

# Teacher's Professional Development Competencies Scale (TPDCS)

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## Abstract

This study aimed to develop a valid and reliable scale for determining teachers' needs to increase their efficiency in professional practice. The stages of creating an item pool, consulting expert opinions, pilot testing, and conducting validity and reliability analyses were followed. Initially, a 46-item pool was created based on a literature review and the MoNE teacher competencies framework by two field experts. Two Turkish language experts reviewed the items for grammar and clarity. The item pool was refined to 30 items following expert feedback. The draft scale was piloted with 21 teachers. For the primary analyses, data were collected from 186 teachers for exploratory factor analysis (EFA) and from 223 teachers for confirmatory factor analysis (CFA), using a convenience sampling method. EFA was conducted using principal component analysis with varimax rotation to establish construct validity. CFA was then performed to confirm the structure obtained through EFA. Cronbach's alpha coefficients were calculated to determine internal consistency for each sub-dimension. As a result, a five-factor, 17-item valid and reliable measurement tool was developed. The sub-dimensions of the Teacher Professional Development Competencies Scale (TPDCS) are Course Design Competency (CDC) (4 items), Classroom Management Competency (CMC) (5 items), Collaboration Competency (CLC) (3 items), Problem-Solving Competency (PSC) (2 items), and Communication Skills Competency (CSC) (3 items). A total score is not calculated; each sub-dimension is scored independently.

## Keywords

competency scale, scale development, teacher professional development

## Introduction

Global environmental conditions, paradigm shifts, inter-generational differentiation, and current needs also affect the subjects and education methods (Tozlu, 2022; Töre, 2017; Yenen, 2022). The change in the skills desired by the adults of tomorrow necessitates the transformation of the teacher who plays the leading role in acquiring these skills (Azar, 2011; Baskan, 2001). In this context, professional development refers to the process through which individuals enhance their competencies in their professional roles (Abou-Assali, 2014). Due to the rapid changes in technology and knowledge production, continuous professional development has become indispensable for teachers (Can, 2019). While teachers are generally willing to adapt to innovations (Kırkıç & Demir, 2020), previous training may become obsolete unless renewed (Genç & Aydın, 2015). Teachers also require structured support to foster effective instructional attitudes and improve self-efficacy (Kırkıç & Çetinkaya,

2020). However, the effectiveness of professional development programs hinges on their design quality, which has often been lacking in Türkiye's in-service training programs (İrgatoğlu, 2024). Theories of adult learning further inform effective professional development design. Knowles (2009) emphasizes that adult education should be experiential, collaborative, and problem-oriented. Borg (2015) similarly outlines principles for impactful professional development, including sensitivity to teacher needs, school management support, knowledge sharing, and alignment with real-world demands. Teacher

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competencies significantly affect learning outcomes (Borko, 2004; Jacob et al., 2017; Reese, 2010), and their enhancement contributes to both student achievement and institutional development (Ambussaidi & Yang, 2019). Studies show that teacher quality is one of the strongest predictors of student performance. Identifying developmental needs is a prerequisite for designing effective professional development (Altschuld & Kumar, 2010; Noom-Ura, 2013). Needs assessment ensures that training is purposeful and aligned with real gaps in knowledge or skills (Evans, 1998; Ünlü, 2018). These frameworks support a structured and multidimensional understanding of teacher development requirements. There are several established taxonomies for educational needs. Ratnapalan and Hilliard (2002) describe normative, suggested, perceived, expressed, comparative, and unperceived needs, while Witkin and Altschuld (1995) classify them into primary, secondary, and tertiary levels. These frameworks support a structured and multidimensional understanding of teacher development requirements. Recent studies suggest that a well-designed needs analysis contributes to more effective, confident, and engaged teachers (Ünlü, 2018). Furthermore, factors such as pre-service training, professional attitudes, school environment, socio-economic conditions, and ongoing development have been found to influence teacher competencies (Postholm, 2012; Shidiq et al., 2022). In the context of Education 4.0, teachers must also develop digital and interdisciplinary skills (Kin et al., 2022). This study aims to develop a valid and reliable measurement tool to determine teachers' professional development needs based on defined competency domains. Unlike existing instruments, the proposed scale is grounded in a comprehensive framework derived from the competencies and international standards of the Ministry of National Education (MoNE, 2009). Specifically, the study seeks to identify measurable sub-dimensions of teacher competencies and assess their internal structure through empirical validation. The tool is intended to serve as a diagnostic resource for educational institutions to design targeted professional development programs. To achieve this aim, the study's objectives include (1) item development based on national and international teacher competency frameworks, (2) construct validation through exploratory and confirmatory factor analyses, and (3) reliability analysis to ensure consistency of the tool across different contexts. The remainder of this paper presents the methods used in scale development, the empirical results, and implications within the broader teacher education literature. This approach responds to recent findings by Kennedy et al. (2022), who emphasize that clearly defined and empirically validated competency frameworks enhance the effectiveness of professional development initiatives. However, there is a lack

of empirically validated instruments specifically aligned with national teacher competency standards in the Turkish context. This study addresses this gap by developing a context-specific scale that integrates national and international frameworks to assess teachers' professional development competencies.

In alignment with global perspectives on teacher professional development, this study draws on international frameworks that emphasize the multidimensional nature of teaching competencies. For example, the OECD (2021) highlights teachers' need to develop adaptable skills aligned with 21st-century demands, including collaboration, problem-solving, and digital competencies. Darling-Hammond et al. (2017) emphasize that effective teacher development requires sustained, content-focused, collaborative learning structures. Additionally, Borko (2004) provides a conceptual model underscoring that professional development must be understood as a systemic process influenced by policy, school context, and community factors. These international perspectives inform the theoretical foundation of the current scale and support its applicability beyond the Turkish context. This study builds on previous frameworks (e.g., Avalos, 2011; OECD, 2009) by offering a comprehensive measurement tool that integrates cognitive, reflective, and collaborative competencies. Unlike prior scales that assess isolated aspects of teacher development, the TPDCS enables a multidimensional understanding, thereby contributing to theory and practice in teacher professional learning.

The remainder of this paper is structured as follows: The next section presents the methodology employed in the development and validation of the scale. This is followed by the results of the exploratory and confirmatory factor analyses. Subsequently, the discussion section interprets these findings in light of the existing literature and practical applications. The paper concludes with implications, limitations, and directions for future research.

## Method

The scale development followed a systematic process consisting of the following stages: item pool creation, expert review, pilot testing, and validity and reliability analyses (Boateng et al., 2018). Initially, a 46-item pool was generated by two field experts based on a comprehensive review of the literature and the competencies defined by the Ministry of National Education (MoNE). To ensure linguistic clarity, two Turkish language experts evaluated the items regarding grammar and semantic precision. Following this, two field experts reviewed the item pool again, leading to the reduction of items from 46 to 30 based on their recommendations. Each item in

the draft scale was rated using a six-point Likert-type scale ranging from “1 = Never” to “6 = Always.”

A pilot implementation was conducted with 21 teachers to assess the clarity and usability of the draft scale. Since no adverse feedback was reported by participants during the pilot phase, the 30-item draft scale was administered to two independent samples for the main analyses. Exploratory Factor Analysis (EFA) was performed using data collected from 186 teachers. In comparison, Confirmatory Factor Analysis (CFA) was conducted with a separate sample of 223 teachers to validate the factor structure obtained through EFA. These steps ensured that the scale met content and construct validity criteria before finalization (Brown, 2015).

## Study Group

The research study group, consisting of volunteer teachers working in public schools in Istanbul and Izmir provinces, was selected using the convenience sampling method. Data were collected from two sample groups for exploratory and confirmatory factor analysis. Data were collected from 186 teachers working in public schools in Izmir province (Gender: 126<sub>Female</sub>, 60<sub>Male</sub>; Seniority: 8<sub>0–7 Years</sub>, 31<sub>8–13 Years</sub>, 32<sub>14–22 Years</sub>, 115<sub>23 Years and above</sub>) for exploratory factor analysis (EFA); 223 teachers (Gender: 155<sub>Female</sub>, 68<sub>Male</sub>; Seniority: 6<sub>0–7 Years</sub>, 51<sub>8–13 Years</sub>, 60<sub>14–22 Years</sub>, 46<sub>23 Years and above</sub>) for confirmatory factor analysis (CFA). There are different opinions in the literature regarding the sample size. The more common view is that it is sufficient to collect data from 5 times the number of participants (Bryman & Cramer, 2005; Tavşanlı, 2006).

Ethical approval was obtained from the Ethics Committee of the Approval No: 2024/01, Date: 16.02.2024. All participants gave informed consent before participation in the study. Participation was entirely voluntary, and participants were assured of confidentiality, anonymity, and the right to withdraw at any stage. No identifiable personal information was collected. The study posed a minimal risk, as it involved only the completion of a self-report scale related to professional competencies, without any interventions or sensitive questions. Sample items from the scale were shared with participants in advance. Teachers were recruited via announcements shared with school principals in selected public schools in two provinces of Türkiye. Those who volunteered were included without incentives or obligations. The study was presented as an opportunity for teachers to reflect on their competencies, and findings are expected to benefit both participants and the broader educational community by informing the design of targeted professional development programs.

## Data Analysis

The items in the scale focused on self-assessed professional competencies, such as lesson planning, classroom management, communication, collaboration, and problem-solving. For instance, items included statements such as “I use effective communication methods and techniques” or “I prepare course materials in line with learning outcomes,” which participants rated on a six-point Likert scale from “Never” to “Always.”

Before analyzing the data, both data sets were checked by the researchers and made suitable for analysis. Exploratory Factor Analysis (EFA) was conducted using principal component analysis with varimax rotation to determine the scale’s construct validity. The lower limit for factor loadings in the analysis was determined to be .40 (Büyüköztürk, 2019). Confirmatory Factor Analysis (CFA) was conducted to test the accuracy of the structure obtained as a result of EFA. Cronbach’s Alpha coefficients were calculated for the scale sub-dimensions and the total reliability of the scale.

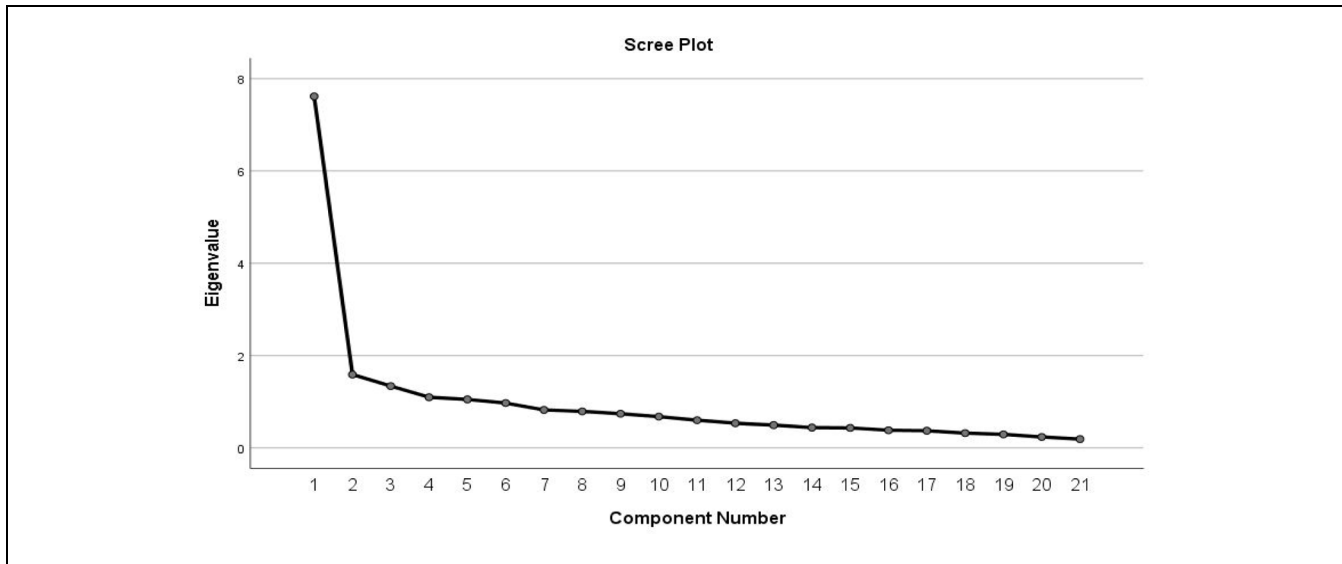
Principal component analysis with varimax rotation was selected because it efficiently reveals underlying factor structures in psychometric data and simplifies interpretation through orthogonal rotation (Hair et al., 2014). The subsequent use of CFA ensured that the factor structure identified through EFA was statistically validated using standard model fit criteria, as recommended in scale development literature (Kline, 2023; Worthington & Whittaker, 2006).

## Findings

### Validity Study/CFA

CFA was conducted to determine the construct validity of the scale and the factor loadings of the items. The suitability of the data and sample size for CFA was determined by calculating the Kaiser-Meyer-Olkin (KMO) and Bartlett’s Sphericity Test. As a result of the analysis, the KMO value was found to be .88, and the Bartlett Sphericity Test result ( $\chi^2 = 1614.55$ ;  $p = .00$ ) was significant. For factorization, the KMO value is expected to be .60 and above (Büyüköztürk, 2019). According to these results, the data set and sample size were suitable for CFA.

After determining that the data were suitable for factorization, unrotated principal component analysis was applied to determine the factor distribution of the scale. The Varimax orthogonal rotation technique was implemented to determine the scale’s factor structure. Eigenvalues and variance ratios were examined to determine how many factors the scale items would be grouped under. In order to determine the number of factors, the eigenvalues should be 1.00 or greater than 1.00



**Figure 1.** Eigenvalue Factor Line Plot (Scree Plot).

(Büyüköztürk, 2019; Kaiser, 1960). A variance ratio above 40% is an expected situation in scale development studies (Büyüköztürk, 2019; Geçkil & Tikici, 2015; Terzi, 2019). Factor loadings of .40 and above and the difference between two loadings of at least .10 were taken into consideration (Büyüköztürk, 2019). As a result of the analysis, it was seen that there were five factors with eigenvalues greater than 1. It was found that the five factors explained 60.43% of the total variance; the first factor explained 36.26% of the variance, the second factor explained 7.57% of the variance, the third factor explained 6.37% of the variance, the fourth factor explained 5.22% of the variance and the fifth factor explained 5.00% of the variance. The scree plot obtained as a result of the analysis is given in Figure 1.

According to Figure 1, it is known that the number indicated by the point where the slope starts to flatten indicates the number of factors. When the line graph is analyzed, it is seen that there is a sharp decline after the first factor. Considering the contribution of the first factor to the scale variance (36.26%), this result is expected. It was observed that there was no significant break after the fifth factor in the line graph, and it was concluded that the scale consisted of five factors.

After determining the number of factors of the scale, the rotated factor matrix was obtained using the varimax vertical rotation technique. The factor loading values obtained were examined, and it was determined that the loading values of the items in the factors should be at least .40 (Büyüköztürk, 2019). When CFA was performed, it was seen that items 5, 7, 9, 11, 19, 20, 21, 23, and 24 were overlapping items, and the analysis was renewed by removing the overlapping items. The analysis

was repeated 10 times until no overlapping items were observed. The factor loadings of the scale items and the rotated components matrix are given in Table 1.

When Table 1 is examined, the first and second factors consist of 6 items, while the third, fourth, and fifth factors consist of 3 items. Factor loadings ranged between .42 and .84. Since it is recommended that the total variance explained in multidimensional scales should be above 50% (Streiner, 1994), it can be said that the total variance explained (60.43%) is sufficient.

### Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) was conducted to verify the 21-item and 5-factor structure obtained from EFA. The goodness of fitness indices obtained from the first CFA were unacceptable; the corrections shown in Figure 2 were added, and the analysis was renewed. As a result of CFA, it was decided to remove the items with standardized regression coefficients below .50. It was seen that the regression factor loadings of items 6, 8, 22, and 27 were below .50, and it was decided to remove them from the scale. The scale model, confirmed as a result of CFA, is given in Figure 2.

When Figure 2 is examined, the analysis was renewed by drawing one covariance between the 4th and 5th error terms in the first factor, between the 10th and 12th error terms and the 7th and 8th error terms in the second factor, and between the 13th and 15th error terms in the third factor. As a result of the analysis, acceptable fitness indices were obtained (Table 2).

When Table 2 is examined, it is seen that the chi-square value ( $\chi^2$ ) divided by the degrees of freedom (df)

**Table 1.** Factor Loadings.

Items	Factors				
	1	2	3	4	5
Item10	0.84				
Item12	0.73				
Item16	0.61				
Item15	0.57	0.41			
Item22	0.52				
Item6	0.46				
Item13		0.73			
Item14		0.67			
Item17	0.40	0.56			
Item4		0.54			
Item8		0.51			
Item18		0.42			
Item26			0.76		
Item27			0.72		
Item25			0.68		
Item29				0.74	
Item28				0.73	
Item30				0.70	
Item2					0.80
Item1					0.69
Item3					0.68
Eigenvalue	7.61	1.59	1.33	1.09	1.05
Variance (%)	36.26	7.57	6.37	5.22	5.00
Total Variance Explained (%)	60.43%				

is 2.11 and has an acceptable fit value. The standardized Root Mean Square Errors (RMSEA = .07) value, which gives the model-data fit result, is close to acceptable, the comparative fit indices (NFI = .91) and (CFI = .95) are close to perfect fit, and (GFI = .89), which tests the model fit independently of the sample, is close to acceptable fit. 89), which tests the model fit independently of the sample; (GFI = .89), which is close to acceptable fit; (AGFI = .85), which is the value of GFI adjusted for degrees of freedom; and (SRMR = .04), which is an excellent fit. It was seen that the fit indices obtained as a result of CFA had acceptable fit and excellent fit values, and it was concluded that the 5-factor structure obtained as a result of CFA was confirmed as a result of CFA. The model, confirmed as a result of CFA, has a 5-factor structure consisting of 17 items.

In order to determine the discrimination properties of the five factors that make up the scale, the scores of 223 participants were ranked from highest to lowest. An independent sample *t*-test was conducted to determine whether there was a significant difference between the participants' mean scores in the lower and upper 27% groups, and the analysis results are given in Table 3. In addition, the Pearson Correlation coefficient was calculated for the correlations between the scores obtained from each item in the scale and the total scores of the scale, and the results are given in Table 3.

When Table 3 is examined, it is found that there is a significant difference between the scores of the lower 27% group and the upper 27% group ( $p < .001$ ), which is in favor of the upper 27% group. According to the results of the analysis, it was found that there was a significant relationship between the scores obtained from each item and the scores obtained from the total scale with values ranging between .58 and .78. When the item-total correlation coefficients are analyzed, it can be said that the correlation coefficients are sufficient for item discrimination. According to Büyüköztürk (2019), the items with an item-total correlation value of .30 and above have high discrimination.

Cronbach's Alpha coefficient was calculated to determine the scale's internal consistency. Cronbach's Alpha coefficients for the whole scale and its sub-dimensions are given in Table 4. The full English version of the Teacher Professional Development Competencies Scale (TPDCS) is provided in Appendix 1, and the Turkish version is presented in Appendix 2.

When Table 4 is examined, the Cronbach's Alpha coefficient for the whole scale was found to be .94; .86 for the first factor, Course Design sub-dimension; .84 for the second factor, Classroom Management sub-dimension; .85 for the third factor, Collaboration sub-dimension; .89 for the fourth factor, Problem-Solving sub-dimension; and .82 for the fifth factor, Communication

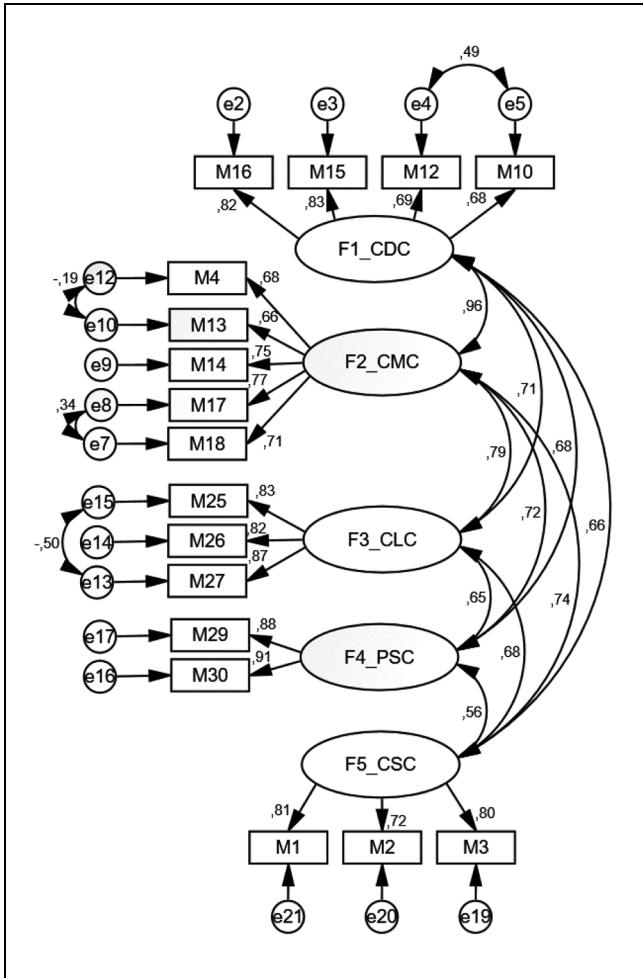


Figure 2. CFA Factor Structure and Path Analysis.

Skills sub-dimension. Reliability coefficient values of .85 and above for the scales are accepted as high and excellent reliability (Özdamar, 2017).

ANOVA with Tukey’s Test for Nonadditivity analysis was conducted to determine whether a total score would be obtained from the scale. The results of the analysis are given in Table 5.

When Table 5 is examined, according to Tukey’s Additivity test result, Nonadditivity was found to be significant as a result of the analysis, and it was concluded that a total score could not be obtained from the scale, and the factors could be scored separately.

### Discussion and Conclusion

Unlike many prior studies that offer conceptual insights into teacher development, this study contributes a validated measurement tool with clear sub-dimensions. It fills a gap in empirical tools designed for competency-based teacher development, particularly within the Turkish context, while remaining aligned with international standards. This alignment enhances its suitability for adaptation and comparison across various educational systems.

The TPDCS represents a novel contribution by operationalizing teacher development across cognitive, affective, and collaborative domains, often examined in isolation. Integrating these dimensions enables stakeholders to capture the complexity of teacher growth more accurately. In practical terms, the scale may inform institutional self-assessments, teacher training programs, and policymaking efforts to enhance professional learning ecosystems.

The Collaboration Competency sub-dimension of the scale aligns with findings by Valente et al. (2018), who emphasized the significant role of emotional intelligence in classroom management and team interaction. Their study showed that effective collaboration among educators is deeply linked with emotional awareness, crucial in managing classroom dynamics and fostering a productive learning environment. Similarly, Berestova et al. (2020) highlighted the need for teacher leadership as part of professional development, which inherently involves collaborative work among teachers and school management. These findings show that collaboration involves both task-sharing and socio-emotional and leadership skills, all of which are captured in our Collaboration Competency framework. Similarly, Donahue-Keegan et al. (2019)

Table 2. Fitness Indices Related to CFA Results.

Fitness indices	Excellence fitness	Acceptable fitness	CFA results
$\chi^2/df$	$0 < \chi^2/df < 2$	$2 < \chi^2/df < 3$	2.11
RMSEA	$0 < RMSEA < .05$	$.05 < RMSEA < .08$	.07
NFI	$.95 < CFI < 1.00$	$.90 < CFI < .95$	.91
CFI	$.95 < CFI < 1.00$	$.90 < CFI < .95$	.95
SRMR	$0 < SRMR < .05$	$.05 < SRMR < .10$	.04
GFI	$.95 < AGFI < 1.00$	$.90 < SRMR < .95$	.89
AGFI	$.90 < CFI < 1.00$	$.85 < CFI < .90$	.85

**Table 3.** Independent Sample t-Test Results and Item Total Correlation Between Lower 27% and Upper 27% Groups

Factor/Item	Lower 27%		Upper 27%		t	Item-Total Correlation
	Mean	SD	Mean	SD		
<b>Factor 1</b>						
(1) Item 10	4.69	.76	5.95	.21	12.39*	.70*
(2) Item 12	4.33	.79	5.82	.42	12.96*	.71*
(3) Item 15	4.59	.58	5.95	.21	16.94*	.78*
(4) Item 16	4.51	.69	5.97	.18	15.80*	.77*
<b>Factor 2</b>						
(5) Item 4	4.69	.59	5.92	.27	14.68*	.70*
(6) Item 13	5.03	.60	5.95	.28	10.73*	.66*
(7) Item 14	4.70	.55	5.98	.12	17.44*	.74*
(8) Item 17	4.87	.59	6.00	.00	14.95*	.77*
(9) Item 18	4.95	.53	5.97	.18	14.18*	.72*
<b>Factor 3</b>						
(10) Item 25	4.87	.64	5.93	.30	11.63*	.70*
(11) Item 26	4.92	.64	6.00	.00	13.20*	.72*
(12) Item 27	4.85	.60	5.98	.12	14.37*	.74*
<b>Factor 4</b>						
(13) Item 29	4.28	.77	5.80	.44	13.32*	.71*
(14) Item 30	4.38	.71	5.92	.27	15.77*	.73*
<b>Factor 5</b>						
(15) Item 1	4.77	.64	5.95	.284	13.11*	.69*
(16) Item 2	4.89	.68	5.97	.180	11.92*	.58*
(17) Item 3	4.77	.66	5.97	.180	13.50*	.67*

\* $p < .001$ .**Table 4.** Scale Cronbach Alpha Coefficients.

Scale and dimensions	Cronbach alpha
Scale total	.94
F1: Course Design Competency (CDC)	.86
F2: Classroom Management Competency (CMC)	.84
F3: Collaboration Competency (CLC)	.85
F4: Problem-Solving Competency (PSC)	.89
F5: Communication Skills Competency (CSC)	.82

argued that multi-dimensional teacher competencies require attention to the interplay of social, emotional, and instructional capacities within development programs.

The Classroom Management Competency dimension is strongly supported by studies such as Paramita et al. (2023), who emphasized the necessity of targeted

professional development to help teachers manage student behavior effectively. Their findings suggest that many classroom issues stem from a lack of specific training in this area, reinforcing the need for focused competency development. Valente et al. (2018) also discussed how emotional intelligence contributes to managing student behavior, further validating the emotional and psychological components of classroom management identified in our scale. The alignment of these findings with the scale's structure affirms the scale's content validity in capturing the multifaceted nature of classroom management. It underlines the need for targeted professional development programs to increase teachers' competencies in effectively managing classroom behaviors.

A total score cannot be obtained from the scale, and calculations can be made by scoring the sub-dimensions separately. The study was conducted with teachers in two provinces of Türkiye, so the findings should be interpreted within this regional context. Future studies can

**Table 5.** Scale Tukey's Additivity Test Analysis Results.

	Sum of Squares	Degree of Freedom	Mean of Squares	F	p
Nonadditivity	14.41*	1	14.41	53.31	.00

Note. \* $p < .05$ ; Grand Mean: 5.37.

test the scale in different regions and countries to explore its broader applicability. In addition, Paramita et al. (2023) emphasized the importance of Classroom Management Competency in teachers' professional development, highlighting the importance of implementing professional learning programs that focus on managing student behavior in the classroom (Paramita et al., 2023). It underlines the need for targeted professional development programs to increase teachers' competencies in effectively managing classroom behaviors.

In conclusion, synthesizing these different research findings underlines the multifaceted nature of teacher professional development. It highlights the importance of competencies such as Course Design Competency, Classroom Management Competency, Collaboration Competency, Problem Solving Competency, and Communication Skills Competency. Effective professional development programs should be designed to strengthen these key competencies, as they are essential for fostering teachers' professional growth. This aligns with Opfer and Pedder's (2011) assertion that many professional learning efforts fail because they lack coherence, are not aligned with teachers' real needs, and have little impact on classroom practice.

These findings underscore the need for context-sensitive and globally informed professional development strategies. While the scale was developed for use in Türkiye, its alignment with internationally recognized domains—such as those outlined by OECD (2021) and elaborated by Borko (2004) in her foundational work on teacher learning systems—positions it for broader applicability. Incorporating global benchmarks ensures that the instrument remains adaptable for comparative research and policy-oriented implementation beyond the Turkish context.

Based on the results, we recommend that education policymakers and school administrators use this scale for diagnostic purposes before planning teacher training programs. By identifying individual and collective competency gaps, more effective and targeted PD initiatives can be developed. We also encourage the integration of digital competencies into future versions of the scale, reflecting current technological demands in education. As educational contexts increasingly rely on digital platforms, teachers' ability to integrate technology into instruction becomes a core component of professional competence. Zhao et al. (2021) emphasize the need to include structured digital capability development in professional training, especially in response to the shifting demands of online and blended learning. In line with the scale's digital competency emphasis, König et al. (2022) found that teachers' readiness to adapt to digital learning environments is a core determinant of instructional quality.

In conclusion, assessing professional development and its impact on teacher expertise and competencies is a multifaceted endeavor encompassing various dimensions such as Course Design Competency, Classroom Management Competency, Collaboration Competency, Problem Solving Competency, and Communication Skills Competency. Garet et al. (2001) emphasize that professional development is most effective when it is content-focused, involves active learning, and is coherent with curriculum goals. Moreover, Guskey (2000, 2003) and Early and Bubb (2007) highlight that professional learning must be ongoing and evaluated systematically throughout a teacher's career, not limited to isolated interventions. These considerations reflect the structure and process of developing the TPDCS, aligning with Cormas and Barufaldi's (2011) emphasis on planned, implemented, and evaluated learning design. School administrators and education policymakers can use the validated scale developed in this study to accurately identify teachers' professional development needs. This can inform the design of targeted training programs responsive to the competencies required in today's educational landscape.

### *Limitations and Future Research*

This study has certain limitations that should be acknowledged. First, the scale was tested with teachers from only two provinces in Türkiye, which may limit the generalizability of the findings to other regions or countries with different educational contexts. Second, while the scale captures five key competencies, it does not yet include digital competencies, which are increasingly relevant in contemporary education. Future research should aim to validate the TPDCS in diverse geographical and cultural settings to enhance its cross-contextual applicability. Additionally, longitudinal studies could explore how improvements in identified competencies impact classroom practices and student outcomes over time. Expanding the scale to integrate digital and inclusive education competencies would also increase its relevance in a rapidly evolving educational landscape.

### *Implications for Practice*

The validated TPDCS scale can guide school administrators, policymakers, and education researchers to identify specific professional development needs. The tool enables needs-based training plans, supports targeted interventions, and allows cross-regional or cross-national comparisons.

Additionally, the scale can be integrated into teacher performance review systems or institutional self-evaluation frameworks, helping decision-makers allocate resources


more effectively. Schools can use the results of this scale to form peer coaching groups, align mentoring programs with real needs, and customize professional development workshops based on measurable competencies.

Future adaptations could include digital competencies to align with emerging technological trends in education, enabling the scale to reflect evolving teacher roles in digital and blended learning environments. This would ensure that professional development remains responsive to existing pedagogical needs and technological advancements shaping 21st-century education.

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### Ethical Considerations

This study was approved by the Ethics Committee of Approval No: 2024/01, Date: 16.02.2024.

### Consent to Participate

Informed consent was obtained from all participants prior to data collection.

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### Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Data Availability Statement

Data sharing does not apply to this article as no datasets were generated or analyzed during the current study.

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### Appendix 1. Scale\* (English Version-Non Adapted).

Factor 1- Course Design Competency (CDC)	1	2	3	4	5	6
1(10)**	I prepare course materials in line with the learning outcomes.					
2(12)**	I prepare materials that develop students' high-level skills.					
3(15)**	I prepare assessment and evaluation tools suitable for students' developmental characteristics.					
4(16)**	I use assessment and evaluation tools appropriate to students' individual differences.					
Factor 2- Classroom Management Competency (CMC)						
5(4) **	I use time effectively and can easily organize my work.					
6(13) **	I associate my lessons with students' daily life.					
7(14) **	I use practical and constructive methods of dealing with unwanted classroom behaviors.					
8(17) **	I use time efficiently in the learning-teaching process.					
9(18) **	I ensure the active participation of students in the learning-teaching process.					
Factor 3- Collaboration Competency (CLC)						
10(25) **	I collaborate with relevant people, institutions, and colleagues regarding the education and training process.					
11(26) **	I share knowledge and experience with my colleagues.					
12(27) **	I collaborate with the family in educational activities.					
Factor 4- Problem-Solving Competency (PSC)						
13(29) **	When a conflict arises in my organization, I know how to solve it.					
14(30) **	I have ideas about the problems in my organization and how to solve them.					
Factor 5- Communication Skills Competency (CSC)						
15(1) **	I use effective communication methods and techniques.					
16(2) **	I use body language effectively in communication.					
17(3) **	I know effective speaking-listening techniques.					

\*The items of the scale were renumbered differently from the trial form.

\*\*Item number in the draft scale.

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 Teacher Professional Development Competencies Scale
 

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## Scale and Factors

## Evaluation of Scoring

 Factor 1 - Course Design Competency (CDC)  
 4 Items (1-2-3-4)

**Score Range**  
 4,0 ≤ Score ≤ 8,0  
 8,0 < Score ≤ 12,0  
 12,0 < Score ≤ 16,0  
 16,0 < Score ≤ 20,0  
 20,0 < Score ≤ 24,0

**Evaluation**  
 Very Low Competency  
 Low Competency  
 Medium Competency  
 High Competency  
 Very High Competency

 Factor 2 - Classroom Management Competency (CMC)  
 5 Items (5-6-7-8-9)

**Score Range**  
 5,0 ≤ Score ≤ 10,0  
 10,0 < Score ≤ 15,0  
 15,0 < Score ≤ 20,0  
 20,0 < Score ≤ 25,0  
 25,0 < Score ≤ 30,0

**Evaluation**  
 Very Low Competency  
 Low Competency  
 Medium Competency  
 High Competency  
 Very High Competency

 Factor 3 - Collaboration Competency (CLC)  
 3 Items (10-11-12)

**Score Range**  
 3,0 ≤ Score ≤ 6,0  
 6,0 < Score ≤ 9,0  
 9,0 < Score ≤ 12,0  
 12,0 < Score ≤ 15,0  
 15,0 < Score ≤ 18,0

**Evaluation**  
 Very Low Competency  
 Low Competency  
 Medium Competency  
 High Competency  
 Very High Competency

 Factor 4 - Problem-Solving Competency (PSC)  
 2 Items (13-14)

**Score Range**  
 2,0 ≤ Score ≤ 4,0  
 4,0 < Score ≤ 6,0  
 6,0 < Score ≤ 8,0  
 8,0 < Score ≤ 10,0  
 10,0 < Score ≤ 12,0

**Evaluation**  
 Very Low Competency  
 Low Competency  
 Medium Competency  
 High Competency  
 Very High Competency

 Factor 5 - Communication Skills Competency (CBC)  
 3 Items (15-16-17)

**Score Range**  
 3,0 ≤ Score ≤ 6,0  
 6,0 < Score ≤ 9,0  
 9,0 < Score ≤ 12,0  
 12,0 < Score ≤ 15,0  
 15,0 < Score ≤ 18,0

**Evaluation**  
 Very Low Competency  
 Low Competency  
 Medium Competency  
 High Competency  
 Very High Competency
 

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**Appendix 2.** Scale\* (Turkish Version).

1. Faktör- Ders Tasarımı Yeterliği (DTY)		1	2	3	4	5	6
1(10)**	Kazanımlara uygun ders materyali hazırlarım.						
2(12)**	Öğrencilerin üst düzey becerilerini geliştiren materyal hazırlarım.						
3(15)**	Öğrencilerin gelişimsel özelliklerine uygun ölçme değerlendirme araçları hazırlarım.						
4(16)**	Öğrencilerin bireysel farklılıklarına uygun ölçme ve değerlendirme araçları kullanırım.						
2. Faktör- Sınıf Yönetimi Yeterliği (SYY)							
5(4)**	Zamanı etkili kullanırım ve işlerimi rahatlıkla organize edebilirim.						
6(13)**	Dersimi öğrencilerin günlük yaşamı ile ilişkilendiririm.						
7(14)**	Sınıfta istenmeyen davranışlarla etkin ve yapıcı mücadele yöntemlerini kullanırım.						
8(17)**	Öğrenme-Öğretme sürecinde zamanı verimli kullanırım.						
9(18)**	Öğrenme öğretme sürecine öğrencilerin aktif katılımını sağlarım.						
3. Faktör- İş Birliği Yapabilme Yeterliği (İBY)							
10(25)**	Eğitim öğretim sürecine ilişkin ilgili kişi, kurum ve meslektaşlarımla iş birliği yaparım.						
11(26)**	Meslektaşlarımla bilgi ve deneyim paylaşımı yaparım.						
12(27)**	Eğitim öğretim faaliyetlerinde aile ile iş birliği yaparım.						
4. Faktör- Problem Çözme Yeterliği (PÇY)							
13(29)**	Kurumumda bir çatışma çıktığında nasıl çözeceğimi bilirim.						
14(30)**	Kurumumdaki problemlere ve bunların çözüm yoluna dair fikirlerim vardır.						
5. Faktör- İletişim Becerileri Yeterliği (İBY)							
15(1)**	Etkili iletişim yöntem ve tekniklerini kullanırım.						
16(2)**	İletişimde beden dilini etkili kullanırım.						
17(3)**	Etkili konuşma-dinleme tekniklerini bilirim.						

\*Ölçeğin maddeleri denemelik formdan farklı olarak yeniden numaralandırılmıştır.

\*\*Taslak ölçekteki madde numarası.

## Öğretmen Mesleki Gelişim Yeterlikleri Ölçeği

## Ölçek ve Faktörler

## Puanlamanın Değerlendirilmesi

1.Faktör- Ders Tasarımı Yeterliği (DTY)  
4 Madde (1-2-3-4)

**Puan Aralığı**  
4,0 ≤ Puan ≤ 8,0  
8,0 < Puan ≤ 12,0  
12,0 < Puan ≤ 16,0  
16,0 < Puan ≤ 20,0  
20,0 < Puan ≤ 24,0

**Değerlendirme**  
Çok Düşük Yeterlik  
Düşük Yeterlik  
Orta Yeterlik  
Yüksek Yeterlik  
Çok Yüksek Yeterlik

2.Faktör- Sınıf Yönetimi Yeterliği (SYY)  
5 Madde (5-6-7-8-9)

**Puan Aralığı**  
5,0 ≤ Puan ≤ 10,0  
10,0 < Puan ≤ 15,0  
15,0 < Puan ≤ 20,0  
20,0 < Puan ≤ 25,0  
25,0 < Puan ≤ 30,0

**Değerlendirme**  
Çok Düşük Yeterlik  
Düşük Yeterlik  
Orta Yeterlik  
Yüksek Yeterlik  
Çok Yüksek Yeterlik

3.Faktör- İş Birliği Yapabilme Yeterliği (İBY)  
3 Madde (10-11-12)

**Puan Aralığı**  
3,0 ≤ Puan ≤ 6,0  
6,0 < Puan ≤ 9,0  
9,0 < Puan ≤ 12,0  
12,0 < Puan ≤ 15,0  
15,0 < Puan ≤ 18,0

**Değerlendirme**  
Çok Düşük Yeterlik  
Düşük Yeterlik  
Orta Yeterlik  
Yüksek Yeterlik  
Çok Yüksek Yeterlik

4.Faktör- Problem Çözebilme Yeterliği (PÇY)  
2 Madde (13-14)

**Puan Aralığı**  
2,0 ≤ Puan ≤ 4,0  
4,0 < Puan ≤ 6,0  
6,0 < Puan ≤ 8,0  
8,0 < Puan ≤ 10,0  
10,0 < Puan ≤ 12,0

**Değerlendirme**  
Çok Düşük Yeterlik  
Düşük Yeterlik  
Orta Yeterlik  
Yüksek Yeterlik  
Çok Yüksek Yeterlik

5.Faktör- İletişim Becerileri Yeterliği (İBY)  
3 Madde (15-16-17)

**Puan Aralığı**  
3,0 ≤ Puan ≤ 6,0  
6,0 < Puan ≤ 9,0  
9,0 < Puan ≤ 12,0  
12,0 < Puan ≤ 15,0  
15,0 < Puan ≤ 18,0

**Değerlendirme**  
Çok Düşük Yeterlik  
Düşük Yeterlik  
Orta Yeterlik  
Yüksek Yeterlik  
Çok Yüksek Yeterlik