



Development of Teachers' Empowerment Scale: A Validity and Reliability Study

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Abstract: In this research, it is aimed to develop a measurement tool to determine teachers' perceptions about empowerment in a valid and reliable way. The research data were collected from two different teacher groups of 700 people (405 + 295 teachers) who worked in the fall semester of the 2019-2020 academic year. For the content and appearance validity of the scale, seven experts were consulted in the study. Exploratory (EFA) and Confirmatory (CFA) factor analyzes were performed for the construct validity of the scale. As a result of the EFA, a structure with 37 items and 4 factors explaining 69.53% of the total variance was revealed. These factors have been named as "trust", "status", "professional development" and "cooperation". Findings from CFA showed that the 37-item and four-factor structure related to teacher empowerment scale had adequate fit indices. The reliability of the measurements obtained from the teacher empowerment scale and dimensions were examined by Cronbach alpha and omega reliability method and it was determined that the calculated reliability coefficients were within the acceptable limits. Item-total correlations were examined to determine item discrimination. Findings from the item analysis showed that all of the items in the scale are distinctive. Based on these findings, it can be said that the Teacher Empowerment Scale is a measurement tool that produces valid and reliable measurements and can be used to determine teachers' perceptions about empowerment.

1. INTRODUCTION

Teachers play an important role in increasing student achievement and providing conceptual learning by designing and implementing a quality learning process in educational institutions. One of the key elements in most educational reforms is teachers (Fandino, 2010). The quality of a school is based on the quality of teachers working in that institution (Acquaah, 2004). Empowerment of teachers is closely related to the leadership of school administrators and the opportunities they provide to participate in the decision-making (Addi-Racciah, 2009). Because school administrators are the people who facilitate the empowerment of students and teachers in school (Morales-Thomas, 2015).

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The concept of teacher empowerment is handled by different researchers with different definitions. According to Sharma (2014), empowering teachers is supporting teachers to become a shaper by supporting their experiences, decision-making authorities and powers, making them feel that they have a real key person in school practices and conditions. Bogler and Somech (2004) define the empowerment of teachers as a process in which teachers deal with their own development and have the ability to solve their own problems. According to Rappaport (1985), empowering teachers is controlling their own personality, cognition, and motivation. Zimmerman (2000) argues that empowering teachers is both a process and a result.

The results of empirical research have shown that teacher empowerment generally plays a positive role in educational settings. For example, researchers have found that teacher empowerment increases teachers' job satisfaction (Rice & Schneider, 1994; Rinehart & Short, 1994), professional commitment and organizational citizenship behaviors (Bogler & Somech, 2004), organizational commitment (Somech, 2005), professionalism and self-confidence (Dee, Henkin, & Duemer, 2003) but decreases teachers' professional burnout (Dee et al. 2003). Therefore, it is thought that empowering teachers and awakening their sense of empowerment can lead to many positive organizational behaviors and eventually they can play an important role in teachers' organizational success and stable work (Bogler & Somech, 2004).

The concept of teacher empowerment is handled in different dimensions by different researchers. Wilson and Coolican (1996) consider teacher empowerment in two dimensions as external and internal power. Short and Rinehart (1992) discuss teacher empowerment in six dimensions: “*decision making*”, “*professional development*”, “*status*”, “*self-efficacy*”, “*autonomy and influence*”. Yin, Jin and Lee (2009) consider teacher empowerment in three dimensions as “*professional development at school*”, “*participation in decision-making*” and “*effect of teachers' work on other colleagues*”. Al-Yaseen and Al-Musaileem (2015) reviewed teacher empowerment literature (Lichenstein, McLuaghlin & Knudsen, 1991; Lieberman & Miller, 1990; Lightfoot, 1986; Maeroff, 1988; Morris & Nunnery, 1993; Short, 1991; Sizer, 1992; Sprague, 1992) and identified 13 dimensions of teacher empowerment by scanning. These are; (1) accountability, (2) authority, (3) curriculum planning, (4) cooperation, (5) decision making, (6) impact, (7) professional development, (8) professional knowledge, (9) responsibility, (10) self-efficacy, (11) self-esteem, (12) status, and (13) new teacher training. Altinkurt, Türkkaş Anasız and Ekinçi (2016) state that the concept of teacher empowerment includes two main dimensions as structural empowerment, which focuses on managerial processes and the regulation of processes, and psychological empowerment that guides teachers' perceptions. In the international literature, it has been determined that the scale of Kanter (1993) for structural empowerment and Spreitzer (1995) for psychological empowerment are frequently used. Kanter (1993) deals with structural empowerment as information, opportunity, resources, support, power and informal power dimensions and explains these dimensions. Spreitzer (1995) on the other hand, discusses and explains psychological empowerment in terms of meaning, effect, competence and autonomy.

When the literature is analyzed, it is seen that there is no common consensus in definitions and classifications about teacher empowerment. It is seen that the most widely used data collection instrument related to the subject is Short and Rinehart's (1992) teacher empowerment scale. The original name of the scale of Short and Rinehart (1992) is “*School Participants Empowerment Scale*”. While this scale is considered as “*Teacher Empowerment Scale*” in some studies (Ökmen, 2018; Somech, 2005), in some studies it is considered as “*School Participants Empowerment Scale*” (Bogler, 2005; Bogler & Nir, 2012; Jiang, Li, Wang, & Li, 2019; Lintner, 2008; Sharp, 2009; Squire-Kelly, 2012; Veisi, Azizifar, Gowhary & Jamalinesari, 2015; Watts, 2009). In addition, the scale of Short and Rinehart (1992) was carried out on the Israeli sample in 1992. The “*Teacher Empowerment Scale*” developed by Yin, Jin and Lee (2009) was

developed in line with the reform of the curriculum in China and teachers in China were used as a sample. “*Teacher Empowerment Scale*”, which is prepared and applied directly for teachers, is not encountered. Apart from this, studies that deal with structural empowerment scales and psychological empowerment scales for teachers are discussed separately. There are two common empowerment scales in the literature: structural empowerment and psychological empowerment. Structural empowerment consists of six dimensions such as “*opportunity*”, “*knowledge*”, “*resources*”, “*support*”, “*formal power*” and “*informal power*”. Psychological empowerment consists of four dimensions such as “*meaning*”, “*effect*”, “*competence*” and “*autonomy*”. The purpose of this research is to make these two different scale types into a single scale. With this research, it is aimed to develop the “*Teacher Empowerment Scale*” prepared for the teachers directly by the researchers, to make validity and reliability calculations and to present a valid and reliable Teacher Empowerment Scale. This scale can contribute to the development of new ideas on determining the empowerment levels of teachers, revealing the current situation for the position of teachers, and taking measures for possible improvements. In addition, the interactions between teacher empowerment and various variables can be examined. It is thought that this scale will be important in determining how strong the teachers feel, and will contribute to the literature as it is an original scale for teacher empowerment.

2. METHOD

2.1. The Model of Research

This study is a scale development study. In the research conducted on the screening model, information about the sample group, measurement tool and techniques used in data analysis are given below.

2.2. Population and Sampling

2.2.1. Sampling Group 1

In the measuring instrument development process teachers who work in different branches in different regions of Turkey during 2019-2020 academic year were included in the sample. The study was first conducted with 405 teachers. In the research, extreme values were removed and the study was advanced over 368 teachers. An exploratory analysis was conducted by using this sample. In order to look at the multivariate normal distribution, “*Mahalanobis Distance Coefficient*” was examined. According to 62 (*df*) *p* values less than .001 are eliminated. The distribution of the teachers in the sampling group is given in [Table 1](#).

2.2.2. Sampling Group 2

In order to conduct Confirmatory Factor Analysis the 37 items scale was applied again to volunteer teachers actively working in different branches during 2019-2020 academic year. In the second phase 295 teachers participated in the research. After removing outliers the data were subjected to Confirmatory Factor Analysis over 266 teachers. The demographic characteristics of the teachers in the second participant group are shown in [Table 2](#).

Table 1. Distribution of Teachers according to Demographic Characteristics

<i>Variables</i>		<i>n</i>	<i>%</i>
Gender	Female	255	69.3
	Male	113	30.7
	<i>Total</i>	<i>368</i>	<i>100</i>
School Type	State	342	92.9
	Private	26	7.1
	<i>Total</i>	<i>368</i>	<i>100</i>
Age	20-30 ages	66	18
	31-40 ages	188	51
	41-50 ages	92	25
	51 age and over	22	6
	<i>Total</i>	<i>368</i>	<i>100</i>
Branch	Pre School	12	3.3
	Art	74	20.1
	Science-Math	75	20.4
	Classroom	60	16.3
	Social	49	13.3
	Sport	24	6.5
	Foreign Language	50	13.6
	<i>Total</i>	<i>368</i>	<i>100</i>
Region	Mediterranean	38	10.3
	East Anatolia	28	7.6
	Aegean	92	25
	South East Anatolia	26	7.1
	Central Anatolia	64	17.4
	Black Sea	32	8.7
	Marmara Region	88	23.9
	<i>Total</i>	<i>368</i>	<i>100</i>
Seniority	0-5 years	59	16,1
	6-10 years	82	22.3
	11-15 years	91	24.7
	16-20 years	56	15.2
	21 years and over	80	21.7
	<i>Total</i>	<i>368</i>	<i>100</i>
Working duration in the same school	0-2 years	128	34.8
	3-5 years	124	33.7
	6-8 years	67	18.2
	9 years and over	49	13.3
	<i>Total</i>	<i>368</i>	<i>100</i>
Educational Status	Two Years Degree	8	2.2
	Bachelor of Science	276	75
	Master's Degree	78	21.2
	PhD Degree	6	1.6
	<i>Total</i>	<i>368</i>	<i>100</i>

Table 2. Distribution of Teachers according to Demographic Characteristics

<i>Variables</i>		<i>n</i>	<i>%</i>
Gender	Female	140	52.6
	Male	126	47.4
	<i>Total</i>	<i>266</i>	<i>100</i>
School Type	State	242	90.9
	Private	24	9.1
	<i>Total</i>	<i>266</i>	<i>100</i>
Age	20-30 ages	57	21.4
	31-40 ages	148	55.6
	41-50 ages	43	16.2
	51 age and over	18	6.8
	<i>Total</i>	<i>266</i>	<i>100</i>
Branch	Science-Math	73	27.4
	Social	83	31.2
	Foreign Language	24	9.1
	Art	20	7.5
	Sport	17	6.4
	Classroom	30	11.3
	Pre School	7	2.6
	<i>Total</i>	<i>266</i>	<i>100</i>
Region	Mediterranian	19	7.1
	East Anatolia	12	4.5
	Aegean	145	54.5
	South East Anatolia	14	5.3
	Central Anatolia	31	11.7
	Black Sea	21	7.8
	Marmara Region	24	9.1
	<i>Total</i>	<i>266</i>	<i>100</i>
Seniority	0-5 years	48	18,1
	6-10 years	77	28.9
	11-15 years	66	24.8
	16-20 years	31	11.7
	21 years and over	44	16.5
	<i>Total</i>	<i>266</i>	<i>100</i>
Working duration in the same school	0-2 years	90	33.8
	3-5 years	105	39.5
	6-8 years	46	17.3
	9 years and over	25	9.4
	<i>Total</i>	<i>266</i>	<i>100</i>
Educational Status	Two Years Degree	4	1.5
	Bachelor of Science	206	77.5
	Master's Degree	52	19.5
	PhD Degree	4	1.5
	<i>Total</i>	<i>266</i>	<i>100</i>

2.3. Data Collection Instrument and Data Collection

To develop a scale for teacher empowerment, a literature review was conducted on the subject. In accordance with the related literature, individual interviews were held with 32 teachers. Individual interviews play an important role in clarifying the dimensions and deciding the scale items (DeVellis, 2003). Teachers participating in the research were informed in detail about teacher empowerment and teachers were asked to answer the following interview questions accordingly:

“What do you think is power?”, *“How do you define power?”*, *“Who has power in your school? Please explain your answers with their reasons.”*, *“What do you think empowerment means?”*, *“Who can get you empowered?”*, *“In what kind of environments do you feel empowered as a teacher?”*; *“What kind of environment does your manager provide you feel empowered?”*; *“What manager behaviors make you feel empowered as a teacher?”*; *“What kind of training would you like to make you feel empowered as a teacher?”* sounding questions were included to find more detailed answers to these interview questions.

The 64 pages written response papers collected from 32 teachers by the researchers were subjected to content analysis. In content analysis, firstly, two researchers created codes in line with the theoretical framework, and then similar codes were grouped and categories were created. In the process of data analysis, these steps proposed by Yıldırım and Şimşek (2005) were followed: naming, coding and extraction, category development, ensuring validity and reliability and reporting.

After this step, a pool of 60 items was created by combining the relevant literature and teacher statements. This items pool was shaped in line with the views of two experts with PhD degrees in educational sciences. These items and the dimensions related to these items were presented to expert opinions in order to ensure scope and appearance validity and necessary arrangements were made in line with the opinions of seven experts who gave feedbacks. Accordingly, arrangements were made in the content and statements of the items and two more items were added. Finally, in order to prevent comprehension and language problems, the items were sent to four Turkish teachers and related corrections were made. Initially, the scale composed of 62 items were applied to 405 teachers who are working in different regions of Turkey. Outliers were discarded from the applied scale and the study was carried out with data gathered from 368 teachers. Kass and Tinsley (1979) state that at least 300 participant should be reached totally. According to Cattell (1978) 200 participants are acceptable and 500 participants are considered to be a very good number in factor analysis studies. Tabachnick and Field (2000) state that in order to make a healthy analysis, the sample should be at least five times of the items in the scale.

2.4. Data Analysis

The construct validity of the Teacher Empowerment Scale was studied. Item total correlation was analyzed as item statistics. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were performed for construct validity. Cronbach Alpha (α) coefficient was calculated for the internal consistency reliability of the scale. Item total correlations were examined for item discriminations. For EFA, Cronbach Alpha and item discriminations, IBM SPSS Statistics 20.0 and Lisrel 8.7 for CFA were used.

The KMO coefficient and Barlett test result were calculated in order to determine the suitability of the data to factor analysis. The normality test of the dimensions of the scale and the entire scale was performed. The variances explained by the dimensions in the scale and the total explained variances were calculated. Screen plot graph was drawn using Jamovi program. The factors formed as a result of the exploratory factor analysis, items in the factors and factor loading distributions are included. Items with factor loadings below .50 were removed from the

scale. The structure revealed by exploratory factor analysis was tested by confirmatory factor analysis. Afterwards, confirmatory factor analysis values and suitability were examined. A second-level confirmatory factor analysis was conducted in order to show that the dimensions of “*professional development*”, “*trust*”, “*status*” and “*cooperation*” obtained by the first-level confirmatory factor analysis of the teacher empowerment scale together represent the “teacher empowerment” variable as an upper level concept.

As a result of the second level CFA, the factorial model of the scale and standardized coefficients regarding the factor-item relationship were determined. In order to provide item analysis of the scale, item-total correlations were examined and item discrimination indexes were examined. In order to determine the reliability of the scale, Cronbach Alpha and McDonald's Omega (ω) values for the dimensions of the scale and the whole scale were calculated. Discriminant validity and convergent validity values were calculated.

3. RESULT / FINDINGS

In this section, the validity and reliability features of the “*Teacher Empowerment Scale*”, which was obtained as a result of the data analysis obtained from the sample group, were emphasized.

3.1. Findings Related to Validity

3.1.1. Findings Related to Exploratory Factor Analysis

It is difficult to fully model the multivariate normal distribution for real life continuous variables (Abbott, 2011). Therefore, in multivariate analysis, it is recommended to perform univariate and multivariate extreme value examinations and then normalize the distributions with the same 'data transformations' at each variable level (Demir, Saatçioğlu & İmrol, 2016). In order to look at the multivariate normal distribution, “*Mahalanobis Distance Coefficient*” was examined. According to 62 *df*, *p* values less than .001 are eliminated.

Factor analysis was performed to determine the construct validity of the scale and to determine and dimension the factor loadings of the items. Factor analysis is defined as the process of revealing new concepts (variables) called a factorization or common factors or obtaining operational definitions of concepts using factor loading values of items (Çokluk, Şekercioğlu & Büyüköztürk, 2016). Factorization and rotation techniques are the concepts to be considered together in factor analysis (Tabachnick & Fidell, 2000). Factor analysis was performed using principal axis factoring and varimax rotation. Here, varimax rotation was preferred in order to obtain a more generalizable factor structure rather than compatibility with the data (Şencan, 2005). In order to determine the suitability of the data for factor analysis, the Kaiser-Meyer-Olkin (KMO) coefficient and the Bartlett Sphericity test were calculated (see Table 3). KMO value .96 and Bartlett test result ($\chi^2 = 12339.121$; $p = .000$) were found to be significant.

Table 3. Teacher Empowerment Scale KMO and Bartlett’s Test Statistics

<i>Kaiser-Meyer-Olkin Measurement of Sample Suitability</i>		.960
<i>Barlett Sphericity Test</i>	<i>Chi-Square Value</i>	12339.121
	<i>df</i>	666
	<i>p</i>	.000

The skewness and kurtosis values of this are taken into consideration. According to Karagöz (2016) and Darren and Mallery (2016), the skewness and kurtosis values should be between -2 and +2 for the data to show normal distribution. In this study, skewness and kurtosis values for four factors and the entire scale are given in Table 4.

Table 4. Skewness and Kurtosis Values Regarding Teacher Empowerment Scale and Dimensions

	Skewness	Kurtosis	Normality
Professional Development	-1.013	1.009	Normal Distribution
Trust	-.967	1.049	Normal Distribution
Status	-.024	-.498	Normal Distribution
Cooperation	-.733	1.043	Normal Distribution
Teacher Empowerment	-.735	1.014	Normal Distribution

In the scale with 62 items which item-total correlation values below .50 and overlapping items were eliminated. The final scale consists of 37 items and four dimensions. It is a 5-point Likert type (Strongly Agree, Agree, Partially Agree, Disagree, Strongly Disagree). In Exploratory Factor Analysis, the most frequently used technique regarding the adequacy of the sample size is the sampling adequacy measurement technique of Kaiser-Meyer-Olkin (KMO). Hutcheson and Sofroniou (1999) state that the KMO value being higher than .9 indicates an excellent sample size. In this study, KMO value was calculated as .96. Therefore, it can be said that the sample size is excellent. Although the number of people in the sample is very important for factor analysis, it is known that there are many different opinions in the literature about the number. According to Tabachnick and Fidell (2000), the sample should consist of at least 300 people. Comrey and Lee (1992) argue that 100 people can be considered "few", 200 people can be considered "okay", 300 can be considered "suitable", 500 are considered "very suitable" and over 1000 can be considered "perfect". It can be said that as the sample grows, the power of the analysis will increase and the errors will decrease (Yurdabakan & Çüm, 2017). Table 5 presents the variances explained by the dimensions in the scale and the total explained variances.

Table 5. Total Variance Table

Factor	Initial Eigenvalues			Factor Loadings Total Squares		
	Total	Explained Variance (%)	Total Variance (%)	Total	Explained Variance	Total Explained Variance (%)
1	16.864	% 45.577	45.577	7.718	% 20.860	20.860
2	3.659	% 9.889	55.466	7.529	% 20.347	41.208
3	3.099	% 8.377	63.843	5.181	% 14.004	55.211
4	2.102	% 5.682	69.525	3.963	% 10.710	65.921

According to Table 5, eigenvalues of scale dimensions are 16,864 for factor 1, 3.659 for factor 2, 3.099 for factor 3, and 2.102 for factor 4. The variance explained by the first dimension is 20.860%, the variance explained by the second dimension is 20.347%, the variance explained by the third dimension is 14.004% and the variance explained by the fourth dimension is 10.710%. The scale explains 65.921% of the total variance and has a four-dimensional structure with 2% eigenvalue and 17% variance. Henson and Roberts (2006) stated that the variance rate announced in the scale studies should provide a value of 52% and above. In addition, when the Screen Plot graph is examined, the graph has become horizontal after the fourth vertical line and it is concluded that the scale is four-dimensional (see Figure 1). Screen plot chart was drawn from the Exploratory Factor Analysis menu of Jamovi program. In the Additional Output section of the analysis, options such as Screen plot, and Model fit measures to obtain fit indices similar to interdimensional correlation or structural equation modeling applications are presented (Şahin & Aybek, 2019).

Parallel analysis was used to decide the number of dimensions. The screen plot, is a graphing method to summary the results of parallel analysis. According to the Screen Plot chart, the items in the scale are collected under 4 factors. These factors are determined as “professional

development”, “trust”, “status” and “cooperation” in line with the theoretical framework. Table 6 presents the items and factor loadings under these factors.

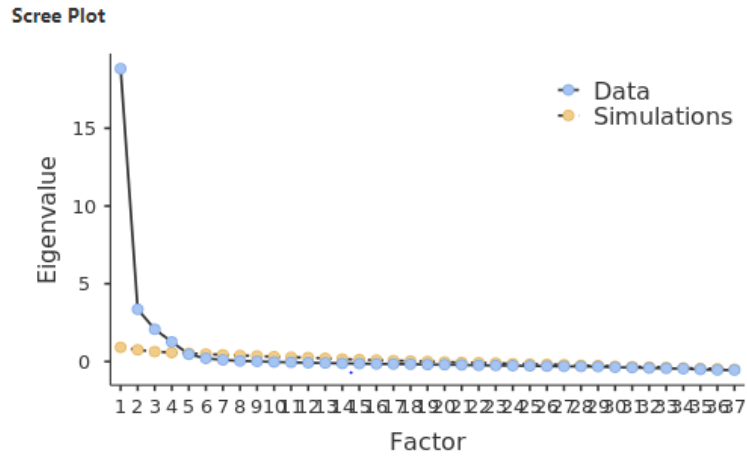


Figure 1. Exploratory Factor Analysis Output

Table 6. Items in Factors and Factor Loading Distributions

Statements	Factors			
	1	2	3	4
S41	.827			
S43	.810			
S40	.783			
S38	.781			
S46	.774			
S44	.757			
S19	.747			
S39	.726			
S56	.697			
S42	.675			
S45	.555			
S53	.554			
S8		.845		
S5		.814		
S9		.790		
S2		.784		
S6		.778		
S3		.773		
S1		.749		
S7		.739		
S4		.681		
S10		.678		
S13		.671		
S32			.799	
S28			.774	
S31			.773	
S30			.752	
S34			.725	
S35			.684	
S26			.683	
S29			.554	
S48				.795
S49				.793
S54				.706
S47				.656
S51				.635
S50				.613

Explanatory factor analysis results are given in Table 6. The first dimension of the scale, “Trust” consists of 12 items, the second dimension “Professional Development” consists of 11 items, the third dimension “Status” consists of 8 items, and the fourth dimension “Cooperation” consists of 6 items (see Table 7).

Table 7. Items in the Trial Form in the Dimensions

	Dimensions	Items
Teacher Empowerment Scale	Trust	19-38-39-40-41-42-43-44-45-46-53-56
	Professional Development	1-2-3-4-5-6-7-8-9-10-13
	Status	26-28-29-30-31-32-34-35
	Cooperation	47-48-49-50-51-54

3.1.2. Findings Related to Confirmatory Factor Analysis

Exploratory factor analysis is the technique of determining how many factors can be generated with the items of the instrument and the nature of relationships among them (Seçer, 2017). An inquiry is made as to whether the indicators collected under certain factors are indicators of the theoretical structure (Green, Salkind & Akey, 1997). The Confirmatory Factor Analysis is based on the examination of a structure determined in the exploratory factor analysis, whether it is verified or not (Seçer, 2017).

While interpreting the EFA results, it was adhered to the rule that the factor loadings that is expected to be theoretically included in any item to remain on the scale should be above .32 (Tabachnick & Fidell, 2000). A higher standard was set for this study and items with factor loadings below .50 were excluded from the scale. In Table 8 below, the equivalents of the scale items in the trial form in the Teacher Empowerment Scale are given.

Table 8. The Equivalents of the Items in the Trial Form on the Scale

Trial Form	Scale	Trial Form	Scale
SD1	S1	SD35	S20
SD2	S2	SD38	S21
SD3	S3	SD39	S22
SD4	S4	SD40	S23
SD5	S5	SD41	S24
SD6	S6	SD42	S25
SD7	S7	SD43	S26
SD8	S8	SD44	S27
SD9	S9	SD45	S28
SD10	S10	SD46	S29
SD13	S11	SD47	S30
SD19	S12	SD48	S31
SD26	S13	SD49	S32
SD28	S14	SD50	S33
SD29	S15	SD51	S34
SD30	S16	SD53	S35
SD31	S17	SD54	S36
SD32	S18	SD56	S37
SD34	S19		

CFA was performed to confirm the EFA results and to test the theoretically constructed measurement model. As a result of the confirmatory factor analysis, acceptable fit indices and values of the scale are given in Table 9.

Table 9. *Confirmatory Factor Analysis Values and Fit Indices*

<i>Fit indices</i>	<i>Value</i>	<i>The value of the scale</i>	<i>Fitness</i>	<i>References</i>
X ² /sd	Between 0 and 5	3.12	Acceptable	Wheaton, Muthen, Alwin & Summers, 1977
RMSEA	≤ 0.08	0.07	Acceptable	Hooper, Coughlan & Mullen (2008), Sümer (2000)
GFI	Between 0.85 and 1	0.72		Andersen & Gerbing, 1984; Cole, 1987
AGFI	Between 0.80 and 1	0.68		Andersen & Gerbing, 1984; Cole, 1987
CFI	≥ 0.95	0.98	Acceptable	Hu & Bentler (1999), Sümer (2000), Tabachnick & Fidell (2000)
NFI	Between 0.90 and 1.00	0.97	Acceptable	Sümer (2000), Tabachnick & Fidell (2000), Thompson (2008)
NNFI(TLI)	Between 0.90 and 1.00	0.98	Acceptable	Sümer (2000), Tabachnick & Fidell (2000), Thompson (2008)
RMR	≤ 0.08	0.05	Acceptable	Brown (2006), Hu & Bentler (1999)
SRMR	≤ 0.08	0.05	Acceptable	Brown (2006), Hu & Bentler (1999)
IFI	Between 0.90 and 1.00	0.98	Acceptable	Sümer (2000)

As a result of CFA, the structure revealed in EFA was confirmed. The model obtained with CFA is shown in Figure 2. A second-level confirmatory factor analysis was conducted in order to show that the dimensions of “*professional development*”, “*trust*”, “*status*” and “*cooperation*” obtained by the first-level confirmatory factor analysis of the teacher empowerment scale together represent the “teacher empowerment” variable as an upper level concept. The variances explained by the teacher empowerment variable in the first-level variables were revealed by the analysis. The factorial model of the second level CFA result and the standardized coefficients of the factor-item relationship are given in Figure 2. When the values given in Table 9 are analyzed, GFI and AGFI fit indices indicate that the data are not compatible. However, since the GFI and AGFI indices are affected by the sample size (Aybek & Cikrikci, 2018; Bayram, 2013; Hooper, Coughlan & Mullen, 2008; Raykov & Marcoulides, 2006; Sharma, Mukherjee, Kumar & Dilor, 2005) and other fit indices are within the acceptable limits, it was concluded that the data collected in the research fit the factor structure of the scale. Since the RMSEA, CFI, NNFI (TLI), SRMR values are within the desired level ranges in the scale, it can be said that the collected data fit the factor structure of the scale.

According to the fit indices obtained, it can be said that the construct validity of the Teacher Empowerment Scale has been confirmed. The Maximum Likelihood (ML) estimation techniques have been used since the variables are measured on an interval scale and have a multivariate normal distribution. Factor loadings range from 0.73 to 0.92 in the “*Trust*” dimension, 0.67 to 0.93 in the “*Professional Development*” dimension, 0.66 to 0.90 in the “*Status*” dimension, and 0.83 to 0.88 in the “*Cooperation*” dimension.

Within the context of the compliance validity study, the correlation values of the four factors related to each other and the entire scale were examined. In order to determine the data analysis technique to be used, it was first examined whether the data showed a normal distribution.

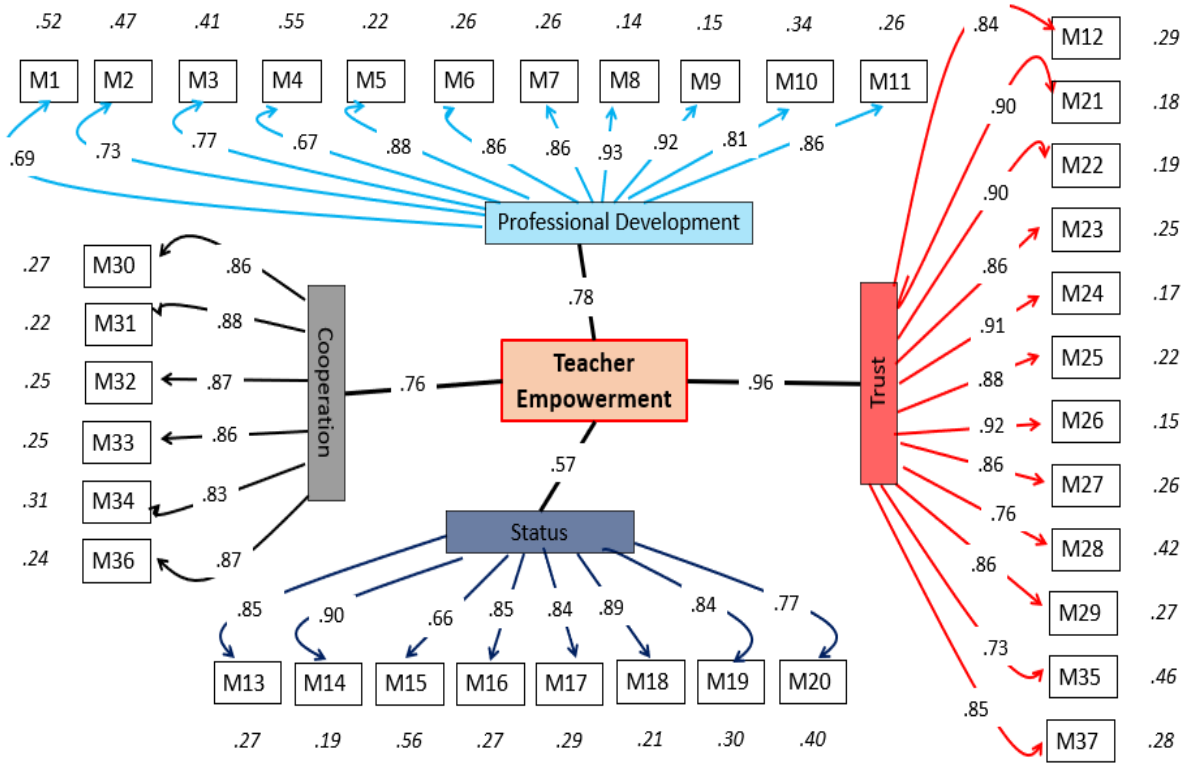


Figure 2. Measurement Model for Teacher Empowerment Scale

Factors and scale are normally distributed according to skewness and kurtosis values in Table 9. After the normality test, Pearson Correlation Analysis was performed to determine the correlation coefficients. Correlation coefficients of the four factors related to each other and the entire scale are given in Table 10. As a result of the correlation analysis, it was revealed that the factors had significant relationships with each other and with the entire scale.

Table 10. Correlation Coefficients between Factors

Dimensions	Professional Development	Trust	Status	Cooperation	Teacher Empowerment
Professional Development	1	.758**	.440**	.620**	.861**
Trust		1	.552**	.763**	.932**
Status			1	.520**	.730**
Cooperation				1	.828**
Teacher Empowerment					1

** $p < .01$

Büyüköztürk (2018) suggests that the correlation coefficient between .70-1.00 as an absolute value is high, that between .30 and .70 is medium, and between .00 and .30 indicates a low level of relationship. Total teacher empowerment score was found to be highly correlated with all dimensions of the scale. When the relations between the dimensions were examined, it was found that the "professional development" dimension was highly related to the "trust" dimension and a moderately related to "status" and "cooperation" dimensions. In addition, it was found that the "trust" dimension has a moderate relationship with the "status" dimension, a high level relationship with the "cooperation" dimension. Finally, it was found that the "status dimension" had a moderate relationship with the "cooperation" dimension.

Item total correlations were examined in order to achieve item analysis of the Teacher Empowerment Scale. Item total correlations should be greater than .30. Because Field (2005) stated that if the item total correlations were less than .30, that item did not measure the same structure as the other items, meaning that the item showed a weak correlation with the rest of the scale. The mean, standard deviation and item total correlations of the scale are given in Table 11.

Table 11. *Item-Total Statistics*

<i>Item No</i>	\bar{x}	<i>df</i>	<i>Item-Total Correlations</i>	<i>Item no</i>	\bar{x}	<i>df</i>	<i>Item-Total Correlations</i>
S1	4.43	.795	.628	S20	3.27	.967	.637
S2	4.42	.779	.640	S21	4.01	.971	.837
S3	4.24	.896	.720	S22	4.01	.948	.866
S4	3.61	1.070	.568	S23	3.63	1.133	.783
S5	4.13	.967	.750	S24	4.02	.952	.816
S6	3.97	1.026	.706	S25	4.04	.965	.803
S7	3.93	1.053	.732	S26	4.07	.915	.851
S8	4.09	.954	.787	S27	3.63	1.122	.802
S9	4.06	.964	.803	S28	3.70	1.054	.770
S10	3.86	1.052	.728	S29	3.63	1.119	.779
S11	3.79	1.057	.779	S30	3.80	.934	.704
S12	4.03	.990	.797	S31	3.69	.996	.738
S13	3.08	1.244	.598	S32	3.76	.908	.769
S14	3.11	1.103	.629	S33	3.44	1.023	.715
S15	3.68	1.010	.567	S34	3.76	.908	.648
S16	3.17	1.111	.571	S35	3.44	1.023	.717
S17	3.49	1.103	.606	S36	3.91	.855	.766
S18	3.21	1.120	.591	S37	3.96	.965	.811
S19	3.30	.984	.619				

If item discrimination index values are above .30, it means that item discrimination is very good (Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel, 2010; Crocker & Algina, 1986). Accordingly, it can be said that the Teacher Empowerment Scale consists of items with high discrimination.

3.1.3. Findings Related to Reliability

Cronbach's Alpha and Omega Reliability methods were used to determine reliability levels in the study. Büyüköztürk (2006); Erkuş (2014); Field (2005); Fornell and Larcker (1981); Nunnally and Bernstein (1994); Karagöz (2016) and Seçer (2017) stated that the scale will be accepted as reliable when the Cronbach Alpha value is .70 and above. In the context of internal consistency, Cronbach Alpha analysis is not considered sufficient in case of multiple factor structures. It is also recommended to calculate the Omega Reliability coefficient (Dunn, Baguley & Brunnsden, 2014). The results related to the reliability analysis of the scale are given in Table 12.

Table 12. *Reliability Values of Teacher Empowerment Scale*

<i>Dimensions</i>	<i>Cronbach's Alpha</i>	<i>McDonald's Omega</i>
Professional Development	.956	.957
Trust	.970	.971
Status	.944	.945
Cooperation	.946	.946
Total Scale	.973	.974

Reliability values for the dimensions of the scale and the total scale were calculated using the Jamovi program. It is also recommended to calculate the Omega Reliability coefficient (Dunn, Baguley & Brunsden, 2014). The total McDonald's ω value of the scale was calculated as 0.974 (with the Jamovi program), and the cronbach's alpha value was calculated as 0.973. The reliability of the dimensions of the scale is McDonald's ω value=0.957 for professional development dimension, Cronbach's alpha value is 0.956; McDonald's ω value for the trust dimension=0.971, Cronbach's alpha value is 0.970; McDonald's ω value for the status dimension was calculated as 0.945, the Cronbach's alpha value as 0.944, and for the cooperation dimension as 0.946, the cronbach's alpha value was calculated as 0.946. It can be interpreted that the omega coefficient is more reliable than the alpha coefficient, and according to these results, the reliability of the whole scale and all four sub-dimensions is high (Peters, 2014).

3.1.4. Evaluation of Scores from the Teacher Empowerment Scale

There are 37 items in the Teacher Empowerment Scale (see A1 Table 1). 5-point Likert type was used in the scale such as "I strongly disagree (1), I disagree (2), I partially agree (3), I agree (4), I strongly agree (5)". The scale is four-dimensional: "professional development, trust, status and cooperation". There are no inverse items in the scale. "Professional Development" dimension should be minimum 12, maximum 60; "Trust" dimension is minimum 11 and maximum 55; Minimum 8 and maximum 40 in "status" dimension; Minimum 6 and maximum 30 points can be obtained in the "cooperation" dimension. A total score can be obtained from the entire scale. The increase in the scores obtained from the Teacher Empowerment Scale means that teachers' perceptions about empowerment are at a high level.

For the convergent validity of the scale, the analysis of the Average Variance Extracted (AVE) values of each factor was determined by comparing the correlation of each factor with each other (see Table 13; Fornell & Larcker, 1981). Discriminant validity was evaluated by comparing the square root value of the variance explained with the square of correlations between factors. Convergent and distinctive validity is another type of validity used in testing and verifying the established model (Fornell & Larcker, 1981; Malhotra, 2011). Convergent validity of the measurement model can be evaluated with Average Variance Extracted (AVE) and Combined Reliability (CR). Acceptable value of CR and AVE is 0.70 (Fornell & Larcker, 1981) and value of AVE and CR of this scale is above 0.70. Also, the CR value should be greater than the AVE value (Gouveia & Soares, 2015; Raykov, 1997). AVE and CR values are presented in Table 13. CR and AVE values were calculated using the Excel program. In this study, CR value was calculated as 0.999, AVE value as 0.948. When CR and AVE values of dimensions are examined, it was calculated as CR=0.999 and AVE=0.948 for professional development; CR=0.996 and AVE=0.949 for trust; CR=0.994 and AVE=0.946 for status; CR=0.990 and AVE=0.944 for cooperation. It is seen that the entire scale and dimensions have CR and AVE values over 0.70. Therefore, it can be said that discriminant validity and convergent validity are provided. All these findings show that the data obtained are compatible with the structure revealed by EFA.

Table 13. CR and AVE values

Dimensions	CR	AVE
Professional Development	.999	.948
Trust	.996	.949
Status	.994	.946
Cooperation	.990	.944
Total Scale	.999	.948

4. DISCUSSION and CONCLUSION

When the national and international literature on teacher empowerment is examined, no scale was found to directly determine the perceptions of teachers about empowerment levels. This research is thought to be important in terms of filling this gap in the literature. With this research, a valid and reliable measurement tool for teacher empowerment was tried to be developed. While preparing the teacher empowerment scale, opinions of the teachers were taken first, codes and categories were determined in line with these opinions, and scale items were written in line with the literature for these codes and categories. Scale items were submitted to expert opinions to ensure scope and appearance validity. In line with the opinions of experts, arrangements were made in the item content, dimensions and expressions and two items were added to the scale. Thus, a draft measuring tool with 62 items was obtained. The items in the scale were applied to sample 1.

EFA and CFA were used to test the construct validity of the teacher empowerment scale. As a result of the EFA, a four-factor structure consisting of 37 items explaining approximately 70% of the total variance was obtained. The first factor was named as “*professional development*”, the second factor as “*trust*”, the third factor as “*status*” and the fourth factor as “*cooperation*” considering the item contents and theoretical structure collected in the factors. CFA was conducted to determine whether the theoretically designed model was verified by the data. The data obtained from the CFA showed that the fit indices of the four-factor structure related to teacher empowerment were sufficient.

The reliability of the measurements obtained from the teacher empowerment scale was examined by Cronbach Alpha and Omega Reliability methods. Cronbach Alpha reliability of the measurements was calculated as .956 in professional development dimension, .970 in trust dimension, .944 in status dimension and .946 in collaboration dimension. The total reliability of the scale is .973. Measurements with a reliability coefficient of .70 and above are considered reliable (Büyüköztürk, 2006; Durmuş, Yurtkoru & Zinc, 2016; Field, 2005; Fornell and Larcker, 1981; Karagöz, 2016; Nunnally & Bernstein, 1994; Seçer, 2017 and Tezbaşaran, 1997). Omega reliability of the measurements was calculated as .957 in professional development dimension, .971 in trust dimension, .945 in status dimension and .946 in collaboration dimension. The total reliability of the scale is .974. Item analysis was conducted in order to determine the total score predictive power of the items in the teacher empowerment scale and to determine the discrimination levels. Within the scope of item analysis, the corrected item total correlations were examined. CR and AVE values were calculated using the Excel program. In this study, Combined Reliability (CR) value was calculated as 0.999, Average Variance Extracted (AVE) value as 0.948. Therefore, it can be said that discriminant validity and convergent validity are provided. When CR and AVE values of dimensions are examined, it was calculated as CR=0.999 and AVE=0.948 for professional development; CR=0.996 and AVE=0.949 for trust; CR=0.994 and AVE=0.946 for status; CR=0.990 and AVE=0.944 for cooperation. It can be said that discriminant validity and convergent validity are provided.

It is suggested that researches should be carried out to reveal the existing situation regarding the empowerment of teachers, to determine which variables affect the teacher empowerment and from which variables teacher empowerment is affected. Conducting researches in which teacher empowerment scale will be used is important in terms of contributing to the scale's measuring power and intended use.

Declaration of Conflicting Interests and Ethics

The authors declare no conflict of interest. This research study complies with research publishing ethics. The scientific and legal responsibility for manuscripts published in IJATE belongs to the author(s).

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6. APPENDIX

A1 Table 1. Teacher Empowerment Scale

<i>Dimension</i>	<i>Item No</i>	<i>English Form</i>
Professional Development	I 01	Participation in seminars/conferences of important people in my profession is not prevented by the school administration.
	I 02	It is not prevented by the school administration to participate in any kind of training related to my branch,
	I 03	Attending personal development courses (drama, diction, personal development, effective communication, etc.) is supported by the school management.
	I 04	I have the chance to receive trainings about immigrant or problem students by the school administration.
	I 05	It is supported by the school administration to receive training on educational technology.
	I 06	I have the chance to receive trainings on new teaching methods and techniques by the school administration.
	I 07	I have the chance to participate in in-service trainings frequently and regularly by the school administration.
	I 08	It is supported by the school administration to participate in scientific training in my environment.
	I 09	It is supported by the school administration to receive trainings on classroom management.
	I 10	I have chance to participate in training (legislative training) where my Powers and rights are taught.
	I 11	The school administration provides me with an environment to attend the courses and trainings I need.
Trust	I 12	I feel that my administrators value me as a teacher.
	I 21	My administrators have understanding towards me.
	I 22	My administrators are supportive of my profession.
	I 23	My administrators behave fairly within the school.
	I 24	I have a healthy dialogue with my administrators.
	I 25	My administrators contact me individually when there is a problem.
	I 26	My administrators respect me.
	I 27	My administrators apply school rules in the same way to everyone.
Status	I 28	I feel free while carrying out my duties.
	I 29	My administrators treat me empathically.
	I 35	Our administrators do not let our time go to waste with unnecessary works.
	I 37	My administrators give me the opportunity to say my thoughts.
	I 13	I think I have a profession with a high social status.
Cooperation	I 14	The teaching profession provides me with the social status I desire in my environment.
	I 15	Teaching makes it possible for me to deal with many cultural issues..
	I 16	The attitudes of people around me towards teachers make me strong.
	I 17	The teaching profession gives me confidence.
	I 18	The teaching profession gives me dignity.
	I 19	People around me respect the teaching profession.
	I 20	Teachers are well accepted by people in this area.
Cooperation	I 30	The teachers in our school cooperate with each other in line with their Professional goals.
	I 31	Our school has a teaching staff to work with pleasure.
	I 32	The cooperation of the teachers in our school makes me feel safe.
	I 33	Other teachers at our school appreciate my work.
	I 34	I think that the teacher I work with have Professional ethics.
	I 36	I have a chance to cooperate with other teachers at my school.