

Adaptation and Psychometric Validation of the Teacher Thriving Scale in the Turkish Cultural Context

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Atilla Ergin 

İstanbul Technical University, e-mail: aergin@itu.edu.tr

Simge Kambur 

Ministry of National Education, e-mail: kambursimge@gmail.com

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ABSTRACT

This study aimed to adapt the Teacher Thriving Scale (TTS) into Turkish and to examine its psychometric properties within the Turkish educational context. The adaptation process followed internationally recognized guidelines, including forward translation, expert panel review, back-translation, and pilot testing. Data were collected from 466 teachers working at the preschool, primary, secondary, and high school levels. Exploratory Factor Analysis (EFA) using Principal Axis Factoring (PAF) on the initial 12 items supported a dominant one-factor structure explaining 84.68% of the common variance, with factor loadings ranging from .867 to .962. Following a combined examination of inter-item correlations, preliminary CFA results, standardized residuals, modification indices, and the conceptual content of the items, three items (TTS1–TTS3) were removed. Confirmatory Factor Analysis (CFA) of the refined 9-item unidimensional model yielded an overall pattern of generally acceptable fit (CFI = .99, TLI = .99, SRMR = .011). Because the RMSEA (.096) and χ^2/df (5.33) values exceeded conventional thresholds, model fit was interpreted cautiously and in conjunction with the remaining fit indices. Reliability analyses of the final 9-item form indicated very high internal consistency (Cronbach's α = .985; McDonald's ω = .98; Composite Reliability = .98), and the Average Variance Extracted (AVE = .85) supported convergent validity. Overall, the findings provide strong psychometric evidence supporting the Turkish version of the Teacher Thriving Scale for assessing teacher thriving in the Turkish educational context and suggest that it may serve as a useful measure for future research and educational practice.

Keywords: Teacher thriving, scale adaptation, validity, reliability, psychometrics, positive psychology.

Öğretmen Gelişimsel İyi Oluş Ölçeği'nin Türk Kültürel Bağlamına Uyarlanması ve Psikometrik Doğrulanması

ÖZ

Bu çalışmanın amacı, Öğretmen Gelişimsel İyi Oluş Ölçeği'ni (Teacher Thriving Scale; TTS) Türkçeye uyarlamak ve ölçeğin Türk eğitim bağlamındaki psikometrik özelliklerini incelemektir. Uyarlama süreci; ileri çeviri, uzman paneli değerlendirmesi, geri çeviri ve pilot uygulamayı içeren uluslararası kabul görmüş yönergeler doğrultusunda yürütülmüştür. Araştırma verileri okul öncesi, ilkokul, ortaokul ve lise kademelerinde görev yapan 466 öğretmenden toplanmıştır. Açımlayıcı Faktör Analizi (AFA), Temel Eksenler Faktörleştirilmesi (Principal Axis Factoring [PAF]) yöntemiyle başlangıçtaki 12 madde üzerinde gerçekleştirilmiş ve ortak varyansın %84,68'ini açıklayan baskın tek faktörlü bir yapıyı desteklemiştir. Madde faktör yükleri .867 ile .962 arasında değişmiştir. Madde arası korelasyonlar, ön DFA sonuçları, standartlaştırılmış artıklar, modifikasyon indeksleri ve maddelerin

kavramsal içerikleri birlikte değerlendirilerek üç madde (TTS1–TTS3) çıkarılmıştır. Doğrulayıcı Faktör Analizi (DFA), artırılmış 9 maddelik tek boyutlu model için genel olarak kabul edilebilir bir uyum örüntüsü ortaya koymuştur (CFI = .99, TLI = .99, SRMR = .011). RMSEA (.096) ve χ^2/df (5.33) değerleri geleneksel eşiklerin üzerinde olduğundan model uyumu ihtiyatlı biçimde ve diğer uyum indeksleriyle birlikte değerlendirilmiştir. Güvenirlik analizleri nihai 9 maddelik formun çok yüksek iç tutarlılığa sahip olduğunu ortaya koymuştur (Cronbach's α = .985; McDonald's ω = .98; Bileşik Güvenirlik = .98). Ayrıca, Ortalama Açıklanan Varyans (AVE = .85) yakınsak geçerliği desteklemiştir. Sonuç olarak, bulgular Öğretmen Gelişimsel İyi Oluş Ölçeği'nin Türkçe formunun Türk eğitim bağlamında öğretmenlerin gelişimsel iyi oluş düzeylerini değerlendirmede psikometrik açıdan güçlü kanıtlar sunduğunu ve gelecekteki araştırmalar ile eğitim uygulamalarında kullanılabilecek işlevsel bir ölçme aracı olduğunu göstermektedir.

Anahtar Kelimeler: Öğretmen gelişimsel iyi oluşu, ölçek uyarlama, geçerlik, güvenirlik, psikometri, pozitif psikoloji.

1. Introduction

Teaching is widely recognized as one of the most demanding professions, requiring teachers to balance instructional responsibilities with emotional, cognitive, and motivational challenges. Teachers are expected to deliver effective instruction, respond to diverse student needs, implement curricular reforms, and meet increasing accountability expectations (OECD, 2020; UNESCO, 2021). These responsibilities often lead to negative outcomes, including stress, burnout, emotional exhaustion, and attrition (Cemaloğlu & Şahin, 2007; Skaalvik & Skaalvik, 2017; Van Droogenbroeck et al., 2014). While this deficit-oriented perspective has provided valuable insights into the challenges of teaching, it offers a limited understanding of how teachers sustain energy, grow professionally, and maintain motivation over time.

Positive psychology has shifted the focus of educational research from dysfunction to optimal functioning, emphasizing strengths, resources, and growth (Diener et al., 2018; Seligman & Csikszentmihalyi, 2000). Constructs such as engagement, resilience, well-being, and thriving have gained prominence in the study of teachers' professional lives (Bakker & Albrecht, 2018; Collie et al., 2020). Thriving, defined as the joint experience of vitality and learning, represents a dynamic process through which individuals actively develop and flourish in their professional roles (Spreitzer et al., 2005). Vitality refers to feelings of energy, enthusiasm, and aliveness, whereas learning reflects ongoing growth, development, and the acquisition of new knowledge and skills. Unlike static indicators such as job satisfaction, thriving captures both affective and developmental dimensions of professional experience (Porath et al., 2012).

In educational settings, teacher thriving refers to teachers' capacity to remain energized, engaged, and continuously developing while navigating the demands of their profession (Collie et al., 2020; Hakanen et al., 2006). Empirical studies have shown that thriving teachers demonstrate higher levels of instructional engagement, stronger professional commitment, and greater adaptability to change (Bakker & Demerouti, 2017; Paterson et al., 2014).

Recent research has highlighted the importance of examining teacher thriving within specific professional and educational contexts. Chen et al. (2022) developed the Teacher Thriving Scale (TTS) to assess teachers' capacity to thrive in the face of teaching-related stress. Their findings supported a multidimensional structure encompassing Adaptability and Flexibility, Personal Strengths and Professional Growth, and Positive Mindset. Because the original instrument was developed and validated within a specific educational and cultural context, examining its psychometric functioning in other cultural settings is necessary before assuming structural equivalence. This underscores the necessity of adapting thriving measures to specific professional and cultural environments to ensure validity and reliability.

In Türkiye, research on teachers' professional lives has largely focused on negative indicators such as stress, burnout, and job dissatisfaction (Cemaloğlu & Şahin, 2007; Sezgin & Kılınc, 2012). While these studies have contributed to understanding the challenges faced by teachers, they provide limited insight into positive psychological functioning and growth-oriented experiences. Moreover, contextual features of the Turkish education system, such as centralized governance and standardized accountability practices, may shape how thriving is experienced and expressed (OECD, 2020). Although adaptations of general workplace thriving scales have been conducted with Turkish samples, there is currently no teacher-specific thriving scale systematically adapted and validated for use in the Turkish educational context. This gap limits both national research efforts and cross-cultural comparisons involving Turkish teachers.

1.1. Purpose of the Study

The primary purpose of this study was to adapt the Teacher Thriving Scale for use with Turkish teachers and to evaluate its psychometric properties. Specifically, the study aimed to examine the construct validity, convergent validity, and internal consistency reliability of the Turkish version of the scale. In

addition, the study sought to determine whether the adapted instrument provides a valid and reliable measure of teacher thriving in the Turkish educational context, in accordance with internationally accepted guidelines for cross-cultural scale adaptation (Hambleton et al., 2005; International Test Commission, 2017).

1.2. Research Questions

RQ1. Does the Turkish version of the Teacher Thriving Scale demonstrate satisfactory construct validity?

RQ2. Does the Turkish version of the Teacher Thriving Scale demonstrate adequate convergent validity?

RQ3. Is the Turkish version of the Teacher Thriving Scale a reliable instrument for assessing teacher thriving among Turkish teachers?

1.3. Importance of the Study

This study holds significant importance for both theoretical and practical reasons. First, it addresses a critical gap in the Turkish educational research landscape. While previous studies have predominantly focused on deficit-oriented constructs such as stress, burnout, and job dissatisfaction (Cemaloğlu & Şahin, 2007; Sezgin & Kılınç, 2012; Skaalvik & Skaalvik, 2017), limited attention has been given to positive psychological functioning. By adapting the TTTS into Turkish, this study introduces a validated and reliable instrument that enables researchers to examine teachers' vitality and learning as integrated dimensions of thriving.

Second, the adaptation of the TTS contributes to the methodological rigor of cross-cultural research. International guidelines emphasize that measurement instruments must undergo systematic adaptation to ensure linguistic, cultural, and conceptual equivalence (Hambleton et al., 2005; International Test Commission, 2017). The availability of a psychometrically sound Turkish version of the Teacher Thriving Scale will facilitate future cross-cultural comparisons and support cumulative research on teacher thriving (Putnick & Bornstein, 2016; Vandenberg & Lance, 2000).

Third, the findings of this study have practical implications for educational leaders and policymakers. Thriving has been shown to enhance engagement, adaptability, and resilience while reducing burnout and turnover intentions (Paterson et al., 2014; Porath et al., 2012; Van Wingerden & Poell, 2019). By providing evidence-based insights into how Turkish teachers experience thriving, this study can inform the design of professional development programs, retention strategies, and supportive organizational practices. Such initiatives are crucial for sustaining teacher well-being and professional growth, particularly in contexts characterized by high demands and centralized accountability systems (OECD, 2020).

Finally, this study advances a strengths-based perspective in educational research. Rather than focusing solely on coping with adverse conditions, thriving emphasizes proactive growth, intrinsic motivation, and adaptive functioning (Spreitzer & Sutcliffe, 2007). By shifting the lens from deficit to development, the Turkish adaptation of the TTS promotes a more holistic understanding of teachers as active agents capable of flourishing when supported by favorable organizational, relational, and instructional conditions. This perspective aligns with contemporary educational policies that prioritize teacher well-being as a cornerstone of sustainable school improvement (UNESCO, 2021).

2. Method

2.1. Research Model

This study employed a methodological research design focusing on scale adaptation and validation. Methodological designs are widely recommended for examining the psychometric properties of measurement instruments, particularly in cross-cultural contexts (Brown, 2015; Hambleton et al., 2005). The adaptation process followed internationally accepted guidelines for cross-cultural test adaptation to ensure linguistic, cultural, and conceptual equivalence (Beaton et al., 2000; International Test

Commission, 2017). Ethical approval was obtained from the Istanbul Technical University Social and Human Sciences Ethics Committee (Project No: 2026-01-819, dated January 29, 2026).

2.2. Participants

The study sample consisted of 466 teachers working in public preschool, primary, secondary, and high schools in Türkiye during the 2025–2026 academic year. Participants were recruited using an online survey distributed through professional networks and educational institutions. Participation was voluntary, and teachers from different educational levels and varying lengths of professional experience were included to enhance the diversity of the sample.

The sample size exceeded the minimum recommendations for factor analytic studies, which generally suggest at least 200 participants and a participant-to-item ratio of 10:1 or higher (Comrey & Lee, 1992; Kline, 2016). To provide independent evidence for construct validation, the total sample was randomly divided into two equal subsamples. The first subsample ($n = 233$) was used for Exploratory Factor Analysis (EFA), whereas the second subsample ($n = 233$) was used for Confirmatory Factor Analysis (CFA). This cross-validation approach is widely recommended in scale development and adaptation studies because it reduces the risk of sample-specific solutions and provides stronger evidence for the stability of the factor structure (Brown, 2015; Kline, 2016).

As shown in Table 1, the EFA and CFA subsamples were highly comparable in terms of gender, teaching experience, and school level. Similar demographic distributions across the two subsamples support the appropriateness of using one sample for exploratory analyses and the other for confirmatory analyses, thereby strengthening the cross-validation of the measurement model.

Table 1

Demographic Characteristics of EFA and CFA Samples ($N = 466$)

Variable	Category	EFA ($n = 233$) f (%)	CFA ($n = 233$) f (%)
Gender	Male	134 (57.5)	133 (57.1)
	Female	99 (42.5)	100 (42.9)
Experience	1–5 years	28 (12.0)	28 (12.0)
	6–10 years	48 (20.6)	48 (20.6)
	11–15 years	48 (20.6)	47 (20.2)
	16–20 years	44 (18.9)	44 (18.9)
	21+ years	65 (27.9)	66 (28.3)
School Level	Preschool	41 (17.6)	40 (17.2)
	Primary	61 (26.2)	61 (26.2)
	Secondary	61 (26.2)	61 (26.2)
	High School	70 (30.0)	71 (30.5)

Note: f = frequency; % = percentage of subsample.

2.3. Instruments

The Teacher Thriving Scale (TTS) was originally developed by Chen et. al, (2022) to assess teachers' experiences of thriving in educational settings. The original instrument consists of 12 items organized into three conceptual dimensions: Adaptability and Flexibility, Personal Strengths and Professional Growth, and Positive Mindset. Items are rated on a five-point Likert-type scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), with higher scores indicating higher levels of teacher thriving. In the original validation study, the scale demonstrated satisfactory psychometric properties and high internal consistency (Cronbach's $\alpha = .94$).

For the present study, permission to adapt the instrument was obtained from the original developers. The scale was translated and culturally adapted into Turkish following internationally recognized guidelines for cross-cultural adaptation (Beaton et al., 2000; Brislin, 1970; International Test Commission, 2017). The forward translation was independently performed by two bilingual experts with expertise in educational psychology and scale adaptation. The two translations were synthesized by the research team, after which an expert panel consisting of three specialists in educational measurement, positive psychology, and teacher education reviewed the preliminary Turkish version for conceptual equivalence, clarity, and cultural appropriateness. Suggested revisions were incorporated. A back-translation into English was then conducted by an independent bilingual translator who had not seen the original scale; discrepancies between the back-translated and original versions were resolved through discussion. Finally, a pilot study was conducted with 35 teachers from different school levels to assess item clarity and response processes. Minor wording adjustments were made based on pilot feedback before the main data collection. The psychometric properties of the Turkish version were subsequently evaluated using exploratory and confirmatory factor analyses, together with reliability and validity analyses.

2.4. Procedure

Before the data collection process began, ethical approval for the study was obtained from the Istanbul Technical University Social and Human Sciences Human Research Ethics Committee (Project No: 2026-01-819; date: 29 January 2026). The study was reviewed and approved as ethically appropriate. In addition, the necessary permissions to conduct the research in educational settings were obtained from the Ministry of National Education of Türkiye and the relevant institutions.

Participation in the research was based on voluntariness. Participants were informed about the purpose of the study, the confidentiality of their responses, and their right to withdraw from the research at any stage without any negative consequences. Before completing the questionnaire, participants provided informed consent.

Data were collected during the 2025–2026 academic year from teachers working at different educational levels in Türkiye. The questionnaire form was distributed electronically, and participants completed the survey individually. After the data collection stage, the dataset was reviewed for completeness and prepared for statistical analysis. The analyses were conducted using appropriate statistical software to examine the validity and reliability of the Turkish adaptation of the scale.

2.5. Data Analysis

Data analysis was conducted in several sequential stages to evaluate the psychometric properties of the Turkish version of the Teacher Thriving Scale. Initially, the dataset was screened for missing values, outliers, and assumptions required for multivariate analyses. Subsequently, the sample was randomly divided into two independent subsamples of equal size ($n = 233$ each). One subsample was used for Exploratory Factor Analysis (EFA), whereas the other was reserved for Confirmatory Factor Analysis (CFA), following recommendations for cross-validation in scale adaptation studies (Brown, 2015; Kline, 2016).

Exploratory Factor Analysis (EFA) was conducted to examine the latent factor structure of the Turkish version of the Teacher Thriving Scale. Before factor extraction, sampling adequacy and the factorability of the correlation matrix were assessed using the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's Test of Sphericity. Factor extraction was performed using Principal Axis Factoring (PAF), which is appropriate when the primary aim is to identify an underlying latent construct rather than to reduce observed variables into components. Factor retention was evaluated by considering eigenvalues, visual inspection of the scree plot, factor loadings, communalities, and the theoretical interpretability of the resulting factor structure.

Confirmatory Factor Analysis (CFA) was subsequently performed using LISREL 8.80 with the Maximum Likelihood (ML) estimation method to evaluate the construct validity of the factor structure

identified in the EFA. Prior to CFA, univariate and multivariate normality were examined through skewness, kurtosis, and Mardia's coefficient; results indicated approximate multivariate normality sufficient for ML estimation. Model fit was assessed using multiple goodness-of-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), the Tucker–Lewis Index (TLI/NNFI), the Incremental Fit Index (IFI), the Normed Fit Index (NFI), the Goodness-of-Fit Index (GFI), and the Adjusted Goodness-of-Fit Index (AGFI). The interpretation of these indices followed commonly accepted recommendations in the structural equation modeling literature (Hu & Bentler, 1999; Kline, 2016). In addition, modification indices and standardized residual covariances were inspected to identify potential local dependencies.

The internal consistency and convergent validity of the Turkish version of the scale were evaluated using Cronbach's alpha (α ; Cronbach, 1951), McDonald's omega (ω ; McDonald, 1999), Composite Reliability (CR), and Average Variance Extracted (AVE). Conventional cutoff values recommended in the psychometric literature were used to interpret these indices (Fornell & Larcker, 1981; Hair et al., 2019). All descriptive and exploratory analyses were conducted using IBM SPSS Statistics 26, whereas confirmatory factor analyses were performed using LISREL 8.80.

3. Results

This section presents the study's findings. The results of the statistical analyses examining the scale's validity and reliability are reported below.

3.1. Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis (EFA) using Principal Axis Factoring (PAF) was performed to examine the latent factor structure of the 12-item Turkish version of the Teacher Thriving Scale. Prior to factor extraction, the suitability of the data for factor analysis was evaluated using the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's Test of Sphericity. The KMO value was .957, indicating excellent sampling adequacy. Bartlett's Test of Sphericity was statistically significant, $\chi^2(66) = 10196.748$, $p < .001$, demonstrating that the correlation matrix contained sufficient inter-item relationships for factor analysis.

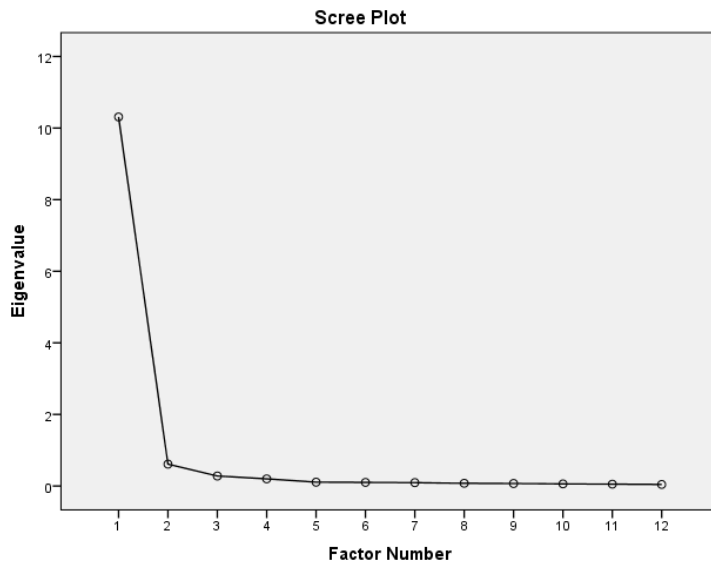
Table 2

KMO and Bartlett's Test of Sphericity Results

Test	Value
Kaiser–Meyer–Olkin (KMO)	.957
Bartlett χ^2	10196.748
Degrees of freedom (df)	66
p	< .001

Note. A KMO value above .90 indicates that the sample is highly adequate for factor analysis. The significant Bartlett test result shows that the inter-item correlations are suitable for factor analysis.

The extracted communality values ranged from .752 to .925. All communality values exceeded .50, indicating that a substantial proportion of the variance in each item was accounted for by the common factor. Examination of the PAF factor matrix showed that all 12 items loaded strongly on a single factor, with factor loadings ranging from .867 to .962. No item exhibited a weak factor loading. Taken together, these findings provided strong preliminary evidence for a dominant unidimensional structure underlying the 12-item Turkish version of the Teacher Thriving Scale.

Figure 1*Scree Plot*

The scree plot revealed a pronounced decline in eigenvalues after the first factor. The first initial eigenvalue was 10.311, whereas the second eigenvalue decreased sharply to .611, with all subsequent eigenvalues remaining below 1.00. According to Cattell's scree criterion, the clear elbow after the first factor provided additional support for retaining a dominant one-factor solution.

Table 3*Total Variance Explained by Principal Axis Factoring*

Factor	Initial Eigenvalue	Extraction Sums of Squared Loadings	Explained Variance (%)	Cumulative (%)
1	10.311	10.161	84.676	84.676

Note. Principal Axis Factoring (PAF) extracted a single factor explaining 84.68% of the common variance. The first initial eigenvalue was 10.311, whereas the second eigenvalue was .611 and all subsequent eigenvalues were below 1.00. Together with the clear break observed after the first factor in the scree plot, these findings provide strong support for a dominant unidimensional factor structure.

Table 4*Item Communalities*

Item	Communality
TTS1	.793
TTS2	.789
TTS3	.832
TTS4	.891
TTS5	.885
TTS6	.911
TTS7	.925
TTS8	.890
TTS9	.848

Item	Communality
TTS10	.837
TTS11	.807
TTS12	.752

Note. The extracted communality values ranged from .752 to .925. All values exceeded .50, indicating that a substantial proportion of the variance in each item was accounted for by the common factor. These results provide further support for the adequacy of the items in representing the underlying latent construct.

Table 5

Factor Loadings Obtained from Principal Axis Factoring

Item	Factor Loading
TTS1	.890
TTS2	.888
TTS3	.912
TTS4	.944
TTS5	.941
TTS6	.955
TTS7	.962
TTS8	.943
TTS9	.921
TTS10	.915
TTS11	.898
TTS12	.867

Note. Factor loadings obtained through Principal Axis Factoring ranged from .867 to .962. All items exhibited strong loadings on the extracted factor, providing further evidence for a dominant unidimensional structure.

3.2. Interpretation of the Anti-Image and Correlation Matrices

Measures of Sampling Adequacy (MSA) ranged from .936 to .980, indicating that all items were suitable for factor analysis. The determinant of the correlation matrix was very small (2.38×10^{-10}), indicating substantial inter-item correlations and suggesting potential redundancy among some items. Although the high MSA values and significant Bartlett's test supported the factorability of the correlation matrix, the very high correlations observed between several item pairs warranted further examination for possible local dependence and item redundancy. Importantly, item removal decisions were not based solely on the magnitude of the zero-order inter-item correlations or on the EFA factor loadings. All 12 items demonstrated strong PAF loadings; therefore, the subsequent refinement of the scale was informed by a combined examination of preliminary CFA results, standardized residuals, modification indices, and the conceptual content of the items. This examination indicated that TTS1–TTS3 contributed to local dependency and showed conceptual overlap with retained items in representing closely related aspects of teacher thriving. On the basis of this combined statistical and theoretical evaluation, TTS1–TTS3 were removed to obtain a more parsimonious measurement model. All subsequent CFA, reliability, and validity analyses were therefore conducted on the refined 9-item unidimensional scale.

3.3. Reliability Analysis

Cronbach's alpha was calculated to assess the internal consistency of the final 9-item Turkish version of the Teacher Thriving Scale. As presented in Table 6, the scale demonstrated very high internal consistency ($\alpha = .985$), substantially exceeding the recommended minimum value of .70. Furthermore,

corrected item–total correlations ranged from .861 to .953, indicating that all retained items were strongly associated with the overall construct. Deleting any individual item did not improve the reliability coefficient, suggesting that each item contributed meaningfully to the internal consistency of the scale. At the same time, the exceptionally high alpha coefficient was interpreted cautiously, as coefficients above .95 may also reflect substantial similarity among item content. Accordingly, internal consistency was evaluated together with McDonald's omega, composite reliability, factor loadings, and the substantive coverage of the retained items rather than on the basis of Cronbach's alpha alone.

Table 6

Reliability Coefficient of the TTS Scale

Scale	Number of Items	Cronbach's Alpha
TTS	9	.985

Note. Reliability coefficients are reported for the final 9-item form. The α coefficient indicates very high internal consistency; however, given its exceptionally high magnitude, it should be interpreted together with the other reliability and construct-validity evidence reported in the study.

3.4. Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) was conducted on the second subsample ($n = 233$) to evaluate the construct validity of the refined 9-item unidimensional model.

Table 7

Confirmatory Factor Analysis Results: Factor Loadings, t Values, and Explained Variances

Item	λ (Unstd.)	Factor Loading (Std.)	t value	R ²
TTS4	1.05	.86	23.24	.74
TTS5	1.12	.88	24.02	.77
TTS6	1.14	.91	25.61	.83
TTS7	1.20	.96	28.03	.92
TTS8	1.22	.95	27.52	.90
TTS9	1.19	.96	28.23	.93
TTS10	1.14	.95	27.86	.91
TTS11	1.12	.92	26.11	.85
TTS12	1.07	.88	24.23	.78

Note. All factor loadings are statistically significant at $p < .001$ ($t > 1.96$).

Table 7 presents the standardized factor loadings, t values, and explained variances for the one-factor measurement model. Standardized factor loadings ranged from .86 to .96 and were all statistically significant ($t = 23.24$ – 28.23 , $p < .001$). The explained variance (R^2) values ranged from .74 to .93, indicating that each item substantially contributed to the latent construct. Overall, these findings provide strong evidence supporting the construct validity of the Turkish version of the Teacher Thriving Scale.

Table 8

Convergent Validity and Reliability Indicators

Indicator	Value	Acceptance Criteria	Result
CR	.98	$\geq .70$	Excellent
AVE	.85	$\geq .50$	Very strong
McDonald's ω	.98	$\geq .70$	Excellent

Table 8 summarizes the convergent validity and reliability indices of the scale. Composite Reliability (CR = .98) and McDonald's omega (ω = .98) both exceeded the recommended threshold of .70, indicating excellent internal consistency. Likewise, the Average Variance Extracted (AVE = .85) was well above the recommended criterion of .50, providing strong evidence of convergent validity. Taken together, these findings demonstrate that the Turkish version of the Teacher Thriving Scale possesses excellent reliability and convergent validity.

3.5. Comparison of the Factor Structure and CFA Fit Indices With the Original Validation Study

Because the original Teacher Thriving Scale was validated as a three-factor instrument, the CFA fit indices reported by Chen et al. (2022) were considered alongside those obtained for the refined unidimensional Turkish version. This comparison is presented solely to contextualize the structural differences between the original validation study and the present adaptation. Because the models were estimated using different samples and analytical procedures, the reported fit indices should be interpreted descriptively and not as a formal comparison of competing models.

Table 9

Descriptive Comparison of CFA Fit Indices With the Original Validation Study

Model	Sample	χ^2 (df)	χ^2/df	RMSEA	SRMR	CFI	TLI
Original three-factor TTS model – Chen et al. (2022), Solution 2	122	128.61 (51)	2.52	.11	.06	.95	.94
Refined Turkish 9-item one-factor model – Current study	233	111.83 (21)	5.33	.096	.011	.99	.99

Note. The original three-factor values are derived from CFA Solution 2, which Chen et al. (2022) selected as the final TTS structure on theoretical grounds. The original study reported $\chi^2(51) = 128.61$, CFI = .95, TLI = .94, RMSEA = .11, and SRMR = .06. The Turkish model was estimated independently in the present study; therefore, the indices should be interpreted descriptively rather than as a direct statistical comparison of competing models.

As shown in Table 9, Chen et al. (2022) retained a 12-item three-factor structure for the original Teacher Thriving Scale. Their final theory-driven CFA model (Solution 2) yielded $\chi^2(51) = 128.61$, $\chi^2/df = 2.52$, RMSEA = .11, SRMR = .06, CFI = .95, and TLI = .94. Although Solution 1 showed slightly better statistical fit, Chen et al. (2022) selected Solution 2 because it provided a theoretically more meaningful representation of the latent structure. In contrast, the refined 9-item unidimensional model examined in the present Turkish sample yielded $\chi^2(21) = 111.83$, $\chi^2/df = 5.33$, RMSEA = .096, SRMR = .011, CFI = .99, and TLI = .99. These findings suggest that the dimensional representation of teacher thriving may differ across samples and cultural contexts. However, because the two models were estimated using different samples and analytical settings, the fit indices are presented for descriptive comparison and should not be interpreted as a formal statistical comparison of competing models.

Table 10

Confirmatory Factor Analysis (CFA) Model Fit Indices

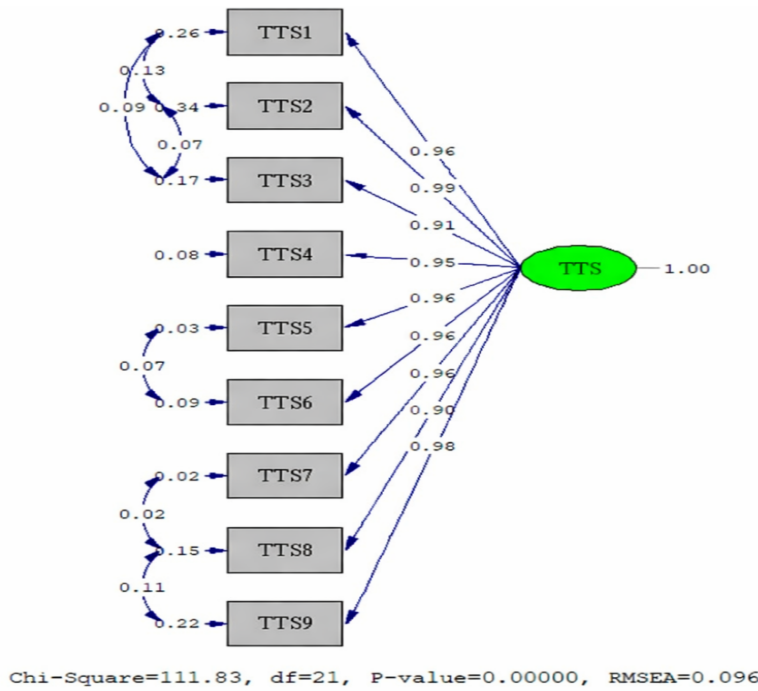
Fit Index	Obtained Value	Reference Criterion	Source
χ^2 (df)	111.83 (21)	—	—
χ^2/df	5.33	≤ 5.00 (acceptable)	Kline (2016)
RMSEA	.096	$\leq .08$ (acceptable), $\leq .10$ (marginal)	Browne & Cudeck (1993); Hu & Bentler (1999)
SRMR	.011	$\leq .08$ (good)	Hu & Bentler (1999)

Fit Index	Obtained Value	Reference Criterion	Source
GFI	.95	$\geq .90$ (good)	Jöreskog & Sörbom (1996)
AGFI	.89	$\geq .85$ (acceptable)	Jöreskog & Sörbom (1996)
CFI	.99	$\geq .95$ (very good)	Hu & Bentler (1999)
NFI	.99	$\geq .90$ (good)	Bentler & Bonett (1980)
NNFI (TLI)	.99	$\geq .95$ (very good)	Tucker & Lewis (1973)
IFI	.99	$\geq .95$ (very good)	Bollen (1989)
RMR	.016	$\leq .05$ (good)	Browne & Cudeck (1993)
ECVI	.34	Lower values indicate better fit	Browne & Cudeck (1993)

Note. The CFA reported here was conducted on the second subsample ($n = 233$). Even at this sample size, a significant χ^2 statistic is common; therefore, relative fit indices (CFI, NNFI, IFI, SRMR) were emphasized in the interpretation of model fit.

The fit indices presented in Table 10 indicate that the one-factor measurement model demonstrated an overall acceptable fit when the full set of indices is considered together. The incremental fit indices (CFI = .99, TLI = .99, IFI = .99, and NFI = .99) exceeded the recommended criteria for excellent model fit, and the residual-based indices (SRMR = .011 and RMR = .016) indicated minimal discrepancies between the observed and model-implied covariance matrices. The χ^2/df ratio (5.33) and RMSEA (.096) exceeded the more stringent conventional cutoffs (≤ 5.00 and $\leq .08$, respectively) and should therefore be interpreted with caution. In large samples and in models with relatively few degrees of freedom, RMSEA can be sensitive and may overestimate misfit (Kenny et al., 2015). Considering the overall pattern of incremental and residual-based fit indices, together with the high factor loadings and convergent validity evidence, the measurement model was considered provisionally acceptable for the purposes of the present adaptation study.

Consistent with the above, the RMSEA value was interpreted together with the remaining fit indices rather than in isolation. Previous research has shown that RMSEA may overestimate model misfit in parsimonious models with relatively few degrees of freedom, particularly when accompanied by high factor loadings and strong internal consistency (Kenny et al., 2015). In the present study, the high standardized factor loadings (.86–.96), strong convergent validity (AVE = .85), and excellent reliability coefficients (CR = .98; $\omega = .98$) provide additional evidence supporting the construct validity of the Turkish version of the Teacher Thriving Scale. Therefore, despite the elevated RMSEA and χ^2/df values, the one-factor measurement model was considered theoretically and empirically acceptable for the refined 9-item scale.

Figure 2*Confirmatory Factor Analysis of the TTS Scale*

Note. For consistency with Table 7, item labels TTS4-TTS12 in the text and tables refer to the original 12-item numbering. In Figure 2, the same nine retained items are labeled TTS1-TTS9, following the renumbering convention used for the final scale form presented in the Appendix (TTS4 = TTS1, TTS5 = TTS2, ..., TTS12 = TTS9).

The confirmatory factor analysis presented in Figure 2 supports the one-factor structure of the final 9-item Turkish version of the Teacher Thriving Scale. Standardized factor loadings ranged from .86 to .96, indicating that all retained items were strong indicators of the latent construct. A limited number of correlated error terms were specified between items that shared highly similar wording or content (e.g., items referring to maintaining focus, positive attitude, and patience under stressful teaching conditions). These residual correlations were introduced only when theoretically justified (shared method or content effects) and when modification indices indicated substantial improvement in model fit; they were not used as an arbitrary means of improving fit. Overall, the model provides additional evidence supporting the construct validity of the Turkish version of the scale.

4. Discussion

The present study aimed to adapt the TTS for use with Turkish teachers and to examine its psychometric properties. The findings provide strong evidence that the Turkish version of the scale is a valid and reliable instrument for assessing teacher thriving. Exploratory and confirmatory factor analyses supported a unidimensional measurement model, while reliability and convergent validity analyses demonstrated that the adapted scale possesses satisfactory psychometric characteristics.

One of the most noteworthy findings of this study is that, although the original TTS was ultimately validated as a 12-item, three-factor instrument (Chen et al., 2022), the Turkish adaptation yielded a dominant single-factor structure following item refinement. In the original validation study, the three retained dimensions were Adaptability and Flexibility, Personal Strengths and Professional Growth, and Positive Mindset. In contrast, the exploratory analysis conducted in the present Turkish sample indicated that the 12 translated items were strongly represented by a common factor, and the subsequent refinement process resulted in a 9-item unidimensional model. As presented in the model

comparison table, the CFA fit indices reported in the original validation study and those obtained in the present study show different patterns across individual fit indices. However, because the two models were estimated in different samples and with different analytical procedures, these values should be interpreted descriptively rather than as a formal statistical comparison of competing models. Accordingly, the present findings should not be interpreted as demonstrating that the Turkish one-factor model is statistically superior to the original three-factor model. Rather, they indicate that a unidimensional representation provided a parsimonious and empirically defensible account of teacher thriving in the present Turkish sample. This pattern suggests that Turkish teachers may perceive thriving as a holistic psychological experience rather than as separate but related dimensions. Although the original dimensions—Adaptability and Flexibility, Personal Strengths and Professional Growth, and Positive Mindset—represent conceptually distinct aspects of thriving, the retained items in the Turkish adaptation appear to reflect a strongly integrated underlying construct.

A possible explanation for this structural difference may be related to cultural characteristics. Cross-cultural psychology suggests that individuals in relatively collectivistic societies tend to interpret personal experiences within an interconnected social and contextual framework rather than as independent psychological domains (Markus & Kitayama, 1991; Triandis, 1995). Similarly, Hofstede (2001) argues that cultures characterized by stronger collectivistic orientations place greater emphasis on relational harmony, shared responsibility, and contextual interdependence. Within such educational contexts, teachers may experience adaptability, professional growth, psychological strength, and positive mindset as mutually reinforcing aspects of a broader experience of thriving rather than as distinct dimensions. Thus, the strong unidimensional pattern observed in the Turkish sample may reflect a more integrated experience of teacher thriving in this particular cultural and educational context. Nevertheless, this cultural explanation should be regarded as a plausible interpretation rather than a definitive explanation of the observed structural difference.

This interpretation is also consistent with the broader literature on cross-cultural assessment, which emphasizes that the latent structure of psychological constructs may vary across cultural contexts despite preserving their underlying theoretical meaning (Cheung & Rensvold, 2002; Van de Vijver & Leung, 1997). Consequently, differences in factor structures should not necessarily be interpreted as evidence of weaker construct validity; instead, they may indicate that the construct is organized differently across cultural settings. At the same time, because the original and Turkish studies differed not only culturally but also in sample characteristics and analytical procedures, the observed structural difference cannot be attributed solely to cultural factors. Further cross-cultural validation studies using comparable samples and analytic strategies are needed to determine whether the dimensionality of teacher thriving is culturally sensitive.

The psychometric findings further support the adequacy of the Turkish version of the scale. The CFA results showed a mixed but generally acceptable pattern of model fit. Specifically, the CFI, TLI, and SRMR values provided strong support for the model, whereas the RMSEA and χ^2/df values exceeded more stringent conventional thresholds and therefore warrant cautious interpretation. The high standardized factor loadings, together with strong convergent validity and internal consistency coefficients, provide additional evidence that the retained items consistently represent the latent construct of teacher thriving. At the same time, the exceptionally high internal consistency coefficients suggest substantial similarity among the retained items and should therefore be considered together with the factor-analytic and validity evidence rather than interpreted in isolation. These findings suggest that the adapted instrument adequately captures the intended construct while preserving its theoretical foundation.

Overall, the findings indicate that the Turkish version of the Teacher Thriving Scale provides a promising and psychometrically supported instrument for assessing teacher thriving in educational settings. The present evidence supports the use of the refined 9-item form as a unidimensional measure in the current Turkish context, while further validation across independent samples is warranted before broader generalization. The availability of this instrument will facilitate future research examining

teachers' psychological functioning, professional growth, resilience, and well-being, while also contributing to cross-cultural studies on thriving in education.

5. Limitations

Despite the encouraging psychometric findings, several limitations of the present study should be acknowledged. First, the study employed a convenience sampling strategy. Although the sample size was adequate for exploratory and confirmatory factor analyses and included teachers from different educational levels, the use of a non-probability sampling method may limit the generalizability of the findings to the broader population of teachers in Türkiye. Future studies should replicate the validation process using probability-based or nationally representative samples.

Second, data were collected through an online survey, which facilitated access to teachers from different regions but may have introduced self-selection bias. Teachers with greater access to digital technologies or stronger motivation to participate may have been overrepresented. Future studies could combine online and face-to-face data collection methods to enhance sample representativeness.

Third, the study relied exclusively on self-report measures. Although self-report instruments are commonly used in psychometric validation studies, they may be influenced by social desirability, response styles, or common method variance. Future research could strengthen the validity evidence by incorporating multiple data sources, such as peer evaluations, supervisor ratings, or behavioral indicators where appropriate.

Fourth, the study adopted a cross-sectional design, which limits the examination of the temporal stability of teacher thriving. Longitudinal studies are needed to investigate how teacher thriving develops over time and to provide stronger evidence regarding the stability of the construct.

Fifth, test-retest reliability was not examined in the present study. Although the final 9-item form demonstrated very high internal consistency, internal consistency does not provide evidence regarding the temporal stability of scale scores. Future studies should therefore examine test-retest reliability across appropriate time intervals to provide additional evidence concerning score stability.

Finally, the original three-factor model and the refined unidimensional model were not estimated as competing models within the same Turkish CFA sample. The comparison with the original validation study was therefore descriptive and involved different samples and analytical procedures. Future studies should directly compare alternative one-factor and three-factor specifications within independent Turkish samples and, where appropriate, examine measurement invariance across cultural groups.

6. Practical Implications and Future Research

The Turkish version of the Teacher Thriving Scale provides researchers and practitioners with a psychometrically sound instrument for assessing teachers' thriving in educational settings. The scale may be used to evaluate teachers' psychological functioning, professional growth, and well-being, as well as to examine the effectiveness of professional development and teacher support programs.

Future research should further examine the psychometric properties of the scale across different educational levels, geographical regions, and cultural contexts. Additional studies may also investigate measurement invariance across demographic groups and explore the role of teacher thriving in relation to constructs such as burnout, job satisfaction, psychological well-being, self-efficacy, organizational support, and teacher resilience. Furthermore, longitudinal and intervention-based studies would contribute to understanding the stability of teacher thriving over time and the effectiveness of programs designed to enhance it.

Finally, the scale may serve as a useful tool for school leaders and policymakers seeking to monitor teachers' professional well-being and to develop evidence-based strategies that foster thriving, resilience, and sustainable professional growth within schools.

Ethics Statement

This study was conducted in accordance with the principles of research and publication ethics. Ethical approval was obtained from the Istanbul Technical University Social and Human Sciences Human Research Ethics Committee (Project No. 2026-01-819; 29 January 2026). Participation was voluntary, informed consent was obtained from all participants, and confidentiality of the collected data was maintained throughout the research process.

Conflict of Interest Statement

The authors declare that there is no conflict of interest.

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Author Contribution Statement

Both authors contributed to the conceptualization, methodology, data collection, analysis, interpretation of the findings, and preparation and revision of the manuscript. Both authors reviewed and approved the final version of the manuscript.

Data Availability Statement

The data supporting the findings of this study are not publicly available due to ethical and confidentiality considerations.

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Appendix

Öğretmen Gelişimsel İyi Oluş Ölçeği -Teacher Thriving Scale (TTS) – Turkish Version (Final 9-Item Form)

The nine retained items are presented below in the Turkish wording administered to participants, together with an English back-translation provided for the reader's convenience. Responses were recorded on a five-point Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree.

Item	Turkish Item (as administered)	English Back-Translation
1	Öğretmenlik sürecimde karşılaştığım zorlukları mesleki öğrenme ve gelişim için birer fırsat olarak gördüm.	I viewed the challenges I encountered in my teaching as opportunities for professional learning and growth.
2	Stresli bir öğretim durumunun üstesinden her gelişimde yeni bilgi, beceri ve/veya özgüven kazandım.	Each time I overcame a stressful teaching situation, I gained new knowledge, skills, and/or self-confidence.
3	Stresli bir öğretim durumunun üstesinden gelerek her gelişimde daha güçlü bir birey haline geldim.	Each time I overcame a stressful teaching situation, I became a stronger person.

Item	Turkish Item (as administered)	English Back-Translation
4	Öğretim sürecimde yaşadığım stresin üstesinden gelerek öğrendiklerimi yeni öğretim koşullarında uyguladım.	By overcoming the stress I experienced while teaching, I applied what I had learned to new teaching conditions.
5	Öğretmenlikle ilgili stresin üstesinden gelmek, gelecekte bu stresi daha iyi yönetebileceğime olan güvenimi artırdı.	Overcoming teaching-related stress increased my confidence that I could manage this stress better in the future.
6	Öğretmenlik ne kadar stresli olursa olsun, sabırla devam edersem zamanla daha iyi olacağına dair umudumu korudum.	No matter how stressful teaching becomes, I maintained hope that things would improve over time if I persisted with patience.
7	Stresli öğretim koşullarında bile olumlu bir tutum sergileyebildim.	I was able to maintain a positive attitude even under stressful teaching conditions.
8	Stresli öğretim koşullarında bile odağımı koruyabildim.	I was able to maintain my focus even under stressful teaching conditions.
9	Stresli öğretim koşullarında bile dikkatli ve sabırlı davranabildim.	I was able to remain attentive and patient even under stressful teaching conditions.

Note. Items TTS1–TTS3 of the original 12-item pool were removed following exploratory and confirmatory factor analyses; the final Turkish form retains nine items (TTS4–TTS12 in the original numbering, renumbered 1–9 above).

Ölçek Tanıtım Kartı (Türkçe Uyarlama İçin)

Aşağıdaki bilgi kartı, ölçeğin Türkçe uyarlamasını kullanmak isteyen araştırmacılar için hazırlanmıştır ve Türkçe olarak sunulmuştur.

Bilgi	Açıklama
Ölçeğin Adı	Öğretmen Gelişimsel İyi Oluş Ölçeği (Teacher Thriving Scale – TTS), Türkçe Formu
Orijinal Ölçek / Geliştiren	Teacher Thriving Scale; Chen, Li, Rodrigues, & Kaufman (2022)
Ölçeğin Amacı	Öğretmenlerin mesleki yaşamlarında karşılaştıkları stresli ve zorlayıcı koşullar karşısında uyum sağlama, kişisel ve mesleki olarak gelişme ve olumlu bir psikolojik yönelimi sürdürme biçiminde ortaya çıkan gelişimsel iyi oluş (teacher thriving) düzeylerini değerlendirmek.
Hedef Kitle / Uygulanabilirlik	Okul öncesi, ilköğretim, ortaokul ve lise düzeyinde görev yapan öğretmenler. Bireysel veya grup hâlinde, kâğıt-kalem ya da çevrimiçi form olarak uygulanabilir.
Madde Sayısı ve Yapısı	9 madde, tek faktörlü (tek boyutlu) yapı. Orijinal ölçek 12 madde ve üç alt boyuttan (Uyum ve Esneklik; Kişisel Güçler ve Mesleki Gelişim, Olumlu Zihniyet) oluşmaktadır; Türk örnekleminde yapılan AFA ve DFA sonucunda 3 madde (TTS1–TTS3) çıkarılmış ve ölçek tek faktörlü 9 maddelik bir yapıya indirgenmiştir.
Derecelendirme	5'li Likert tipi (1 = Kesinlikle Katılmıyorum, 2 = Katılmıyorum, 3 = Kararsızım, 4 = Katılıyorum, 5 = Kesinlikle Katılıyorum)
Puanlama	Ters puanlanan madde bulunmamaktadır. Ölçek toplam veya ortalama puan üzerinden değerlendirilir; puan aralığı 9–45'tir (madde ortalaması esas alındığında 1–5). Yüksek puan, yüksek düzeyde öğretmen gelişimsel iyi oluşuna işaret eder.
Uygulama Süresi	Yaklaşık 3–5 dakika
Örnekleme (Uyarlama Çalışması)	N = 466 öğretmen (AFA için n = 233, DFA için n = 233); okul öncesinden liseye farklı kademelerde görev yapan öğretmenler, 2025–2026 eğitim-öğretim yılı

Bilgi	Açıklama
Açımlayıcı Faktör Analizi (AFA)	KMO = .957; Bartlett $\chi^2(66) = 10196.748$, $p < .001$; Temel Eksenler Faktörleştirmesi (Principal Axis Factoring [PAF]) sonucunda açıklanan ortak varyans = %84.68; faktör yükleri = .867–.962; madde ortak varyansları = .752–.925.
Doğrulayıcı Faktör Analizi (DFA)	$\chi^2/df = 5.33$; RMSEA = .096; SRMR = .011; CFI = .99; TLI (NNFI) = .99; IFI = .99; NFI = .99; GFI = .95; AGFI = .89; standardize faktör yükleri .86–.96 (tümü $p < .001$)
Yakınsak Geçerlik	Açıklanan Ortalama Varyans (AVE) = .85
Güvenirlilik	Cronbach alfa (α) = .985; McDonald's omega (ω) = .98; Bileşik Güvenirlilik (CR) = .98 (nihai 9 maddelik form); düzeltilmiş madde-toplam korelasyonları .861–.953
Etik Onay	İstanbul Teknik Üniversitesi Sosyal ve Beşerî Bilimler Araştırmaları Etik Kurulu (Proje No: 2026-01-819; Onay Tarihi: 29 Ocak 2026)
Kullanım İzni	Ölçeğin araştırma amaçlı kullanımı için orijinal ölçek geliştiricilerinden ve Türkçe uyarlamayı yapan yazarlardan izin alınması gerekmektedir. İzin ve iletişim için: [aergin@itu.edu.tr; kambursimge@gmail.com]

Demographic Information Collected

1. Gender: Female / Male
2. Teaching experience (years): open response
3. School level: open response

Informed Consent Statement (as presented to participants)

Participation in this study was voluntary. Participants were informed that they could withdraw from the survey at any time without providing a reason, and that their responses would remain confidential and would be analyzed solely for scientific purposes. Participants confirmed their voluntary agreement to participate before proceeding to the survey items.