

# Turkish Adaptation of Teacher Leadership Scale: Validity and Reliability Study

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## ABSTRACT

The aim of the study is to adapt the Teacher Leadership Scale, developed by Xie et al. (2021), into Turkish. Through this adaptation, it sought to contribute to the investigation and presentation of teacher leadership in the dimensions of integrative leadership, professional learning leadership, measurement and evaluation leadership, instructional leadership, community leadership, and policy leadership. Within this scope, data were collected from 397 teachers working in public schools in Türkiye. The Teacher Leadership Scale (TLS) was used to obtain data in this research. The original Teacher Leadership Scale consists of six dimensions and includes 32 items. The research data were collected and subsequently analyzed using SPSS Statistics 25 and AMOS 24 software packages. The validity and reliability analyses of the scale were conducted in a manner to ensure its adaptation to Turkish culture using scientific methods and a multi-perspective approach. Confirmatory Factor Analysis (CFA) was performed to determine the construct validity of the scale's original structure in the Turkish cultural context. To determine the convergent validity of the scale, Composite Reliability (CR) and Average Variance Explained (AVE) values were evaluated together. To establish the reliability of the scale, internal consistency and composite reliability analyses were conducted using Cronbach's Alpha and McDonald's Omega coefficients. The test-retest method was used to determine the scale's stability over time. Furthermore, item-total correlation values were examined to assess whether the scale items contributed to the scale's structure. As a result of the validity and reliability analyses performed on the scale, the Teacher Leadership Scale was established with six dimensions and 24 items. The analyses concluded that the TLS is appropriate, valid, and reliable for use in the Turkish culture.

**Keywords:** Teacher leadership, scale adaptation, validity and reliability



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## Introduction

The rapid change and increasing complexity brought about by the information and technology age are redefining the roles of teachers, who are the mainstays of educational institutions, and necessitate leadership qualities that transcend traditional teaching practices. The fact that schools are now undertaking multidimensional and dynamic missions—such as guiding technological innovations, actively participating in social and environmental changes, developing individuals' self-awareness skills (Garshi et al., 2020) and concurrently supporting socio-economic development and social cohesion (Can, 2009), moving beyond being mere centers for academic knowledge transfer (Chua et al., 2024) clearly reveals the critical role teacher leadership plays in the successful management of these processes. Indeed, the ability of countries to make a difference with their education systems in this global competitive environment (Şişman & Taşdemir, 2008) largely depends on how

effectively teachers can assume these new and expanded responsibilities and the extent to which they can realize their leadership potential. It is widely accepted that the efforts of centralized policies and traditional school management figures alone are insufficient in achieving these comprehensive educational goals required by the age (Beycioğlu & Aslan, 2010); on the contrary, it is indispensable for teachers, who are at the forefront of education, to lead transformation and take initiative in this direction (Korucu & Ünüvar, 2020). In this context, teacher leadership has become a central force for schools to effectively respond to the challenges of the age, build innovative learning ecosystems, and meet societal expectations.

Although the school principal is traditionally the first figure that comes to mind when leadership is considered in the context of education and instruction (Harris & Lambert, 2002), changing paradigms in school management and the increasing complexity of educational processes in the 21st

century have rendered the principal's leadership alone insufficient (Shen et al., 2019), clearly highlighting the need for teachers' leadership behaviors. Indeed, an increase in teachers' leadership behaviors, demonstrated in various ways and situations within schools, alleviates the responsibilities of school administration, reduces stress in schools, and significantly contributes to the formation of effective organizational structures (Toytok, 2016).

In parallel with these developments, studies on leadership in educational management initially focused more on the effects of effective school leadership on structure, process, roles, practices, and outcomes (Yalçın & Atasoy, 2021), with particular emphasis on various models such as instructional leadership (Hallinger & Heck, 1996), distributed leadership (Özdemir & Demircioğlu, 2015), and transformational leadership (Sun & Leithwood, 2012). Over time, it is observed that the concepts of collaborative and inclusive school leadership have been developed in the literature by bringing together all these types of leadership, in a manner that both synthesizes these different leadership approaches and reflects the growing importance of teacher leadership (Leithwood, 2012).

The development of teachers' qualifications and skills, along with their pace of adaptation to change, influences students' acquisition of skills that meet contemporary needs. The teacher's transition from being a mere transmitter of information to an active guide in the learning process necessitates the development of their leadership skills (Saydullayeva & Raxmanova, 2021; Warren, 2021). For these reasons, it is argued that the concentration of leadership in a single individual institutionally hinders the development of teacher leadership and discourages teachers from taking responsibility (Yiğit et al., 2013). The significant impact of teacher leadership on increasing academic success in schools (Shen et al., 2020) and the consideration of teachers' leadership skills by school principals when exercising their own leadership, consequently enhancing student learning (Li & Liu, 2022), reinforces teachers' leadership qualities. It has been demonstrated that teacher leadership plays a central role in the development and transformation of schools, and that teachers' leadership skills in schools should be developed through establishing constructive and regular communication, continuous encouragement for professional development, and providing inspiration (Szeto & Cheng, 2018).

Although teacher leadership is not a new concept in the literature (Nelson, 1966), it has started to attract attention in the world especially in the last 20 years (Chow, 2016; Martinez & Tadeu, 2018). In the literature, teacher leadership has been studied with variables such as student

achievement (Sugg, 2013; Warren, 2021), classroom and school climate (Aslan, 2011; İnanır, 2020), creating effective schools (Muijs & Harris, 2006), organizational commitment (Çolak et al., 2014), school culture (Güven, 2015; Öztürk & Şahin, 2017). In addition, the factors affecting teacher leadership (Bellibaş et al., 2020; Lee & Kwan, 2021), the positive effects of teacher leadership (Supovitz, 2018) and the outcomes of teacher leadership (Sebastian et al., 2017; Supovitz, 2018) have also been revealed in the literature. Crowther et al. (2009) stated that teacher leadership is important in the formation of effective schools and the importance of the concept of school leadership. Shen et al. (2019) stated in their study that principal leadership and teacher leadership are equally important in schools and that they play the same role in school development. In the development of teacher leadership, it is important for school principals to have a strategic position and carry out their activities in this direction (Pan & Chen, 2020).

Regarding teacher leadership in Türkiye, Bakioğlu (1998) found that teacher leadership is an important element of school leadership, Öntaş and Okut (2017) found that teacher leadership skills are an important factor in classroom management and atmosphere, and Ağırman and Ercoşkun (2017) found that there is a relationship between teachers' competencies and teachers' leadership skills.

Conceptualizations of teacher leadership in the literature vary: According to York-Barr and Duke (2004), teacher leadership is the process by which teachers influence and direct other stakeholders in the school in order to increase school success and effectiveness. According to Wenner and Campbell (2017), teacher leadership is when teachers take responsibilities in various ways both inside and outside the school. Considering the prominent studies in the field, it is seen that the definition of teacher leadership includes the words in the definition of school principal. The fact that the essence of the word leadership is to lead and influence (Gronn, 2000), and that the concept of teaching is added to the word (Katzenmeyer & Moller, 2009) does not change the meaning of the word and does not prevent the leadership skills of school principals, on the contrary, it explains that leadership skills should be exhibited in order to improve the quality of education inside and outside the classroom (Cooper et al., 2016). The fact that teachers' exhibiting leadership behaviors had a significant impact on overcoming various crises in the field of education, especially during the Covid-19 pandemic, supports these opinions (Mundy et al., 2022).

Educators and researchers believe that teacher leadership should be encouraged in order to improve teaching and learning practices that lead to the development of

decision-making mechanisms at the classroom and school level and increase student achievement and to sustain the dynamism of the teaching profession (Martin & Coleman, 2011; Wenner & Campbell, 2017; Xie et al., 2021). However, since it is a relatively new concept in the literature, there is no common ground in the literature on the operational meaning of teacher leadership, the leaderships it covers, its similarities and differences with principal leadership, the educational practices that can be put forward, and how teacher leadership behavior is exhibited in schools and whether it differs according to school type (Adams & Gamage, 2008; Çetinkaya & Arastaman, 2024; Tsai, 2017, Xie et al., 2021). Schoot et al. (2020) emphasize that teacher leadership is in search of an operational meaning and that teacher leadership needs to address "content" issues. As a result of the developments in the literature in this direction, teachers become aware of their leadership behaviors and exhibit their leadership behaviors inside and outside the institution; teacher leadership actions take place within a certain systematic; administrators and stakeholders support teacher leadership inside and outside the institution; and as a result, a sustainable and developable scope of teacher leadership is put forward (Çetinkaya & Arastaman, 2024; Hunzicker, 2019). Based on these studies, it is important to determine the leadership skills and behaviors of teachers working in schools in order to develop a common ground on the operational meaning of teacher leadership. For this, valid and reliable measurement tools are needed in the literature.

There are various scales related to teacher leadership in the literature. Katzenmeyer and Moller (2009) examined teacher leadership in seven dimensions as "self-awareness", "leading change", "diversity", "communication", "continuous improvement", "self-regulation" and "instructional competence and leadership". Angelle and DeHart (2010) contributed to the literature on teacher leadership behaviors, Tsai (2017) on leadership styles, and Yuet et al. (2016) on teacher leadership competencies. The teacher leadership scale developed by Wang and Xia (2020), which was adapted into Turkish by Akyürek and Özdemir (2021), addressed teacher leadership in the dimensions of "leading teaching and professional development", "characteristics of teacher leadership", "participating in decisions concerning the school" and "differences and continuous development". Deniz and Hasançebioğlu (2003) developed a 17-item unidimensional teacher leadership styles scale based on McGregor's X and Y theory. The scale was used to measure teachers' leadership attitudes rather than their leadership behaviors. Beycioğlu and Aslan (2010) examined teacher leadership in three dimensions as "institutional development", "professional development" and

"collaboration with colleagues". The teacher leadership culture scale developed by Demir (2014) consists of three dimensions: "professional cooperation", "administrator support" and "supportive working environment". The scale developed by Kiral (2021) as teacher servant leadership consists of nine dimensions: "trust", "effective communication", "ethical behavior", "vision", "school-environment relationship", "empowerment", "authenticity", "humility" and "general servant leadership". The teacher leadership scale developed by Yılmaz and Jafarova (2022) consists of two dimensions as "influencing" and "team leadership". The teacher leadership behavior scale developed by Bolat (2023) consists of four dimensions: "classroom leadership", "parental leadership", "micro-level leadership" and "macro-level leadership". The teacher leadership scale developed by Çetinkaya and Arastaman (2024) consists of 20 items and four dimensions: "stakeholder participation", "contribution to the teaching profession", "professional development" and "improving teaching". As can be seen in the literature, the search for a common ground on teacher leadership continues. The importance of this study is to adapt the Teacher Leadership Scale developed by Xie et al. (2021) into Turkish to address teacher leadership from dimensions not previously mentioned in the Turkish literature, to propose a measurable teacher leadership model, and to add depth to the literature. It also offers researchers who want to evaluate teacher leadership in and out of the classroom the opportunity to benefit from the sub-dimensions/dimensions related only to the topic of interest. This study has comprehensively addressed the discussions about the dimensions of teacher leadership and related literature studies in theoretical and practical dimensions. In addition, the current study pioneers the transformation of abstract concepts of teacher leadership into a more concrete, observable and measurable structure supported by important theories and models of teacher leadership (Wenner & Campbell, 2017; Xie et al., 2021; York-Barr & Duke, 2004). When the scales on teacher leadership developed in Türkiye and adapted into Turkish are examined, teaching and professional development leadership are more emphasized among the leadership characteristics of teachers (Akyürek & Özdemir, 2021; Beycioğlu & Aslan, 2010; Çetinkaya & Arastaman; Demir, 2014) and consist of various dimensions that try to reveal teachers' leadership characteristics and collaboration (Akyürek & Özdemir, 2021; Beycioğlu & Aslan, 2010; Çetinkaya & Arastaman; Demir, 2014; Deniz & Hasançebioğlu, 2003; Kiral, 2021; Yılmaz & Jafarova, 2022). It is expected that the Teacher Leadership Scale developed by Xie et al. (2021) will be adapted into Turkish and contribute to the research and demonstration of teacher leadership in the dimensions of unifying-integrative

leadership, professional learning leadership, assessment and evaluation leadership, community leadership and policy leadership for the first time. In this context, the aim of the study is to realize the Turkish adaptation of the Teacher Leadership Scale developed by Xie et al. (2021). In line with this purpose, answers to the following questions were sought:

1. Is the Teacher Leadership Scale a valid measurement tool in Turkish culture?
2. Is the Teacher Leadership Scale a reliable measurement tool in Turkish culture?

## **Method**

### **Research Model**

The study was conducted with a descriptive approach in order to reveal the validity and reliability studies of the Turkish version of the Teaching Leadership Scale, originally developed by Xie et al. (2021). The study utilized the survey model. Ethical permission was obtained from Inonu University Ethics Committee. The data collected in the study were analyzed using validity and reliability data analysis techniques.

### **Working Group**

The data used in the adaptation process of the scale were obtained from two different independent study groups and the validity and reliability studies were conducted on these independent data. The details of these two study groups are given below.

#### **First Study Group**

The study group consisted of 405 teachers working in primary and secondary public schools in Türkiye in the 2024-25 academic year. Convenience sampling method was used in sample selection and data collection processes. Convenience sampling method is the most preferred sampling method of researchers because it is advantageous in terms of time and cost, fast and practical for researchers, and the necessary and sufficient population for research can be reached more easily (Larson-Hall, 2010; MacKay, 2006). The data obtained from this study group were used in the confirmatory factor analysis (CFA) of the scale, as well as in the calculation of composite reliability (CR) and average variance explained (AVE) values, Cronbach Alpha Internal Consistency Coefficient and McDonald's Omega Coefficients. After the normality distribution of the scale data was checked by means of skewness and kurtosis, histograms and Q-Q graphs, eight forms showing extreme values were excluded from the data and the analysis continued with 397 forms.

In the literature, there are different approaches and opinions about the adequate sample size for factor analysis

in scale development and adaptation processes. There are studies expressing that a sample size of 150 is sufficient for factor analysis (Tabachnick & Fidell, 2007), 50 (very poor), 100 (poor), 200 (moderate), 300 (good) and 500 (very good) (Çokluk et al., 2010). In addition, there are studies in the literature that suggest that a sample size of four times the number of scale items (MacCallum et al., 2001), 10 times the number of scale items (Nunnally, 1978), and according to Bryman and Cramer (2004), a sample size between five times and 10 times the number of scale items is sufficient. The Teacher Leadership Scale consists of 32 items. Considering the sample size recommendations in the literature, data obtained from 397 teachers were used for Confirmatory Factor Analysis (CFA).

Of the participants, 224 (56.4%) were female and 173 (43.6%) were male. 1 (0.3%) had an associate's degree, 310 (78.1%) had a bachelor's degree and 86 (21.7%) had a graduate degree. 140 (35.3%) have 1-5 years of professional seniority, 146 (36.8%) 6-10 years, 54 (13.6%) 11-15 years, 28 (7.1%) 16-20 years and 29 (7.3%) 21 years or more. 26 (6.5%) of them work in kindergarten, 105 (26.4%) in primary school, 142 (35.8%) in secondary school and 124 (31.2%) in high school. Based on these data, it can be stated that the majority of the participants are female, have a bachelor's degree, have a professional seniority of 1-5 years and work at the secondary school level.

#### **Second Study Group**

The study group consisted of 51 teachers working in primary and secondary public schools in Muş province in the 2024-2025 academic year. The data obtained from this study group were used to calculate the test-retest reliability coefficient of the scale. Of the participants, 23 (45.1%) were female and 28 (54.9%) were male. 41 (80.4%) had undergraduate education and 10 (19.6%) had postgraduate education. 27 (52.9%) have 1-5 years of professional seniority, 20 (39.2%) 6-10 years, two (3.9%) 11-15 years, one (2%) 16-20 years, and one (2%) 21 years or more. Seven (13.7%) of them work in kindergarten, 16 (31.4%) in primary school, 22 (43.1%) in secondary school and six (11.8%) in high school.

#### **Data Collection Measure**

In this study, the "Teacher Leadership Scale" developed by Xie et al. (2021) was used to collect data. The original Teacher Leadership Scale consists of six dimensions and 32 items. The dimensions are; (a) integrative leadership (6 items), (b) professional learning leadership (7 items), (c) measurement and evaluation leadership (4 items), (d) instructional leadership (7 items), (e) community leadership (4 items), and (f) policy leadership (4 items). In the development of the Teacher Leadership Scale, data obtained from 534 teachers (331 female, 203 male) were

utilized. The participants of the study were teachers working in private (3%) and public (97%) schools in Shanghai, Hangzhou, Jiaxing and Wenzhou cities of China. The Cronbach's alpha coefficient values of the Teacher Leadership Scale are as follows: (a) integrative leadership (.91), (b) professional learning leadership (.96), (c) assessment leadership (.90), (d) instructional leadership (.96), (e) community leadership (.94), and (f) policy leadership (.92). The overall reliability of the items in the Teacher Leadership Scale is .98. The Kaser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity were applied to assess the adequacy of the sample to produce reliable and separate factors. Exploratory factor analysis (EFA) conducted to demonstrate the validity of the Teacher Leadership Scale revealed that it explained 74% of the variance and was theoretically significant. Confirmatory factor analysis (CFA) conducted for the validity of the Teacher Leadership Scale confirmed the six-dimensional structure of the Teacher Leadership Scale (Xie et al., 2021).

The ethical process in the study was as follows:

- Ethics committee approval was obtained from İnönü University Ethics Committee (Date: November 27, 2024, Number: 2024-17/19)
- Informed consent was obtained from the participants.

### Research Process

The process of adapting the Teacher Leadership Scale into Turkish was carried out in accordance with the literature (Güngör, 2016). In cross-cultural scale adaptation studies, the effect of language and cultural differences on the equivalence of scales is one of the situations that can be encountered. In order for the scale to be compatible with the original in terms of meaning and content, some processes must be fulfilled (Beaton et al., 2000). In order to adapt the scale into Turkish, adaptation permission was obtained from the owner of the scale via e-mail. The Teacher Leadership Scale Extended Draft Form was created to obtain data for the study. Later, for the language equivalence studies of the scale, eight experts in the field of Educational Management, who had previous scale development and adaptation studies and who were proficient in English, were asked to translate the scale into Turkish independently and without informing each other. The translations collected from the experts were transferred to the Teacher Leadership Scale Extended Draft Form. In the next stage, the relevant experts came together online and all expert translations in the Teacher Leadership Scale Extended Draft Form were meticulously handled and a common text was prepared. The prepared joint draft text was evaluated by two English language experts to see if there was any loss of meaning by comparing it with the original scale. For this purpose, the scale was first

translated into English by a language expert and compared with the original, and then the draft, which was translated into English by a second expert, was translated into Turkish. The text was finalized as a result of expert opinions. It was then evaluated by one Turkish language expert for spelling, punctuation and expression disorders and loss of meaning. Upon the feedback, opinions and suggestions obtained through these evaluations, the Teacher Leadership Scale was finalized in terms of language and meaning.

After the studies conducted within the scope of language equivalence, the pilot application of the Teacher Leadership Scale was started. Data were collected from 35 teachers working in primary and secondary education institutions. In the pilot application, teachers were interviewed about the problems they experienced in terms of comprehensibility of the scale items, word and concept complexity, expression disorder, and loss of meaning. In this context, the Teacher Leadership Scale was finalized. The Teacher Leadership Scale was administered to the selected sample online via Google Forms and the data were made ready for analysis.

### Data Analysis

The data were collected from teachers working in primary and secondary education institutions with the scale obtained after the studies on the content validity of the research. The collected data were transferred to Microsoft Excel form. Then, IBM Statistical Package for the Social Sciences Statistic 25 (IBM SPSS Corp., Armonk, NY, USA) and AMOS 24 statistical package programs were used for analysis. Erroneous data entries were checked on the research data. The normality distribution of the scale data, skewness and kurtosis were checked through histograms and Q-Q graphs (Field, 2017). The calculated skewness coefficient value was -.103 and kurtosis coefficient value was -.660. The skewness and kurtosis coefficients of the scale items and/or sub-dimensions are expected to be between -1 and +1 (Hair et al., 2013). Various analyses were conducted to determine the psychometric properties of the scale. In scale adaptation studies, the construct validity of the scale is examined by factor analysis methods. In construct validity studies, the latent variable is examined (Güngör, 2016). The generally accepted view in the literature on which of the Exploratory and Confirmatory Factor Analysis methods will be used and reported in research is that Exploratory Factor Analysis should be used in cases where preliminary information on the subject is insufficient, while Confirmatory Factor Analysis method is recommended to be used to test an existing and developed factor structure (Büyüköztürk et al., 2004; Güngör, 2016; Pallant, 2011). Therefore, in the present study, Confirmatory Factor Analysis (CFA) was deemed sufficient to test the construct validity of the scale. Before the

Confirmatory Factor Analysis (CFA), univariate and multivariate outliers were checked with missing data analysis. Among the normality assumptions, univariate normal distribution, multivariate normal distribution, linearity and multicollinearity normality assumptions were examined (Tabachnick & Fidell, 2007). Confirmatory Factor Analysis (CFA) was used to calculate the standardized factor loadings of the items, significance levels, standard errors of the items, and variances of the factors explained by the items. Since each of the fit indices in the model provides different information about the model, researchers are expected to report more than one model fit index (Harrington, 2009). Therefore, Chi-square (Chi-square), GFI (Goodness of Fit Index), TLI (Tucker-Lewis Index), CFI (Comparative Fit Index), NFI (Normed Fit Index), IFI (Incremental Fit Index) and RMSEA (Root Mean Square Error of Approximation) model fit indices were used to evaluate the model-data fit of the model (Brown, 2015; Geiser, 2012; Kline, 2010; Xu & Tracey, 2017).

Cronbach's Alpha Internal Consistency Coefficient and McDonald's Omega Coefficients were calculated to reveal the reliability of the scale, and item-total correlations were calculated to determine the item discrimination of the scale (Tabachnick & Fidell, 2007). When these coefficients are .70 or higher, internal consistency is considered to be at an acceptable value (Hayes & Coutts, 2020; McDonald, 2013). In order to support these values, composite reliability (CR) and average variance explained (AVE) values were calculated based on the factor loadings resulting from Confirmatory Factor Analysis (CFA). In addition to the test-retest method to examine the stability of the scale, CR and AVE values were used to determine convergent validity. A CR value higher than the AVE value and an AVE value greater than .50 are evidence of convergent validity (Fornell & Larcker, 1981; Yaşlıoğlu, 2017). Finally, the test-retest method was used to reveal the consistency of the scale over time. The ideal time interval for the data of the test-retest method to be healthy is 15-30 days (Seçer, 2015). Considering this time interval, the Teacher Leadership Scale was administered to 51 teachers working across Türkiye with 15-day intervals.

## Results

### Findings Regarding the Validity of the Teacher Leadership Scale

Confirmatory Factor Analysis (CFA) is used to test the previously developed structure (Brown, 2015; Hooper et al., 2008). Before conducting Confirmatory Factor Analysis (CFA) in the study, Kaiser-Meyer-Olkin (KMO) and Barlett's Test of Sphericity analyses were carried out using the SPSS 26 software package. As a result of the KMO and Barlett's tests, the KMO value was found to be 0.94, and Barlett's

test was found to be significant ( $p < .001$ ). The KMO and Barlett's test results indicate that the scale is suitable for factor analysis.

Then, within the scope of the validity analysis of the Teacher Leadership Scale, confirmatory factor analysis was conducted to confirm the factor structure of the data collection tool. In the model created as a result of CFA, eight items (Items 1, 7, 8, 9, 17, 18, 20 and 31) were excluded from the model due to high error variance and low regression range. For this decision, the field experts whose opinions were consulted during the adaptation phase were consulted and it was decided that removing the relevant items from the scale would not disrupt the structure of the scale (Bay & Paylı, 2022; Demir & Şahin, 2023; Tümoğlu et al., 2024). After the removal of these items, the 24 items obtained were rearranged and the model was tested. Modification indices for the tested model were analyzed. Modification indices (MI) indicate how well the designed model is defined. Generally, the first model that emerges as a result of CFA is not the best model (Güngör, 2016; Yaşlıoğlu, 2017). A high MI value indicates that there is a relationship between the variables, that is, the variables are not free. Especially in social sciences, it seems unlikely that the MI value is close to zero. The link to be established between the variables specified in MI values contributes to the improvement of model fit indices (Jöreskog & Sörbom, 2006; Yaşlıoğlu, 2017; Yılmaz & Jafarova, 2022). Accordingly, modifications were made between the items (I2-I3, I10-I11, I14-I16, I25-I26). In the literature, there is no agreement on how many modifications should be made in scale development and adaptation studies, and it is argued that it may vary depending on the type, structure and purpose of the scale (Devellis, 2017; George & Mallery, 2007; Jöreskog & Sörbom, 2006; Streiner & Norman, 2008). As a result of the Confirmatory Factor Analysis (CFA) conducted after all these evaluations, t values were found to be significant at the .01 level for the scale items (latent variable) to explain the dimensions of the scale (observed variable). Parameter estimates are significant at .01 level of significance if t values exceed 2.56 and at .05 level of significance if t values exceed 1.96 (Çokluk et al., 2014). In addition, when the error variances of the dimensions of the scale (observed variable) were examined, it was revealed that all error variances were significant. Since the t values for all items (latent variable) in the model were significant, all indicators were presented in the Confirmatory Factor Analysis (CFA) model. The results of the CFA are shown in Figure 1.

**Figure 1.**  
Teacher Leadership Scale Confirmatory Factor Analysis (CFA) Path Diagram

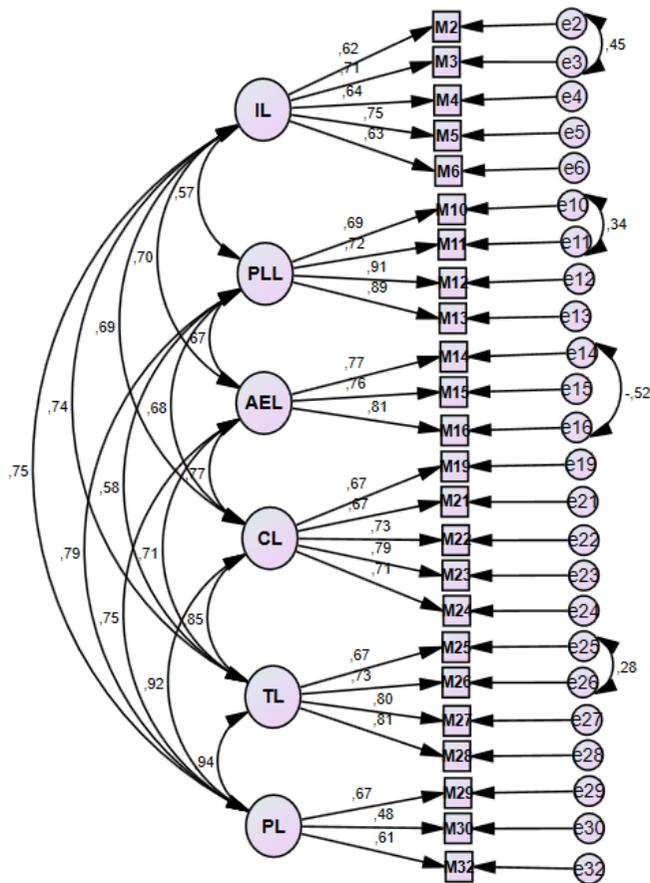


Figure 1 shows the six-factor structure of the Teacher Leadership Scale and the relationships between the items in the factors. The values on the lines drawn from the factors (latent variable) to the items (observed variable) show the effect sizes of the factors on the items. It is seen that the relationship coefficients between factors and items are greater than .30 (Çokluk et al., 2014; Field, 2009; Özdamar, 2017). After all factor-item relationships were found to be significant, the multiple model fit indices were evaluated.

Table 1 shows the acceptable and perfect fit values for the fit indices (Hooper et al., 2008; Schermelleh-Engel & Moosbrugger, 2003; Simon et al., 2010;) and the fit values obtained from the scale.

As a result of the Confirmatory Factor Analysis (CFA) conducted for the Teacher Leadership Scale, the ratio of Chi-square value to degrees of freedom was  $\chi^2/df = 2.37$ ; AGFI = .86; GFI = .90; CFI = .94, NFI = .91, IFI = .94, RMSEA value was .06, and TLI value was .93. The first fit index in the evaluation is the Chi-squared ( $\chi^2/df$ ) value. Chi-squared value is used to reveal the fit of the model again. The chi-squared value serves to evaluate the difference between the modeled covariance matrix and the sample covariance

**Table 1.**  
Fit Indices and Scale Values

Fit Indices	Perfect Fit	Acceptable Fit	Before Modification	After Modification
$\chi^2/df$	$0 \leq \chi^2/df \leq 2$	$2 \leq \chi^2/df \leq 5$	3.21	2.37
AGFI	$.90 \leq AGFI \leq 1.00$	$.85 \leq AGFI \leq .90$	.80	.86
GFI	$.95 \leq GFI \leq 1.00$	$.90 \leq GFI \leq .95$	.84	.90
CFI	$.95 \leq CFI \leq 1.00$	$.90 \leq CFI \leq .95$	.90	.94
NFI	$.95 \leq NFI \leq 1.00$	$.90 \leq NFI \leq .95$	.86	.91
IFI	$.95 \leq IFI \leq 1.00$	$.90 \leq IFI \leq .95$	.90	.94
RMSEA	$.00 \leq RMSEA \leq .05$	$.05 \leq RMSEA \leq .08$	.07	.06
TLI	$.95 \leq TLI \leq 1.00$	$.90 \leq TLI \leq .95$	.88	.93

matrix (Hu & Bentler, 1999; 2). Thus, it is observed that the  $\chi^2/df$  ratio is 2.37 (549.559/232= 2.369). In large samples, a  $\chi^2/df$  ratio less than 2 indicates a "perfect" fit, while a  $\chi^2/df$  ratio less than 5 indicates a "moderate" fit (Çokluk et al., 2014; Kwon & Marzec, 2016). The  $\chi^2/df$  ratio of "2.37" can be interpreted as an acceptable fit. It is observed that GFI is .90 and AGFI is .86. GFI is a statistic that emerges from the proportioning of the measured variance and covariances in order to eliminate the problem of increasing the Chi-squared statistic that will arise with the growth of the sample (Maiti & Mukherjee, 1991). AGFI is the statistic of GFI adjusted for degrees of freedom. It is not recommended to use AGFI in complex models (Byrne, 2011; Yaşlıoğlu, 2017). GFI values above .95 indicate "perfect" fit and values above .90 indicate "good" fit. AGFI values above .95 indicate "excellent" and above .85 indicate "good" fit (Çokluk et al., 2014; Kwon & Marzec, 2016). GFI values of ".90" and AGFI values of ".86" can be interpreted as an acceptable fit. It is observed that NFI is .91 and IFI is .94. The NFI statistic is a statistic that compares the chi-square values of the measured model with the model in which the measured variables are not related (Byrne, 2011; Yaşlıoğlu, 2017). NFI and IFI values above .95 indicate "perfect" fit and above .90 indicates "good" fit (Çokluk et al., 2014; Kwon & Marzec, 2020). NFI value of ".91" and IFI value of ".94" can be interpreted as good fit. CFI value is .94 and TLI value is .93. The CFI statistic is an improved version of the NFI statistic. It is one of the most accepted and used statistics (Yaşlıoğlu, 2017). CFI values above .95 indicate "perfect" fit, while values above .90 indicate "good" fit (Çokluk et al., 2014; Kwon & Marzec, 2020). It can be stated that CFI with a value of ".94" stands for

a good fit. Finally, when the RMSEA value is examined, a fit value of .08 is observed. The RMSEA statistic provides information about the fit of the measured value with the covariance matrix of the main mass. It is one of the most commonly used fit indices in recent years. Increasing the number of variables and items in the model causes the RMSEA value to decrease (Byrne, 2011; Diamantopoulos, 2000, Yaşlıoğlu, 2017). RMSEA less than .05 indicates "excellent" fit; less than .08 indicates "good" fit; less than .10 indicates "poor" fit (Çokluk et al., 2014; Kwon & Marzec, 20). It can be interpreted as a good fit with a value of ".08". In addition, in order to demonstrate the convergent validity of the scale, composite reliability (CR) and average variance explained (AVE) values were calculated based on the factor loadings resulting from Confirmatory Factor Analysis (CFA). A CR value higher than the AVE value and an AVE value greater than .50 are evidence of convergent validity (Fornell & Larcker, 1981; Yaşlıoğlu, 2017). Table 2 shows the CFA results and convergent validity values of the scale.

**Table 2.**

*Teacher Leadership Scale Composite Reliability (CR) and Average Variance Explained (AVE) Values*

Sub Dimensions	Items	CR	AVE
Integrative Leadership	Item 2	.83	.51
	Item 3		
	Item 4		
	Item 5		
Professional Learning Leadership	Item 10	.84	.55
	Item 11		
	Item 12		
Measurement and Evaluation Leadership	Item 13	.76	.51
	Item 14		
Instructional Leadership	Item 15	.84	.51
	Item 16		
	Item 19		
	Item 21		
Community Leadership	Item 22	.86	.61
	Item 23		
	Item 24		
	Item 25		
Policy Leadership	Item 26	.82	.60
	Item 27		
	Item 28		
	Item 29	.82	.60
	Item 30		
	Item 32		
	Item 32		

When Table 2 is considered, the fact that the CR value is higher than the AVE value and the AVE value is greater than .50 in all sub-dimensions of the scale reveals that the convergent validity of the Teacher Leadership Scale is

ensured. In conclusion, as a result of the fit indices and validity analyses obtained from the Confirmatory Factor Analysis (CFA), it was revealed that the Teacher Leadership Scale was adapted to Turkish and its six-factor structure was confirmed.

### Findings Regarding the Reliability of the Teacher Leadership Scale

Cronbach Alpha Internal Consistency Coefficient and McDonald's Omega Coefficients were calculated to reveal the reliability of the Teacher Leadership Scale, and item-total correlations were calculated to determine the item discrimination of the scale (Tabachnick & Fidell, 2007). When these coefficients are .70 or higher, internal consistency is considered to be at an acceptable value (Hayes & Coutts, 2020; McDonald, 2013). In addition, the test-retest method was used to measure the stability of the scale. The reliability analysis results for the dimensions and sub-dimensions of the Teacher Leadership Scale are shown in Table 3.

**Table 3.**

*Teacher Leadership Scale Reliability Analysis Results*

Sub Dimensions	Items	Item-Total Correlations	Cronbach Alpha	McDonald's Omega
IL	Item 2	.594	.811	.813
	Item 3	.644		
	Item 4	.495		
	Item 5	.561		
	Item 6	.472		
	Item 10	.655		
PLL	Item 11	.670	.884	.886
	Item 12	.676		
	Item 13	.676		
MEL	Item 14	.641	.780	.795
	Item 15	.627		
IL	Item 16	.640	.832	.841
	Item 19	.621		
	Item 21	.629		
	Item 22	.636		
CL	Item 23	.696	.847	.849
	Item 24	.645		
	Item 25	.563		
	Item 26	.651		
PL	Item 27	.668	.760	.775
	Item 28	.707		
	Item 29	.638		
	Item 30	.454		
TLS	Item 32	.559	.941	
	Total			

Table 3 presents the reliability analysis results of the Teacher Leadership Scale. According to the reliability

analysis results of Cronbach Alpha Internal Consistency Coefficients of the Teacher Leadership Scale, it was calculated as .811 for the "Integrative Leadership" sub-dimension, .884 for the "Professional Learning Leadership" sub-dimension, .780 for the "Measurement and Evaluation Leadership" sub-dimension, .832 for the "Instructional Leadership" sub-dimension, .847 for the "Community Leadership" sub-dimension, and .760 for the "Policy Leadership" sub-dimension. The overall internal consistency coefficient of the Teacher Leadership Scale is .941. According to Kline (2010), Cronbach Alpha Internal Consistency Coefficients can be defined as inadequate below ".50", adequate around ".70", very good around ".80" and excellent around ".90". In the light of the findings obtained from the study, the Cronbach Alpha Internal Consistency Coefficient of the Teacher Leadership Scale can be expressed as "excellent". According to the reliability analysis results of McDonald's Omega Coefficients of the Teacher Leadership Scale, it was calculated as .813 for the "Integrative Leadership" sub-dimension, .886 for the "Professional Learning Leadership" sub-dimension, .795 for the "Measurement and Evaluation Leadership" sub-dimension, .841 for the "Instructional Leadership" sub-dimension, .849 for the "Community Leadership" sub-dimension, and .775 for the "Policy Leadership" sub-dimension. In addition, item-total correlation values, which serve to measure whether each item of the scale (24 items) contributes to the structure of the scale, were revealed. The fact that the items have values of .30 and above indicates that they contribute to the scale (Büyüköztürk, 2011). When the item-total correlations in Table 3 are examined, it is seen that the items have a minimum value of .45 and a maximum value of .71. It was revealed that the items of the Teacher Leadership Scale contributed to the reliability of the scale.

Finally, test-retest method was utilized to determine the stability level of the Teacher Leadership Scale. For this purpose, the scale was administered to 51 teachers working across Türkiye in the 2024-25 academic year at two week intervals. The ideal time interval for the data of the test-retest method to be healthy is 15-30 days (Seçer, 2015). The arithmetic averages, standard deviations, internal consistency coefficients and test-retest reliability coefficients of the scale calculated as a result of the analysis of the two applications are given in Table 4.

**Table 4.**  
*Teacher Leadership Scale Test-Retest Reliability Analysis Results*

Application	Average	ss	r	Cronbach's Alpha
I. Application	4.03	.67	.92	.95
II. Application	4.01	.66		.96

Table 4 shows the results of the test-retest method revealing the stability level of the Teacher Leadership Scale. When the data obtained after the first application are analyzed, the arithmetic mean is 4.03, the standard deviation is .67 and the internal consistency coefficient is .95. When the data obtained 15 days later after the second application were analyzed, the arithmetic mean was 4.01, the standard deviation was 0.66 and the internal consistency coefficient was .96. The correlation coefficient (r) of the data obtained as a result of the first and second application was .92. As a result of the data obtained, the time sensitivity of the scale was also proved. According to all these results, it was proved that the Teacher Leadership Scale is a valid and reliable scale.

### Scoring of Scale Items

The technique of ranking sums is utilized in scoring the six-dimensional structure of the scale. This technique shows that the score of the scale consists of the sum of the scores given to each item (Tezbaşaran, 1996). Separate scores can be obtained from the integrative leadership dimension (5-25 points), professional learning leadership dimension (4-20 points), measurement and evaluation leadership dimension (3-15 points), instructional leadership dimension (5-25 points), community leadership dimension (4-20 points), and policy leadership dimension (3-15 points) of the Teacher Leadership Scale. The Teacher Leadership Scale has a minimum score of 24 and a maximum score of 120. There are no reverse items in the scale. While low scores obtained from the data collected from teachers indicate low level leadership in the relevant sub-dimension, high scores indicate high level leadership in that sub-dimension.

### Discussion

Leadership has a critical role in contributing to school development and student achievement. Especially with the realization of the transformation of the concept of leadership towards a shared structure, teacher leadership, which has evolved into an important situation, has started to gain a significant place in the literature (Yılmaz & Jafarova, 2022). While school leadership is considered the most influential factor after classroom instruction (Leithwood et al., 2004), teacher leadership has become increasingly central to effective school management in recent years (Margolis & Deuel, 2009; Wenner & Campbell, 2017; York-Barr & Duke, 2004). Research has shown that fostering teacher leadership can contribute to increased student achievement, improved decision-making processes, and a dynamic teaching profession (Katyal & Evers, 2016; Martin & Coleman, 2011; Wenner & Campbell, 2017). However, the lack of information about the basic questions and problems in this relatively new field (definition of teacher leadership, the leaderships it covers,

the practices it emerges, etc.) makes it difficult to fully understand the concept of teacher leadership. In this sense, measurement tools are needed to reveal teachers' current leadership knowledge and skills, to develop them, and to enable them to apply these practices in their daily lives.

Although effective definitions, models and frameworks about teacher leadership have been presented, it has not been sufficiently examined in empirical studies (Xie et al., 2021). Teacher leadership has been studied both domestically (Akyürek & Özdemir, 2021; Beycioğlu & Aslan, 2010; Bolat, 2023; Çetinkaya & Arastaman, 2024; Demir, 2014; Deniz & Hasançebiöğlu, 2003; Kahramanoğlu & Eriş, 2020; Kiral, 2021; Yılmaz & Jafarova, 2022) and abroad (Adams & Gamage, 2008; Cheng, 2009; Hanuscin et al., 2012; Tsai, 2017; Wang & Xia, 2020) and abroad (Adams & Gamage, 2008; Cheng, 2009; Hanuscin et al., 2012; Tsai, 2017; Wang & Xia, 2020), some of these studies do not find a common denominator in the concept of teacher leadership and some of them do not provide sufficient evidence regarding the validity and reliability of the measurement tools. Xie et al. (2021) developed the Teacher Leadership Scale with valid and reliable results in order to overcome the lack of information about the basic questions and problems related to teacher leadership (definition of teacher leadership, leaderships covered by it, practices in which it emerges, etc.), to present a measurable teacher leadership model and to develop appropriate dimensions for it.

Teachers need to develop integrative leadership characteristics such as creating effective interactions and collective action, providing guidance, creating a collegial environment based on respect and trust, and building and supporting collaborative teams. Teachers should be able to model and promote professional learning, encourage and design integrated and differentiated professional learning based on their needs, use research as a continuum of professional development, and possess professional learning leadership skills. Teachers should utilize assessment and evaluation leadership in the use and interpretation of multiple assessments to enable colleagues to make informed decisions. Teachers should demonstrate excellence in instructional contexts, assist colleagues and students in effective teaching, provide quality feedback, and demonstrate instructional leadership skills through reflective practice based on student needs. Teachers should develop effective collaboration with families and communities and provide community leadership to improve the quality of colleagues' interactions with families and communities to improve the education system and enhance student learning opportunities. In addition, teachers should help their

colleagues understand educational policies, provide policy leadership to ensure that they participate in the policy-making process at some level, and take an active role in the development of students and teachers and the improvement of education (Center for Strengthening the Teaching Profession, 2018; Hu & Gu, 2012; Xia et al., 2021; Wenner & Campbell, 2017; York-Barr & Duke, 2004). In the scale adapted by Akyürek and Özdemir (2021), the topics of teacher leaders' characters, participation in school-related decisions, instructional and professional development leadership, and diversity and continuous development; and the topics of professional cooperation, administrator support, and supportive working environment by Demir (2014); Beycioğlu and Aslan (2010) on organizational development, professional development and peer collaboration; Kahraman and Eriş (2020) on teacher leadership in the classroom; Bolat (2023) on self-leadership, micro-leadership, and macro-leadership; Yılmaz and Jafarova (2022) on classroom leadership based on the views of middle and high school students; and finally, Çetinkaya and Arastaman (2024) on stakeholder participation, contribution to the teaching profession, professional development, and improvement of teaching. When all these studies are evaluated, the topics of integrative leadership, assessment and evaluation leadership, community leadership and policy leadership, which have not been addressed before in our country, are unique in the literature and are aimed to contribute to the leadership studies to be conducted on these topics.

### Conclusion and Recommendations

The purpose of this study is to adapt the Teacher Leadership Scale developed by Xie et al. (2021) to Turkish culture and integrate it into the local context by conducting validity and reliability studies of an international measurement tool in the literature. The scale, which was originally developed in China, reveals teacher leadership characteristics in various dimensions with the data obtained from teachers. The validity and reliability analyses of the scale were carried out in a way to ensure the adaptation of the scale to Turkish culture with scientific methods and a multi-perspective approach. Confirmatory Factor Analysis (CFA) was conducted to determine the construct validity of the original scale in Turkish culture. CR and AVE values were evaluated together to determine the convergent validity of the scale. Internal consistency and composite reliability analyses were conducted with Cronbach's Alpha and McDonald's Omega Coefficients to determine the reliability of the scale. Test-retest method was used to reveal the stability of the scale over time. In addition, the item-total correlation values, which serve to measure whether the scale items contribute to the

structure of the scale, were analyzed.

The fit indices ( $\chi^2/df$ , AGFI, GFI, CFI, NFI, IFI, RMSEA and TLI) of the CFA conducted to reveal the six-factor structure of the scale did not yield the expected results in the model. Then, it was decided to exclude eight items (Items 1, 7, 8, 9, 17, 18, 20, and 31) from the model due to high error variance and low regression range. For this decision, the field experts whose opinions were consulted during the adaptation phase were consulted again and it was decided that removing the relevant items from the scale would not disrupt the structure of the scale (Bay & Paylı, 2022; Demir & Şahin, 2023; Tümoğlu et al., 2024). After the removal of these items, the 24 items obtained were rearranged and the model was tested. Modification indices for the tested model were analyzed. Modification indices (MI) indicate how well the designed model is defined. Generally, the first model that emerges as a result of CFA is not the best model (Güngör, 2016; Yaşlıoğlu, 2017). A high MI value indicates that there is a relationship between the variables, that is, the variables are not free. Especially in social sciences, it seems unlikely that the MI value is close to zero. The link to be established between the variables specified in MI values contributes to the improvement of model fit indices (Jöreskog & Sörbom, 2006; Yaşlıoğlu, 2017; Yılmaz & Jafarova, 2022). Accordingly, modifications were made between items (I2-I3, I10-I11, I14-I16, I25-I26). In the literature, there is no agreement on how many modifications should be made in scale development and adaptation studies, and it is argued that it may vary depending on the type, structure and purpose of the scale (Devellis, 2017; George & Mallery, 2007; Jöreskog & Sörbom, 2006; Streiner & Norman, 2008). As a result of the CFA analysis conducted after the necessary corrections were made, the construct validity of the scale in Turkish culture was found to be valid. The emergence of significant factor loadings for each dimension of the scale, composite reliability (CR) and average variance explained (AVE) values ensure the convergent validity of the scale (O'Rourke & Hatcher, 2013).

Cronbach Alpha Internal Consistency Coefficient and McDonald's Omega Coefficients were calculated to reveal the reliability of the Teacher Leadership Scale, and item-total correlations were calculated to determine the item discrimination of the scale (Tabachnick & Fidell, 2007). When these coefficients are .70 or higher, internal consistency is considered to be at an acceptable value (Hayes & Coutts, 2020; McDonald, 2013). In addition, in order to measure the stability of the scale, the test-retest method was used with a two-week interval. Reliability analyses revealed that the scale is a reliable measurement tool in Turkish culture.

As a result of the validity and reliability analyses, the

Teacher Leadership Scale has been developed as consisting of six dimensions and 24 items: (a) integrative leadership (5 items), (b) professional learning leadership (4 items), (c) assessment and evaluation leadership (3 items), (d) instructional leadership (5 items), (e) community leadership (4 items) and (f) policy leadership (3 items) (ANNEX). The lowest score that can be obtained from the scale is 24 and the highest score is 120. The Teacher Leadership Scale, which has been adapted into Turkish, can be used as a whole, but it also provides convenience in terms of enabling the use of the relevant dimension for the research topic if needed. It also provides scientific data on the scope and importance of teacher leadership based on research findings. It provides scientific data for policy makers, researchers and practitioners to set certain standards related to teacher leadership, to determine competencies and to become active actors in education and training. In addition, it offers a unique perspective to the literature on how to lead practitioners in the field, their colleagues in measurement and evaluation, and policy-making and development processes and how to measure the results of these leadership behaviors.

**Note:** Researchers and practitioners who want to use teacher leadership can use the scale without the need to obtain permission from the authors, provided that they cite it.

**Ethics Committee Approval:** In order to carry out the research, "Ethics Committee Approval (letter dated November 27, 2024 and numbered 19/17 of the Rectorate of Inonu University) was obtained.

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## **EK- Öğretmen Liderlik Ölçeği**

### **Bütünleştirici Liderlik**

1. Meslektaşlarım arasındaki çatışmaları çözmeye yardımcı olurum.
2. Meslektaş ilişkilerinin geliştirilmesine destek olurum.
3. Meslektaşlarımın diğer meslektaşlarımın başarılarını takdir etmelerini desteklerim.
4. Ekip arkadaşlarımı, güçlü yönlerini kullanarak çalışmaya motive ederim.
5. Ortak hedeflerin gerçekleştirilmesini desteklerim.

### **Mesleki Öğrenme Liderliği**

6. Meslektaşlarımın farklı öğrenme ihtiyaçlarını belirleyerek onları çeşitli mesleki eğitim faaliyetlerine teşvik ederim.
7. Okulumda öğretmenlerin mesleki gelişimine yönelik faaliyetlerin uygulanmasına yardımcı olurum.
8. Öğretmenlerin daha fazla mesleki öğrenme zamanlarına sahip olmaları için okul yöneticileriyle iletişime geçerim.
9. Öğretmenlerin mesleki gelişimlerine yönelik daha fazla eğitim imkânı sağlanması için okul yöneticileriyle iletişim kurarım.

### **Ölçme ve Değerlendirme Liderliği**

10. Mesleki öğrenmenin kalitesini ve etkilerini değerlendirmek için meslektaşlarımla birlikte çalışırım.
11. Öğrencilerin akademik performans verilerinin toplanmasında meslektaşlarıma destek olurum.
12. Öğrencilerin başarılarını analiz ederek meslektaşlarımın eğitsel uygulamalarını iyileştirmelerine yardımcı olurum.

### **Öğretim Liderliği**

13. Meslektaşlarıma sınıf içi eğitsel uygulamalar konusunda örnek olurum.
14. Meslektaşlarımın kendi öğretim uygulamaları üzerine düşünmelerini desteklerim.
15. Meslektaşlarımın öğrencilerinin bireysel farklılıklarına dikkat etmelerini sağlarım.
16. Meslektaşlarıma, bireysel farklılıklara göre eğitsel süreçleri tasarlama konusunda yardımcı olurum.
17. Meslektaşlarımla eğitimin nasıl iyileştirilebileceğini tartışırım.

### **Topluluk Liderliği**

18. Aileler ve okul paydaşları ile olumlu etkileşim kurarım.
19. Ailelerden ve toplum üyelerinden öğrenci gelişimine katkı sağlamaları konusunda destek isterim.
20. Meslektaşlarıma ailelerle iletişim ve işbirliği konusunda model olurum.
21. Meslektaşlarımın toplumla ve ailelerle olumlu etkileşimlerini kolaylaştırırım.

### **Politika Liderliği**

22. Öğretmen gelişimini desteklemek için daha fazla mali, insan ve diğer kaynakların kullanılmasını talep ederim.

23. Mesleğimin tanınırlığının ve saygınlığının artması için desteklenmesini isterim.

24. Meslektaşlarımın okulda politika oluşturma sürecine katılımını kolaylaştırırım.

### **Puanlama Yönergesi**

\*Öğretmen liderliği ölçeğinde ters madde yoktur.

\*Ölçek 6 alt boyut ve 24 maddeden oluşmaktadır.

\*Alt boyutlar;

-Bütünleştirici Liderlik: 1,2,3,4,5

-Mesleki Öğrenme Liderliği: 6,7,8,9

-Ölçme ve Değerlendirme Liderliği: 10,11,12

-Öğretim Liderliği: 13,14,15,16,17

-Topluluk Liderliği: 18,19,20,21

-Politika Liderliği: 22,23,24

\*Ölçekten alınabilecek en düşük puan 24, en yüksek puan ise 120'dir.