students, as well as lower levels of stress. These findings are also supported by mindfulness

intervention research, which has shown that mindfulness-based programs can enhance teachers' self-efficacy while reducing stress and burnout symptoms (de Carvalho et al., 2021; Flook et al., 2013).

The present study further demonstrated that higher levels of mindfulness among Slovenian teachers are associated with increased work engagement – a central determinant of teaching quality and classroom behavior – reflected in teachers' energy, commitment, and dedication. These findings align with results from a recent study of Chinese teachers (Tao, 2022), which showed that mindfulness in teaching positively predicted teachers' positive emotions in the classroom, with work engagement serving as a significant mediating factor. Teachers' mindfulness can therefore be viewed as a valuable work resource that contributes to positive professional outcomes, such as job satisfaction and a sense of purpose, as well as supportive interpersonal relationships with students.

LIMITATIONS

This study has several limitations that should be acknowledged. Although the sample size was adequate for the validation procedure, the sample was characterized by a gender imbalance and a predominance of primary school teachers. In addition, teachers in higher education and those working in special education settings were not included, which limits the generalizability of the findings to the broader population of Slovenian teachers. Future research should address these sampling limitations by extending the validation of the MTS-SL to underrepresented groups and ensuring a more balanced gender distribution, thereby allowing for the examination of measurement invariance across gender. Finally, the correlational design precludes any conclusions regarding causal relationships among the variables examined. Longitudinal or experimental designs are therefore warranted in future research to clarify causal mechanisms, particularly those linking mindfulness practice to positive educational and well-being outcomes for both teachers and students.

CONCLUSIONS

The findings of the study indicate that the MTS-SL is a psychometrically adequate self-report instrument for assessing mindfulness among Slovenian teachers. This novel multidimensional measure extends the understanding of this construct in the educational context by incorporating an interpersonal dimension, which is highly relevant to teachers' work and has so far been insufficiently addressed in Slovenia.

The scale may be useful for evaluating the effects of mindfulness-based interventions and programs, as well as for examining associations between teachers' mindfulness and various work-related and personal outcomes. Overall, the MTS-SL represents a promising tool for the systematic assessment of mindfulness within the Slovenian educational context.

ACKNOWLEDGEMENTS

This work was supported by the Slovenian Research and Innovation Agency [P5-0444].

REFERENCES

Al-Rousan, A. H., Ayasrah, M. N., Al Khatib, A. J., Yahya, S. M., & Ayasrah, A. N. (2025). Mindfulness in teaching: Translation, psychometric evaluation, and network estimation of the Mindfulness in Teaching Scale (MTS) for Arab teachers. *Mindfulness, 16*, 1273–1287. https://doi.org/10.1007/s12671-025-02564-1

Azadi, F., Dayri, S., Kordbagheri, A., & Kordbagheri, M. (2024). Psychometric properties of the Mindfulness in Teaching Scale in a sample of Iranian teachers: Insight from a network analysis approach. *Mindfulness, 15*(9), 2277–2290. https://doi.org/10.1007/s12671-024-02428-0

Baer, R. T., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., Walsh, E., Duggan, D., & Williams, J. (2008). Construct validity of the Five Facet Mindfulness Questionnaire in meditating and nonmeditating samples. *Assessment, 15*(3), 329–342. https://doi.org/10.1177/1073191107313003

Barata-Gonçalves, M., Pires, L., Carona, C., Damas, C. A. M. d. C. e, Coimbra, D., de Lima, M. P., Frank, J. L., & Oliveira, A. L. (2024). Psychometric properties of the Mindfulness in Teaching Scale in a sample of Portuguese teachers. *Mindfulness, 15*(2), 447–458. https://doi.org/10.1007/s12671-023-02283-5

Boštjančič, E., & Petrovčič, A. (2019). Exploring the relationship between job satisfaction, work engagement and career satisfaction: The study from public university. *Human Systems Management, 38*(4), 411–422. https://doi.org/10.3233/HSM-190580

Bottiani, J. H., Duran, C. A. K., Pas, E. T., & Bradshaw, C. P. (2019). Teacher stress and burnout in urban middle schools: Associations with job demands, resources, and effective classroom practices. *Journal of School Psychology*, *77*, 36–51. https://doi.org/10.1016/j.jsp.2019.10.002

Brown, K. W., Creswell, J. D., & Ryan, R. M. (Eds.) (2015). *Handbook of mindfulness: Theory, research, and practice*. The Guilford Press.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*(4), 822–848. https://doi.org/10.1037/0022-3514.84.4.822

Brunsting, N. C., Stark, K., Bettini, E., Lane, K. L., Royer, D. J., Common, E. A., & Rock, M. L. (2024). Self-efficacy, burnout, and intent to leave for teachers of students with emotional and behavioral disorders. *Behavioral Disorders, 49*(2), 75–90. https://doi.org/10.1177/01987429231201566

Carroll, A., Forrest, K., Sanders-O'Connor, E., Flynn, L., Bower, J. M., Fynes-Clinton, S., York, A., & Ziaei, M. (2022). Teacher stress and burnout in Australia: Examining the role of intrapersonal and environmental factors. *Social Psychology of Education*, *25*(2-3), 441–469. https://doi.org/10.1007/s11218-022-09686-7

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 14*(3), 464–504. https://doi.org/10.1080/10705510701301834

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 9*(2), 233–255. https://doi.org/10.1207/S15328007SEM0902_5

Cohen, S., & Williamson, G. M. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of health: Claremont symposium on applied social psychology* (pp. 31–67). Sage.

Čotar Konrad, S., & Lebeničnik, M. (2019). Izgorelost in samoučinkovitost strokovnih delavk v vrtcu. In S. Čotar Konrad, B. Borota, S. Rutar, K. Drljić, & G. Jelovčan (Eds.), *Vzgoja in izobraževanje predšolskih otrok prvega starostnega obdobja* (pp. 91–112). Založba Univerze na Primorskem.

de Carvalho, J. S., Oliveira, S., Roberto, M. S., Gonçalves, C., Bárbara, J. M., de Castro, A. F., Pereira, R., Franco, M., Cadima, J., Leal, T., Lemos, M. S., & Marques-Pinto, A. (2021). Effects of a mindfulness-based intervention for teachers: A study on teacher and student outcomes. *Mindfulness, 12*(7), 1719–1732. https://doi.org/10.1007/s12671-021-01635-3

Dolenc, P., & Sabadin, T. (2024). Stres in z zdravjem povezano vedenje vzgojiteljic predšolskih otrok. *Pedagoška Obzorja*, *39*(2), 53–68. https://doi.org/10.55707/ds-po.v39i2.128

Donker, M. H., Erisman, M. C., van Gog, T., & Mainhard, T. (2020). Teachers' emotional exhaustion: associations with their typical use of and implicit attitudes toward emotion regulation strategies. *Frontiers in Psychology*, *11*, 531517. https://doi.org/10.3389/fpsyg.2020.00867

Duffin, L., French, B., & Patrick, H. (2012). The Teachers' Sense of Efficacy Scale: Confirming the factor structure with beginning pre-service teachers. *Teaching and Teacher Education, 28*(6), 827–834. https://doi.org/10.1016/j.tate.2012.03.004

Flook, L., Goldberg, S. B., Pinger, L., Bonus, K., & Davidson, R. J. (2013). Mindfulness for teachers: A pilot study to assess effects on stress, burnout, and teaching efficacy. *Mind, Brain, and Education, 7*(3), 182–195. https://doi.org/10.1111/mbe.12026

Frank, J. L., Jennings, P. A., & Greenberg, M. T. (2016). Validation of the Mindfulness in Teaching Scale. *Mindfulness, 7*(1), 155–163. https://doi.org/10.1007/s12671-015-0461-0

Genoud, P. A., & Waroux, E. L. (2021). The impact of negative affectivity on teacher burnout. *International Journal of Environmental Research and Public Health*, *18*(24), 13124. https://doi.org/10.3390/ijerph182413124

Gördesli, M. A., Arslan, R., Çekici, F., Sünbül, Z. A., & Malkoç, A. (2019). The psychometric properties of the Mindfulness in Teaching Scale in a Turkish sample. *Universal Journal of Educational Research, 7*(2), 381–386. https://doi.org/10.13189/ujer.2019.070210

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (7th ed.). Pearson Education.

Hidajat, T. J., Edwards, E. J., Wood, R., & Campbell, M. (2023). Mindfulness-based interventions for stress and burnout in teachers: A systematic review. *Teaching and Teacher Education, 134,* 104303. https://doi.org/10.1016/j.tate.2023.104303

Horner, C. G., Brown, E. L., Mehta, S.,

& Scanlon, C. L. (2020). Feeling and acting like a teacher: Reconceptualizing teachers' emotional labour. *Teachers College Record*, *122*(5), 1–36. https://doi.org/10.1177/016146812012200502

Jennings, P. A., Brown, J. L., Frank, J. L., Doyle, S., Oh, Y., Davis, R., Rasheed, D., DeWeese, A., DeMauro, A. A., Cham, H., & Greenberg, M. T. (2017). Impacts of the CARE for teachers program on teachers' social and emotional competence and classroom interactions. *Journal of Educational Psychology, 109*(7), 1010–1028. https://doi.org/10.1037/edu0000187

Khoury, B., Sharma, M., Rush, S. E., & Fournier, C. (2015). Mindfulness-based stress reduction for healthy individuals: A meta-analysis. *Journal of Psychosomatic Research*, *78*(6), 519–528. https://doi.org/10.1016/j.jpsychores.2015.03.009

Kim, E., & Singh, N. N. (2018). Psychometric properties of the Korean version of the Mindfulness in Teaching Scale. *Mindfulness, 9*(1), 344–351. https://doi.org/10.1007/s12671-017-0871-2

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.

Košir, K., Licardo, M., Tement, S., & Habe, K. (2014). Doživljanje stresa in izgorelosti, povezanih z delom z učenci s posebnimi potrebami pri učiteljih v osnovni šoli. *Psihološka Obzorja, 23*, 110–124. https://doi.org/10.20419/2014.23.411

Lee, E. H. (2012). Review of the psychometric evidence of the perceived stress scale. *Asian Nursing Research, 6*(4), 121–127. https://doi.org/10.1016/j.anr.2012.08.004

Lensen, J. H., Stoltz, S. E. M. J., Kleinjan, M., Speckens, A. E. M., Kraiss, J. T., & Scholte, R. H. J. (2021). Mindfulness-based stress reduction intervention for elementary school teachers: a mixed method study. *Trials*, *22*(1), 826. https://doi.org/10.1186/s13063-021-05804-6

Li, C., Kee, Y. H., & Wu, Y. (2019). Psychometric properties of the Chinese Version of the Mindfulness in Teaching Scale. *International Journal of Environmental Research and Public Health*, *16*(13), 2405. https://doi.org/10.3390/ijerph16132405

Luken, M., & Sammons, A. (2016). Systematic review of mindfulness practice for reducing job burnout. *American Journal of Occupational Therapy, 70*(2), 7002250020p1–7002250020p10. https://doi.org/10.5014/ajot.2016.016956

Madigan, D. J., & Kim, L. E. (2021). Does teacher burnout affect students? A systematic review of its association with academic achievement and student-reported

outcomes. *International Journal of Educational Research, 105*, 101714. https://doi.org/10.1016/j.ijer.2020.101714

Madigan, D. J., Kim, L. E., Glandorf, H. L., & Kavanagh, O. (2022). Teacher burnout and physical health: A systematic review. *International Journal of Educational Research*, *119*, 102173. https://doi.org/10.1016/j.ijer.2023.102173

Maslach, C., & Leiter, M. P. (2016). Understanding the burnout experience: recent research and its implications for psychiatry. *World Psychiatry, 15*(2), 103–111. https://doi.org/10.1002/wps.20311

Menardo, E., Di Marco, D., Ramos, S., Brondino, M., Arenas, A., Costa, P., Vaz de Carvalho, C., & Pasini, M. (2022). Nature and mindfulness to cope with work-related stress: A narrative review. *International Journal of Environmental Research and Public Health*, *19*(10), 5948. https://doi.org/10.3390/ijerph19105948

Moyano, N., Perez-Yus, M. C., Herrera-Mercadal, P., Navarro-Gil, M., Valle, S., & Montero-Marin, J. (2023). Burned or engaged teachers? The role of mindfulness, self-efficacy, teacher and students' relationships, and the mediating role of intrapersonal and interpersonal mindfulness. *Current Psychology, 42*(14), 11719–11732. https://doi.org/10.1007/s12144-021-02433-9

Ong, N. Y., Teo, F. J. J., Ee, J. Z. Y., Yau, C. E., Thumboo, J., Tan, H. K., & Ng, Q. X. (2024). Effectiveness of mindfulness-based interventions on the well-being of healthcare workers: a systematic review and meta-analysis. *General Psychiatry*, *37*(3), e101115. https://doi.org/10.1136/gpsych-2023-101115

Parmentier, F. B. R., García-Toro, M., García-Campayo, J., Yañez, A. M., Andrés, P., & Gili, M. (2019). Mindfulness and symptoms of depression and anxiety in the general population: The Mediating roles of worry, rumination, reappraisal and suppression. *Frontiers in Psychology, 10*, 506. https://doi.org/10.3389/fpsyg.2019.00506

Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review, 41*, 71–90. https://doi.org/10.1016/j.dr.2016.06.004

Sauer, S., Walach, H., Schmidt, S., Hinterberger, T., Lynch, S., Büssing, A., & Kohls, N. (2013). Assessment of mindfulness: Review on state of the art. *Mindfulness, 4*(1), 3–17. https://doi.org/10.1007/s12671-012-0122-5

Schaufeli, W. B. (2021). *Wilmar Schaufeli*. https://www.wilmarschaufeli.nl

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement, 66*(4), 701–716. https://doi.org/10.1177/0013164405282471

Sipe, W. E., & Eisendrath, S. J. (2012). Mindfulness-based cognitive therapy: Theory and practice. *Canadian Journal of Psychiatry/Revue Canadienne de Psychiatrie, 57*(2), 63–69. https://doi.org/10.1177/070674371205700202

Skelly, K. J., & Estrada-Chichon, J. L. (2021). Mindfulness as a Coping Strategy for EFL Learning in Education. *International Journal of Instruction*, *14*(4), 965–980. https://doi.org/10.29333/iji.2021.14356a

Sujarwanto, Saroinsong, W. P., Boonroungrut, C., Adhe, K. R., Purwoko, B., & Riyanto, Y. (2022). Special education teachers' perceived stress towards transformational teaching. *International Journal of Instruction, 15*(4), 971–986. https://doi.org/10.29333/iji.2022.15452a

Tao, W. (2022). Understanding the relationships between teacher mindfulness, work engagement, and classroom emotions. *Frontiers in psychology, 13*, 993857. https://doi.org/10.3389/fpsyg.2022.993857

Tschannen-Moran, M., & Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17*(7), 783–805. http://dx.doi.org/10.1016/S0742-051X(01)00036-1

Tuxford, L. M., & Bradley, G. L. (2015). Emotional job demands and emotional exhaustion in teachers. *Educational Psychology, 35*(8), 1006–1024. https://doi.org/10.1080/01443410.2014.912260

Woods, S., Sebastian, J., Herman, K. C., Huang, F. L., Reinke, W. M., & Thompson, A. M. (2023). The relationship between teacher stress and job satisfaction as moderated by coping. *Psychology in the Schools, 60*(7), 2237–2256. https://doi.org/10.1002/pits.22857