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Developing the "Teacher Perceived Performance Scale" Assessing the Secondary School Teachers' Perceived Performance in General Teacher Professional Competencies

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Abstract

This research aims to develop a valid and reliable tool to assess the perceived performance of secondary school teachers in general competency areas of the teaching profession. For this aim, a 66-item 5-point Likert-type draft scale form was developed by arranging the general competency indicators of the teaching profession. First, the form was revised after taking expert opinions for content and face validity and administered to 310 secondary school teachers working in the central district of Çanakkale. Exploratory factor analysis was carried out with the data gathered. Then, to verify the structure obtained, the form was administered to 119 secondary school teachers working in Çanakkale districts, and a confirmatory factor analysis was conducted. The structure of the scale consisting of 23 items under five factors was confirmed ($\chi^2/df = 1.68$, root mean square error of approximation = 0.08, root mean square residual = 0.04, comparative fit index = 0.94, non-formed fit index = 0.94). Finally, the internal consistency coefficient of the whole scale was calculated as 0.90.

Keywords: Occupational competency, performance, scale development, teacher

Introduction

Teachers are an undisputed important element of teaching. Providing good education is only possible with teachers adopting qualitative and modern education (Demirel, 1999). Herewith, a question arises, "Which competences should be owned to be a qualified teacher?". Competency is a prerequisite for performance, and it expresses the knowledge, skills, and attitudes that are necessary to perform a job (TEDMEM, 2018). In the General Competencies Guide for Teaching Profession prepared by the Ministry of National Education (MNE) (2017), teacher competencies are defined as the knowledge, skills, and attitudes that teachers must have in order to fulfill their teaching profession effectively and efficiently.

In the General Competencies Guide for Teaching Profession (MNE, 2017), in line with competency definitions, it is seen that there are knowledge, skills, and attitudes and values competency areas. At the same time, there are competencies under these competency areas. Table 1 includes the competency areas and the competencies under them.

As Table 1 demonstrates, the general competencies are composed of three interrelated and complementary competency areas, namely "professional knowledge," "professional skills," and "attitudes and values," and under them 11 competencies are listed. The guide also includes 65 competency indicators in relation to these competencies. According to

Spencer and Spencer (1993), competency cannot be observed directly, however, it is put forth with performance in some circumstances (as cited in Roelof & Sanders, 2007). For this reason, in the General Competencies Guide for Teaching Profession, there are some usage areas of general competencies including measurement of teacher performance like "performance evaluation," "self-evaluation," and "career development and rewarding" (MNE, 2017).

In the Regulation on Teacher Performance Evaluation and Candidate Teacher Duties and Transactions (Draft) (MNE, 2018), a multiple evaluation was suggested, and it was stated that the general competencies of the teaching profession would be among the evaluation criteria at every stage of the teachers' performance evaluation. In the document, the evaluation of the teachers is designed to be performed by reviewing average points that they collected from the forms filled up yearly by their school principals, colleagues, students, parents, and themselves and from the paper–pencil examination conducted at the end of every 5 years. In the literature, the suggested multiple data sources for teacher performance evaluation are (1) classroom observations, (2) a portfolio of documentation of the practices, (3) peer evaluation, (4) students' success, and (4) self-evaluation (Darling-Hommand, 2010; Santiago et al., 2009; TEDMEM, 2018). The inclusion of self-evaluation as a part of teacher performance evaluation raises concerns about issues such as "behaving honestly while conducting self-evaluation" and "being competent to conduct effective self-evaluation" (Santiago et al., 2013). On

*This study is derived from the first author's incomplete master's thesis conducted under the supervision of the second author.

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Table 1.
General Competencies of the Teaching Profession

A. Professional knowledge	B. Professional skills	C. Attitudes and values
A1. Field knowledge	B1. Planning teaching and education	C1. National, spiritual, and universal values
A2. Field education knowledge	B2. Creating learning environments	C2. Approach to the student
A3. Knowledge of legislation	B3. Managing teaching and learning process	C3. Communication and cooperation
	B4. Assessment and evaluation	C4. Personal and professional development

the other hand, self-evaluation is important since it provides an opportunity for teachers to make a reflection and enables a formative assessment. As the teacher participates in his/her own performance evaluation process, his/her autonomy increases and he/she has control over what needs to be changed in the classroom (Airasian & Gullickson, 1997). Even though it is not a sufficient tool alone, in future self-evaluation will be a part of teacher performance evaluation, so that valid and reliable assessment tools are needed for teacher self-evaluation.

In the literature, there are some scales (Gibson & Dembo, 1984; Swank et al., 2021) which make teachers rate their self-perceived competencies. In national studies, it was seen that teachers were requested to evaluate their own performances mostly through the Employee Performance Scale (Özdemir & Yirmibeş, 2016; Özdemir & Gören, 2017). Tosuntaş (2017) developed a Teacher Performance Scale and based its scope and structure on the "Basic Teaching Standards" developed by the Interstate Teacher Evaluation and Support Consortium in the USA.

When the valid and reliable national self-assessment measurement tools, the purpose of which is to measure the self-perceived performance of teachers in the competency areas, were investigated, it was seen that there is an adapted scale and a developed scale. The adapted scale is the one developed by Gibson and Dembo (1984) and adapted into Turkish by Diken (2004). Another scale has been developed by Gökçe (2015) to measure the general competencies of primary school teachers before the General Competencies Guide for the Teaching Profession (MNE, 2017) was published. In the national literature, a limited number of valid and reliable self-evaluation scales that measure teachers' self-perceived performance in General Competence Indicators for Teaching Profession (MNE, 2017) have been found. The first of these scales is the Teacher Performance Evaluation Scale (TPES) developed by Özgenel (2019) and was prepared by using the items in the Teacher Self-Evaluation Form in the Draft Regulation on Teacher Performance Evaluation and Candidate Teacher Duties and Transactions (MNE, 2018). When the form is examined, it is seen that some of the teacher competency indicators are included as an item; however, it is seen that there are also non-indicative items that are compatible with competency fields. In addition, it is understood that TPES was developed for all teachers, regardless of the level and branch. Koçyiğit et al. (2020), on the other hand, took each of the current teacher competencies as a factor and developed a scale for teachers by testing the structure in the document on teachers from different levels, branches, and types of school. On the other hand, Çopur and Demirel (2021) developed a self-assessment scale for teachers of social studies (branches such as social studies, history, and geography) by using the General Competencies of Teaching Profession document as well as various international documents.

There is a need for valid and reliable national self-assessment tools for teachers at all levels (preschool, primary, and secondary) to evaluate their performance on general teaching competencies. Since it is considered that teachers' performance on competency indicators varies between different levels of teachers as a result of differentiating learner characteristics, learning environments, and branch courses, the necessity of conducting validity and reliability studies separately for each level of the scales emerges. In line with these ideas, the aim of this research is to develop a valid and reliable self-assessment tool to measure secondary school teachers' perceived performance in the general competency areas of the teaching profession.

Methods

Study Group

Participants of dataset 1: The first form of the scale, consisting of 66 items, was administered to the teachers working in 10 secondary schools affiliated to the MNE in the central district of Çanakkale, during the second term of the 2018–2019 teaching year, in order to analyze the validity and reliability of the scale. Volunteer teachers from all branches working in these secondary schools were included in the study with appropriate sampling. In appropriate sampling, researcher continue to collect data until reaching the needed sample size by starting from the most accessible participants to the least (Cohen & Manion, 1989; as stated in Büyüköztürk et al., 2013). Teachers were asked to give complete answers to all items. However, teachers who did not respond to some items were not included in the study group. At last, the exploratory factor analysis (EFA) for the construct validity of the "Teacher Perceived Performance Scale (TPPS)" was conducted with the data collected from 310 secondary school teachers.

Participants of datadet 2: Dataset 2 was collected from 119 voluntary secondary school teachers working in secondary schools affiliated to MNE in Çanakkale's Ezine, Gelibolu, and Lapseki districts during the second term of the 2021–2022 teaching year from all branches and professional seniority. Appropriate sampling method was used. Hair, Black, Babin, Anderson, and Tatham (2010) argue that the group size should be at least five times the number of items for confirmatory factor analysis (CFA). In this case, 115 participants were considered sufficient for 23 items. For this reason, the study group consisting of 119 secondary school teachers was accepted as large enough to conduct the CFA.

Scale Preparation

Teacher Perceived Performance Scale is based on the theoretical structure in the General Competencies Guide for Teaching Profession developed by the MNE (2017). In the General Competencies Guide for Teaching Profession (MNE, 2017), there are 65 competency indicators in total under three competency areas, 16 of which are under the "professional knowledge" competency area, 28 items are under the "professional skills" competency area, and 21 items are under the "attitudes and values" competency area. While preparing the draft form of TPPS, these 65 indicators were taken exactly, and their verbs were conjugated according to the first person singular. In addition, the items were rated on a 5-point Likert scale as follows: 1—never, 2—sometimes, 3—undecided, 4—often, and 5—always. After the 65-item draft form was created, validity–reliability analyses were started.

Validity Studies of the Scale

Within the scope of the validity studies of the scale, first "content and face validity" studies were carried out. Then, "construct validity" studies were conducted. In this section, the validity studies of the scale are explained in order.

Content and Face Validity Studies of the Scale

Since the theoretical foundations of the scale are based on a clear structure, the structure of general competencies for teaching profession (MNE, 2017) was accepted as the main source for content validity. Content validity begins with defining the conceptual structure and

continues with the stages of revealing the factors of the conceptual structure, writing the items, evaluating the scale by experts, and making an evaluation (Şencan, 2005). In this study, conceptual structure and creation of factors' stage are accepted as they are in the document. During the stage of evaluation of the scale by experts, the opinions of three experts, two program development experts and an assessment and evaluation expert, were addressed.

Another reason to address expert opinion is to ensure face validity. Face validity is the opinions and views of the researcher, experts, and respondents as to whether the scale measures the researched construct, and attention is paid to two points: (1) the suitability of the items for the purpose and (2) the suitability of the items for the education/culture/kn owledge level of the respondents (Şencan, 2005). Experts were asked to evaluate each of the 65 items in the first form of the scale on these two issues and also to examine the items and the entire scale in terms of suitability to the conceptual structure that could measure teacher performance. In line with the feedback from the experts, it was concluded that the scale was sufficient, appropriate, and understandable in terms of scope. For all items, each of the three experts expressed the opinion that the itemshould remain in the scale. In line with this, it is decided to keep all 65 items in the scale. However, one of the program development experts consulted suggested a variation only for item 65. The aforementioned item is "I follow the agenda of Turkey and the world" and has been arranged as two separate items in line with the recommendation. In this manner, the first version of the 66-item 5-point Likert-type TPPS, which takes its theoretical basis from the General Professional Competencies of Teachers (MNE, 2017), has been formed and has been put into practice.

Construct Validity Studies of the Scale

The structure formed by the scale items and the conformity of this structure to the theoretical basis were investigated by construct validity. Construct validity is that the scale items are highly correlated with the hypothetical structure to be measured and conform to the theory (Şencan, 2005). For this, factor, analyses were carried out. Factor analysis is statistics that aim to bring together a small number of conceptually significant new variables from many associated variables (Büyüköztürk, 2009) and is divided into two components such as EFA and CFA. Before the analysis, researchers test their theoretical knowledge and assumptions about the factor structure of the scale with explanatory techniques and then confirm them with confirmatory techniques (Cokluk et al., 2012).

In this study, first EFA and then CFA were conducted. The data, on which the EFA would be conducted, were collected from Çanakkale Central District. The items discarded during the EFA were removed, and the scale form was rearranged, and this time the 23-item form was applied to secondary school teachers working in three districts of Çanakkale outside the central district. The final structure as a result of EFA was tested with CFA.

Reliability Studies of the Scale

After the structure of TPPS, which emerged as a result of EFA, was confirmed by CFA, reliability studies of the scale were started. After the structure of TPPS, which emerged as a result of EFA, was confirmed by CFA, reliability studies of the scale were started. Reliability, which is defined as the consistency between individuals' scores on test items, is calculated over Cronbach's alpha (α) when scoring is done with a rating scale (Büyüköztürk et al., 2013). Since TPPS is a rating scale, Cronbach's α coefficient was calculated using dataset 2 while investigating reliability.

Results

Results Related to Exploratory Factor Analysis

It is known that there are four basic stages in EFA. These stages are (1) evaluation of the suitability of the dataset for factor analysis, (2)

extraction of the factors, (3) rotation of the factors, and (4) naming the factors (Kalaycı, 2010). Within the scope of this research, these stages were followed. The findings of these stages are given below.

Evaluation of the Suitability of Dataset 1 for Exploratory Factor Analysis

Before performing the EFA, the suitability of the data was checked. First, the normal distribution of the variables was checked for the assumption of multiple normality of variables. At this stage, the skewness and kurtosis coefficients of each variable were checked instead of the linearity of all combinations of the variables, and it was determined that some of them did not show a normal distribution (the skewness and kurtosis coefficients of 14 variables out of 66 variables were not between –1 and +1). However, as Büyüköztürk (2002) states, if the normality assumption is neglected, the value of the solution decreases but is still valuable. For this reason, EFA was continued. Kaiser–Meyer–Olkin (KMO) sample adequacy test and Bartlett's significance test were conducted to check whether other assumptions were met. The findings obtained from these tests are given in Table 2.

As seen in Table 2, the KMO coefficient was found to be 0.87 and the Bartlett's test result was significant ($\chi^2 = 2815.921$, $df = 253$, $p < .001$). The suitability of the dataset for factor analysis is interpreted as excellent when the KMO coefficient is above 0.90, as very good when the KMO is between 0.80 and 0.90, as good when the KMO is between 0.70 and 0.80, as moderate when the KMO is between 0.60 and 0.70, and as weak when the KMO is between 0.50 and 0.60, and if the KMO coefficient is below 0.50, then it can be interpreted that the dataset is not suitable for factor analysis (Sharma, 1996, p. 116). In addition, if the Bartlett's test p-value, which measures the correlation between the items, is less than .005, it indicates that the relationship between the items to be analyzed is good (Can, 2016). These findings show that the dataset is suitable for factor analysis (0.90 > KMO < 0.80). After the two necessary prerequisites were met, the stage of revealing the factor structure of the scale was started.

Extraction and Rotation of the Factors

Exploratory factor analysis, which was carried out in order to develop a tool that can measure the most features with the least number of items, was repeated for seven rounds, with some items being discarded. As a result of the first EFA, 66 items in the scale were grouped under 17 factors. However, 11 of these items (mbec27, mbec34, td46, td47, td48, td50, td53, td56, td58, td59, and td62) were found to be overlapping (a factor load value greater than 0.32 in more than one factor, and factor loads under these factors are less than 0.1); therefore, these items were removed from the scale (Büyüköztürk, 2006). Exploratory factor analysis was repeated with the remaining 55 items. As a result of the second round of EFA, nine other items (mbil9, mbil16, mbec17, mbec18, mbec29, mbec37, mbec44, td51, and td52) were removed from the scale because they were overlapping. Five items (mbec26, mbec28, mbec38, mbec39, and td54) in the third round of EFA followed by 11 items in the fourth round (mbil5, mbil11, mbil12, mbil13, mbil14, mbil15, mbec35, mbec36, td57, td65, and td66) were removed from the scale because they were found to be overlapping. Exploratory factor analysis was repeated with the remaining 29 items and a seven-factor structure emerged. However, an item under these factors (mbil60) was also found to be overlapping, and it was decided

Table 2.
Examining the Suitability of Dataset 1 for Exploratory Factor Analysis

Kaiser–Meyer–Olkin (KMO) sample adequacy	0.87	
Bartlett's significance test	Approximate chi-square value	2815.92
	df	253
	Significance level	.00

to remove this item from the scale. It was determined that five professional skill items (mbec20, mbec25, mbec30, mbec31, and mbec33) were grouped under the same factor together with the attitude and values items, although they had a high factor load. In this case, it was found appropriate to remove these items from the scale and repeat the EFA for the sixth time. As a result of the sixth round of EFA, it was decided to exclude a single item (mbil10) from the scale because it was overlapping.

In summary, during the EFA carried out to reveal the factor pattern of TPPS, it was decided to remove 43 items from the scale. The factor pattern obtained as a result of the analysis, the common factor variances of the items, and the factor loads are given in Table 3.

When Table 3 is examined, it is seen that the common factor variances of the items in the scale are between 0.416 and 0.716. If the common factor variance coefficient is below 0.20 for many variables, it is considered that there is heterogeneity between the variables (Tabachnick & Fiedel, 2001). Accordingly, it can be said that the common factor variances of the items in the scale are generally higher than 0.20. In addition, the factor loading values of 23 items in the scale vary between 0.507 and 0.802. When factor loading values are considered, a value of 0.60 and above is defined as high, and a value between 0.30 and 0.59 is defined as moderate level (Cokluk et al., 2012). As such, it is seen that three of the items in the scale (mbil8, mbec17, and mbec19) had a moderate factor loading, and the factor loadings of the other 20 items are high.

As a result of the analysis, it was seen that 23 items in the scale were grouped under five factors that were greater than 1 in terms of initial eigenvalues. The contribution of the factors to the total variance was found to be as follows: (1) 16.53% for the first factor, (2) 14.29% for the second factor, (3) 10.59% for the third factor, (4) 8.54% for the fourth factor, and (5) 8.45% for the fifth factor. The total contribution

Table 3.
Factor Pattern of Teacher Perceived Performance Scale (Vertical Rotation Varimax)

	Common Factor Variance	Factor				
		1	**2**	**3**	**4**	**5**
Mbil2	0.680	0.790				
Mbil4	0.697	0.761				
Mbil3	0.581	0.732				
Mbil1	0.590	0.708				
Mbil6	0.517	0.662				
Mbil7	0.495	0.593				
Mbil8	0.467	0.585				
Mbec22	0.648		0.774			
Mbec23	0.658		0.751			
Mbec24	0.518		0.654			
Mbec21	0.441		0.610			
Mbec32	0.447		0.609			
Mbec19	0.416		0.507			
Mbec43	0.667			0.778		
Mbec42	0.624			0.714		
Mbec41	0.586			0.602		
Mbec40	0.517			0.545		
Td55	0.701				0.802	
Td49	0.660				0.731	
Td45	0.647				0.656	
Td61	0.716					0.792
Td63	0.577					0.713
Td64	0.585					0.677

of the five determined factors to the variance is 58.41%. In analyses performed in social sciences, it is considered sufficient that the variance explained in multi-factor designs is between 40% and 60% (Tavşancıl, 2019). In this respect, it can be said that the explained total variance of the scale (58.41%) is sufficient.

Naming the Factors

The scale prepared was based on the competency areas in the General Competencies Guide for Teaching Profession (MNE, 2017) and the competency indicators of these areas. Therefore, the theoretical structure of the scale is based on that document. In the guide, three competency areas, namely professional knowledge, professional skills, and attitudes and values, and 11 competencies under these competency areas are defined.

When we look at the "professional knowledge" competency first, it is seen that it consists of three competencies: "field knowledge," "field education knowledge," and "knowledge of legislation." When the items collected under the first factor are examined, it is seen that all of them belong to the "professional knowledge" competency area. However, it is seen that there is no item belonging to the "knowledge of legislation" competency in the final version of the scale. All the items are derived from the indicators of the "field knowledge" (mbil1, mbil2, mbil3, and mbil4) and "field education knowledge" (mbil6, mbil7, and mbil8) competency indicators. However, since basically all of them belong to the "professional knowledge" field, the first factor of the scale was named as "professional knowledge."

Secondly, it was determined that the items derived from the indicators belonging to the "professional skills" competency area were grouped under the second and third factors. Among these items, mbec19 is an indicator belonging to the "planning teaching and education" competency, while mbec32 is an item of the "managing the teaching and learning process" competency. These items constituted the second factor together with the items containing the indicators of the "creating learning environments" competency (mbec21, mbec22, mbec23, and mbec24). In other words, it is seen that the items collected under the second factor are indicators of the following three competencies in the "professional skills" competency area: (1) planning teaching and education, (2) creating learning environments, and (3) managing the teaching and learning process. In this case, as a name to represent these three competencies in common, "instructional design and application skills" was decided as the name of the second factor. It was observed that remaining items are the indicators of "assessment and evaluation" (mbec40, mbec41, mbec42, and mbec43) which is the fourth competency in the professional skills competency. For this reason, the third factor was named "assessment and evaluation skills."

Finally, it was seen that the items belonging to three of the four competencies of "attitudes and values" competency area were gathered under the fourth factor, while the items belonging to the fourth competency under "attitudes and values" competency area formed the fifth factor. Among the items collected under the fourth factor, td45 belongs to the "national, spiritual, and universal values" competency, td49 belongs to the "approach to the student" competency, and td55 belongs to the "communication and cooperation" competency. Therefore, while giving a name to this factor, it was taken as a basis that it represents all three competencies. Thus, the name "attitudes and values regarding human relations" was considered appropriate for the fourth factor. The fourth and last competency belonging to the "attitudes and values" competency area is the "personal and professional development" competency. The last three items of the fifth factor of the scale (td61, td63, and td64) are indicators of this competency. For this reason, it was decided to call the fifth factor "attitudes and values regarding personal and professional development."

ResultsRelated to Confirmatory Factor Analysis

Firstly, EFA was conducted in order to ensure the construct validity of the scale and to reveal a few conceptually significant variables (factors) by reducing the variable. As a result of EFA, a 23-item structure gathered under five factors was defined. Subsequently, in order to test the accuracy of this structure, CFA was performed using dataset 2. In this context, the diagram of the structure tested as a model is given in Figure 1.

The first value to look at was the *p*-value, which gives information about the significance of the difference between the expected and observed covariance matrices, namely the chi-square goodness of fit, which was found to be $[\chi^2] = 369.04$. The *p*-value was not expected to be significant, however. Figure 1 demonstrates that the *p*-value ($p = .00$) is significant at level .01. Nevertheless, insignificant differences between expected and observed covariance matrices in large samples (200 and

above) often cause the chi-square goodness of fit to be significant. In this case, the *df* should be considered and the ratio of chi-square to *df* should be observed, and alternative fit indices should also be evaluated (Cokluk et al., 2012). Table 4 includes the model fit indices and their criteria.

According to Table 4, the ratio of chi-square to df ($\chi^2/df = 369.04/220$) is 1.68. A value less than 3.00 indicates perfect fit (Kline, 2005; Sümer, 2000). The root mean square error of approximation (RMSEA) fit index is an index used to estimate population covariances in a decentralized chi-square distribution (Cokluk et al., 2012). An RMSEA value between 0.05 and 0.08 indicates a good fit (Cokluk et al., 2012; Hooper et al., 2008; Jöreskog & Sörbom, 1993; Steiger, 2007). The root mean square residual (RMR) is the mean of residual covariance between the predictive covariance matrix of the universe and the covariance matrices of the sample (Cokluk et al., 2012). An RMR value equal to 0
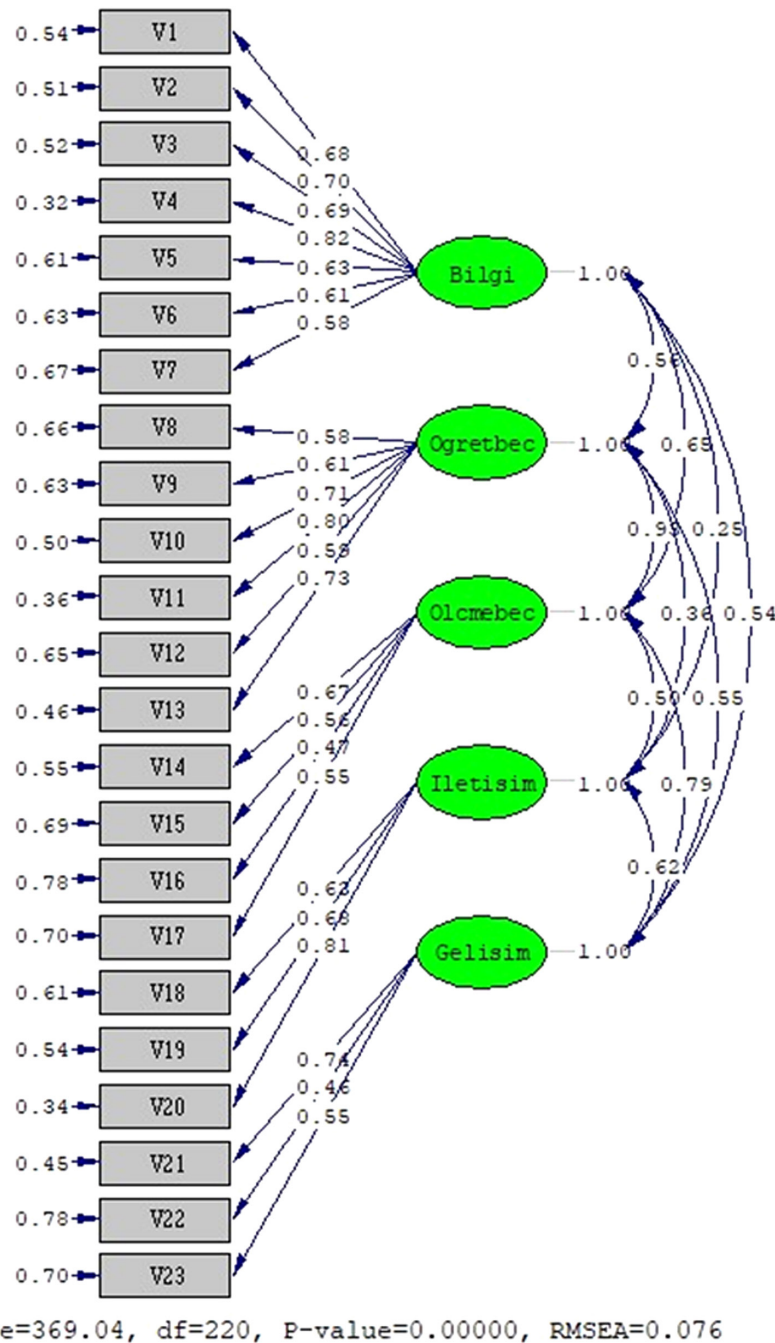

Chi-Square=369.04, df=220, P-value=0.00000, RMSEA=0.076

Figure 1.
Confirmatory Factor Analysis Path Diagram.

Table 4.
Standard Fit Criterias* and Model Fit Indices Obtained from DFA

Fit Indices	Perfect Fit Criteria	Acceptable Fit Criteria	Calculated Fit Index	Result
χ^2/SD	χ^2/SD ≤ 3.00	3.00 < χ^2/SD ≤5.00	1.68	Perfect fit
RMSEA	RMSEA ≤ 0.05	0.05 < RMSEA ≤ 0.08 (good fit) 0.08 < RMSEA ≤ 0.10 (weak fit)	0.08	Good fit
RMR	RMR = 0.00	0.00 < RMR ≤ 0.05 (perfect fit)	0.04	Perfect fit
CFI	CFI ≥ 0.95	0.95 > CFI ≥ 0.90	0.94	Perfect fit
NNFI	NNFI ≥ 0.95	0.95 ≥ NNFI ≥ 0.90	0.94	Perfect fit

*Çokluk et al. (2012, pp. 271–272).
CFI = comparative fit index; NNFI = non-formed fit index; RMR = root mean square residual; RMSEA = root mean square error of approximation.

indicates a perfect fit (Tabachnick & Fiedel, 2001), and if it is less than or equal to 0.05, it is accepted as a perfect fit (Brown, 2006; as stated in Çokluk et al., 2012). For this model, the RMR is 0.04, indicating a perfect fit. A Comparative Fit index (CFI) value equal to or less than 0.95 indicates a perfect fit (Hu & Bandler, 1999; as stated in Hooper et al., 2008). It is seen that the CFI for this model is 0.94, indicating a perfect fit. Normed fit index (NFI) and its recalculated version by taking into account the *df*, non-formed fit index (NNFI), take values between 0.00 and 1.00 and is described as "perfect fit" if they are greater than 0.95 and "good fit" if they are greater than 0.90 (Cokluk et al., 2012). In this case, the NNFI value of 0.94 for this model indicates a perfect fit.

As a result, although there is a consensus among researchers about the necessity of reporting the χ^2/*df* fit index, there is no clarity about which of the other fit indices will be reported, and it varies according to the research purpose (İlhan & Çetin, 2014). In this study, RMSEA, RMR, CFI, and NNFI were reported in the fit indices that are generally preferred in scale development studies. Based on the comparison of these fit indices and criteria in Table 4, it can be stated that the five factors and 23-item scale fit well and were confirmed according to the fit statistics obtained from CFA.

ResultsRelated to Reliability Analysis

While analyzing the reliability of the scale, the Cronbach's alpha coefficient for each factor constituting the sub-dimensions of the scale and for the whole scale was calculated using dataset 2. The Cronbach's alpha coefficient is used when items are scored using the grading method (Can, 2016). Table 5 shows the Cronbach's alpha coefficients calculated for the sub-dimensions and the whole scale.

When the Cronbach α reliability coefficients of the sub-dimensions of the TPPS are examined according to the values in Table 5, these coefficients are 0.84 for factor-1, 0.83 for factor-2, 0.67 for factor-3, 0.75 for factor-4, and 0.58 for factor-5. This coefficient was calculated

Table 5.
Reliability Coefficients for Subdimensions and the Whole Scale

Factors	Number of Items	Cronbach's α
Factor-1: Professional knowledge	7	0.84
Factor-2: Instructional design and application skills	6	0.83
Factor-3: Assessment and evaluation skills	4	0.67
Factor-4: Attitudes and values regarding human relations	3	0.75
Factor-5: Attitudes and values regarding personal and professional development	3	0.58
Whole scale	23	0.90

as 0.90 for the whole scale. Reliability was rated depending on the Cronbach's alpha coefficient as follows: (1) "highly reliable" if 1.00 > α ≥0.90, (2) "quite reliable" if 0.89> α ≥0.60, (3) "low reliable" if 0.60 > α ≥0.40, and (d) "not reliable" if the coefficient is lower than 0.40 (if 0.40 > α ≥0.00) (Can, 2016, p. 391). Accordingly, it is understood that one sub-dimension of the scale namely "attitudes and values regarding personal and professional development" is "low reliable," while other dimensions are "highly reliable," and the whole scale is "very highly reliable."

Creating the Final Scale

In order to prove that the developed scale is a valid and reliable measurement tool, expert opinion was sought for content validity, and EFA was first applied for construct validity. After EFA, 23 of the 66-item draft scale items (Mbil1, Mbil2, Mbil3, Mbil4, Mbil6, Mbil7, Mbil8, Mbec19, Mbec21, Mbec22, Mbec23, Mbec24, Mbec32, Mbec40, Mbec41, Mbec42, Mbec43, Td45, Td49, Td55, Td61, Td63, and Td64) were gathered under five factors. These items were renumbered as in Table 5 and administered to a different study group, and CFA was conducted with the obtained dataset 2. Cronbach's alpha coefficients were calculated to determine the reliability of the scale. The 23-item and five-factor structure of the scale revealed by EFA was confirmed by CFA, and the scale took its final form as a result of the determination of these factors and the reliability of the entire scale. In the last case, the items that make up the scale, the factors in which these items are placed, and the new numbers of the items are shown in Table 6.

Discussion

Evaluation of teachers' performance is a controversial and challenging issue. It is stated that performance evaluation should be made by the help of multiple evaluation techniques with a predetermined criteria and that it should also include the evaluation of classroom practices (Santiago et al., 2009; TEDMEM, 2018). It is understood that in Turkey performance evaluation criteria will be based on teacher competencies (MNE, 2017, 2018).

Valid and reliable measurement tools are needed for teacher evaluation. It is seen that a Teacher Self-Assessment Form is included in the Draft Regulation on Teacher Performance Evaluation and Candidate Teacher Duties and Transactions (MNE, 2018). Özgenel (2019), developed a TPES for teachers from all levels, using the items in this form. When the items in this form are examined, some of the items appear not to be the general competency indicators of teachers. Gökçe (2015), on the other hand, developed a scale for primary school teachers by taking general teacher professional indicators as items; but after a while they were updated by the MNE. Koçyiğit et al. (2020) based the scale they developed on updated competencies and indicators and tested the structure in the competency document with Confirmatory Factor Analysis; however, it carried out its validity and reliability studies with the data collected from teachers at all levels. On the other hand, TPPS developed in this study was developed for only secondary school teachers, by adopting the current general teacher professional competencies theoretically (by accepting competency indicators as scale items).

When we look at the factor structure of TPPS, all the indicators belonging to the "professional knowledge" competency field, which is one of the competency fields in General Competencies Guide for Teaching Profession (MNE, 2017), are gathered under one factor, while the indicators of the "professional skills" and "attitudes and values" competency fields are divided into two factors. While the indicators of the "assessment and evaluation" competency in the "professional skills" competency area constitute a factor on their own, the indicators of the "planning teaching and education," "creating learning environments," and "managing teaching and learning process" were gathered under a common factor named as "instructional design and application

Table 6.
Teacher Perceived Performance Scale

Factors and Items

Item Number	New Item Number	Factor 1: Professional knowledge
mbil1	1	I analyze topics and concepts related to my field.
mbil2	2	I interpret the reflections of the basic theories and approaches in my field.
mbil3	3	I categorize the basic information and data sources related to my field.
mbil4	4	I categorize basic research methods and techniques related to my field.
mbil6	5	I explain the curriculum of my field with all its elements.
mbil7	6	I associate the teaching program of my field with other relevant teaching programs.
mbil8	7	I associate information about students' developmental and learning characteristics with teaching processes.
		Factor 2: Instructional design and application skills
mbec19	8	I prepare flexible teaching plans by taking into account the individual differences and socio-cultural characteristics of the students.
mbec21	9	I organize healthy, safe and aesthetic learning environments.
mbec22	10	I prepare instructional materials suitable for learning outcomes.
mbec23	11	I organize learning environments by taking into account the students' individual differences and needs.
mbec24	12	I organize the learning environments according to the goals of the course.
mbec32	13	When conducting the teaching and learning process, I consider students with special needs.
		Factor 3: Assessment and evaluation skills
mbec40	14	I prepare and use assessment and evaluation tools suitable for my field and the developmental characteristics of my students.
mbec41	15	I use process-oriented and product-oriented assessment and evaluation methods.
mbec42	16	I do assessment and evaluation objectively and fairly.
mbec43	17	I give correct constructive feedback to students and other stakeholders according to the assessment and evaluation results.
		Factor 4: Attitudes and values regarding human relations
td45	18	I respect children's and human rights.
td49	19	I value every student as a person and as an individual.
td55	20	I base empathy and tolerance on human relations.
		Factor 5: Attitudes and values regarding personal and professional development
td61	21	I engage in activities aimed at improving myself personally and professionally.
td63	22	I participate in cultural and artistic events.
td64	23	I protect my professional commitment and dignity by following professional ethical principles.

skill." Similarly, the "personal and professional development" competency indicators under the "attitudes and values" competency field were gathered under the "attitudes and values regarding personal and professional development" factor on their own. One each indicator of the other three competencies ("national, spiritual, and universal values," "approach to the students," and "communication and cooperation") was included under a common factor called "attitudes and values regarding human relations." Finally, when the reliability coefficients were calculated for the factors and the whole scale, it was seen that the five-factor, 23-item TPPS was a reliable scale.

When the factor structure of the scale is compared with the most similar scale, TPES, it is seen that the TPES also consists of 5 factors: (1) field knowledge, (2) communication, (3) preparing the education process, (4) conducting the learning and teaching process and occupational development, and (5) occupational attitudes and values (Özgenel, 2019). In TPPS, on the other hand, it was seen that assessment and evaluation is a factor on its own, and the items related to preparing and applying the learning and teaching process are gathered under the common factor. In addition, in TPPS, "conducting professional development" items fell into "attitudes and values regarding personal and professional development" factor and the professional knowledge factor includes "field education knowledge" competency indicators as well as "field knowledge." As a result, it can be concluded that these two scales differ in terms of structure.

With this research, a valid and reliable scale was developed for secondary school teachers to evaluate their own performance in competency indicators. High scores obtained from the whole scale

or some factors of the scale indicate that secondary school teachers perceive their own performance as high in general competencies/competency fields. As such, it is thought that the scale can be a part of teacher performance evaluation. Teachers themselves, researchers, and policymakers can be given feedback through the evaluation of their perceived performance on general teacher professional competency indicators through TPPS. Thus, contributions can be made to the "continuing professional development" and "self-evaluation" items listed among the usage areas of the competencies. It is recommended for future studies to test the construct validity of the scale on primary and also high school teachers.

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