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Relationship of Teacher Leadership with Organizational, Professional, and Individual Outcomes: Proofs from Turkey

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Abstract

This study analyzes the relationship between teacher leadership and organizational, professional, and individual outcomes. The analysis is of 44 studies conducted in Turkish or English languages between 2010 and 2022 from electronic databases. All the research was carried out in Turkey. The findings have been combined using the meta-analysis method. Findings show that the mean effect size between teacher leadership and organizational outcomes is high-level (ES=.53 LL=.46 UL=.59); the mean effect size between teacher leadership and professional outcomes is medium-level (ES=.42 LL=.36 UL=.47) the mean effect size between teacher leadership and individual outcomes is medium-level (ES=.48 LL=.36 UL=.58). On the other hand, it is found that the relationship between teacher leadership and organizational outcomes in education zones with lower socio-economic levels is higher than the other relationships.

Keywords: leadership, teacher leadership, meta-analysis

Individuals take part in various organizations to meet their differentiating and increasing needs, to sustain their lives, and to make use of their existing potential. Organizations, which are among the determinants of social life, are affected by the rapidly changing and developing world. To compete with other organizations, make a difference and be successful, organizations have tried to adapt to changing conditions. Changes especially in social, cultural, political, and economic domains have shaped and varied the concept of organizations. One of the organizations affected by these changes is educational institutions. These organizations need leaders to continue their functions and reach their purposes; leadership is considered an indispensable phenomenon for modern institutions. Teacher leadership started to become important when school managers distributed their authority to shareholders in the 80s (Çalık, 1997; Muijs & Harris, 2003). Teacher leadership has become more and more important for efficient school administration and classroom management processes (Wang & Ho, 2019). Besides managing student classroom behavior, teachers are expected to lead students, parents, and colleagues. Teacher Leaders ensure the realization of the school vision and give a vision about the future to students (Schott, et al., 2020). The impact domain of teacher leaders can exceed the boundaries of the classroom and school environments. They have crucial roles in managing, adapting, and transforming the classroom and school environment to increase the academic success of students (Grant, 2019).

Theoretical Background

Teacher Leadership

Teacher leadership is a term used in K-12 schools for classroom educators who simultaneously assume administrative roles outside the classroom to contribute

to the functions of the school system (Altunay, 2017). The teaching profession is one whose effects go beyond the classroom and school. Teachers play an important role in school and society. Teacher leadership, in the professional sense, is a holistic concept. Teacher Leaders make contributions to the school's future, problem solve, and help colleagues develop both personal and professional skills. Furthermore, through their role in school management, teacher leaders may be able to strengthen ties between school and community. In this context, school leadership is analyzed with its organizational, professional, and personal dimensions (Beycioğlu & Aslan, 2010; Schott, et al., 2020).

Teacher Leadership and Organizational Factors

Organizational factors involve elements like the structure of an organization, organizational culture, organizational support, organizational commitment, citizenship justice, and school management (Karadağ et al., 2015; Schott, et al., 2020). Organizational structure refers to the distribution of duties and responsibilities in an organization; more clearly, it involves separation of total workload in an organization into units, making necessary physical formations, planning workflow and application methods, and defining the roles of members (Balcı, 2002). Success and failure of teacher leadership efforts are substantially about organizational structure (Sawyer, 2005). Defining the details of the duties in an organizational structure, distributing them carefully, and clearing the network of responsibilities play the greatest role in reaching success in the teacher leadership process. Another element is organizational culture which is a system consisting of norms, rules, values, behaviors, and habits (Dinçer, 1992). All segments of society understand that school is a crucial organization. It is believed that it is necessary to have a strong and positive culture for the productivity of educational institutions.

Organizational culture directly affects the leadership roles carried out by teachers (Katzenmeyer & Moller, 2001). Strong organizational culture plays a leading role in school success, improvement, and process of change. The existence of original norms in a school, independent from general professional norms, ensure teacher leaders have a positive outlook about the activities in and beyond the organization. School culture is a significant element that encourages teacher leadership (Smylie, 1997; Rosenbach, Taylor, & Youndt, 2019).

Teacher leaders work together with school administration and build school culture to make their organization successful in every sense. According to Chapman (2009), consolidation of organizational culture is possible when there is an independent and innovative understanding of workers taking part in an organization. When administrators do not appreciate the knowledge and experience of the teacher leader and give them the respect they deserve, administrators resist inter-organizational practices and activities. School administration should be able to realize this situation, encourage teacher leadership, and thus increase organizational performance and commitment. Another significant organizational variable of teacher leadership is organizational support. Giving value to the performance and contributions of individuals in an organization and improving the level of welfare are the basic elements of organizational support. According to Rahaman (2012), organizational support is possible when different variables like educational support of individuals in an organization, organization managers' support to individuals, prizes, working conditions, justice, communication, and education of organization members, come together. It is possible to have a functioning, sustainable organization when the thoughts, suggestions, and criticisms of individuals are taken into consideration. Communication in an organization is crucial and increases the commitment of

organization members to the group. This commitment in educational organizations forms the basis of teacher leadership. The relationship between school management and teachers is another element that affects teacher leadership. School managers might have positive or negative effects on teacher leadership. School leaders cannot improve unless they are supported and encouraged by school managers (Harrison & Lembeck, 1996). School management should provide an environment that enables teacher leaders to carry out their roles as guides.

Teacher Leadership and Professional Factors

Professional factors include knowledge, skills and behaviors related to the teaching profession. They include teacher self-efficacy, professional satisfaction, collaboration skills, and communication skills (Schott, et al., 2020), and factors such as relationships with the institution, teacher salaries, education policies, admission to the profession, teacher training, employment issues, professional development, rewards and career opportunities, professional autonomy, and women in the profession (Mutluer & Yüksel, 2019). Professional factors directly support teacher leadership. Besides having knowledge and experience about a specific procession, it is significant to be able to reflect the qualifications to educational activities; teachers can improve the quality of their performance when they combine these elements (Şahin, 2010). Teachers, who reach a high level of self-efficacy, need to believe that they can carry out the duties and responsibilities attributed to them by their organization. Self-efficacy beliefs of teachers vary according to their professional experiences, indirect experiences, verbal persuasion, and emotional states. Especially professional experiences and indirect experiences that they have gone through observing other individuals in the same field can positively affect teacher

sufficiency, student success, and teacher leadership (Gürbüz, Erdem, & Gülburnu, 2013).

Teacher Leadership and Individual Factors

Another element that supports teacher leadership is an individual factor, which is about the personal characteristics of teachers. These features include personal characteristics like well-being, altruism, being open to change, and self-development. Individual factors based on psychological well-being are psychological, mental, physical happiness, and satisfaction (Bradburn, 1969). Giving meaning to life and being peaceful, establishing healthy relationships, and being able to manage personal development require psychological well-being. According to Şeker (2009), psychological well-being, personal characteristics, life satisfaction, cultural practices, social relationships, personal successes, and demographic features like age, and income level are shaped according to different factors. Psychological well-being at the school organizational level includes elements like evaluation of organizational life by members, their emotional experiences in the organization, and their cognitive and emotional evaluations of school management-parent-student relationships.

Psychological well-being has six sub-dimensions: self-acceptance, having positive relationships with others, personal development, the purpose of life, environmental control, and autonomy (Ryff, 1989). Psychological well-being is highly significant for the members of an organization; individuals that are satisfied with their lives become more productive and thus more capable of preventing problems in an organization. There are comprehensive systematic evaluations in the related literature about teacher leadership (Grant, 2019; Nguyen et al. 2019; Schott et al. 2020; Wang & Ho 2019). There are meta-analysis research studies on teacher leadership and student outcomes at the level of higher education (Balwant, 2016)

and K-12 (Shen et al. 2020; Uysal & Sarier 2019). Besides the relationship of teacher leadership with student outcomes, it has close relation with organizational, professional, and individual outcomes (Schott et al. 2020). It is necessary to carry out research for determining the level of the relationship between teacher leadership and organizational, professional, and individual outcomes. In this research, the purpose is analyze the relationships between these elements. Determining the factors that are related to teacher leadership and the elements that contribute to teacher leadership behaviors are necessary to understand the theoretical and practical judgments about teacher leadership. Based on this, this research study analyzes the relations between teacher leadership, organization, and professional and individual outcomes.

Purpose

This study explores the relationship between teacher leadership and organizational, professional, and personal outcomes. The research questions mentioned below are asked and answered for this purpose.

1. What is the level of the relationship between teacher leadership and organizational outcomes?

1.1. Does the relationship between teacher leadership and organizational outcomes vary according to moderator variables?

2. What is the level of the relationship between teacher leadership and professional outcomes?

2.1. Does the relationship between teacher leadership and professional outcomes vary according to moderator variables?

3. What is the level of the relationship between teacher leadership and individual outcomes?

3.1. Does the relationship between teacher leadership and individual outcomes vary according to moderator variables?

Method

The method of this study is meta-analysis. The meta-analysis method is used for statistically synthesizing the findings of basic research (Borenstein, et al. 2011). The purpose of this study is to analyze the relationship between teacher leadership and the organizational, professional, and individual outcomes. The meta-analysis method can be used for analyzing the relationship between teacher leadership and these outcomes independently. The meta-analysis method is highly useful for synthesizing the basic research findings of the topic of single research (Paul & Barari, 2022).

Data Collection

Data for this study is obtained from electronic databases. These databases are TR Index, YÖK thesis research center, ERIC, Academic Search Ultimate, and Scopus. These searches are carried out in Turkish and English languages. Turkish words “öğretmen liderliği, lider öğretmen, sınıf liderliği, sınıf lideri, öğretmen öz liderliği” and English words “teacher leadership, leader teacher, classroom leader, classroom leadership, leadership in the classroom, and teacher self-leadership” are used during searches. The option “in the title” is used in the process. In line with the research purpose, criteria were determined for the studies to be included in the study object. The literature on teacher leadership in Turkey has started to develop since the mid-2000s. Early teacher leadership studies were generally related to the definition, characteristics, and behaviors of teacher leadership (Can, 2006). As of 2010, empirical or survey-based research on teacher leadership has begun to be encountered. For this reason, 2010 was chosen as the starting year of this study.

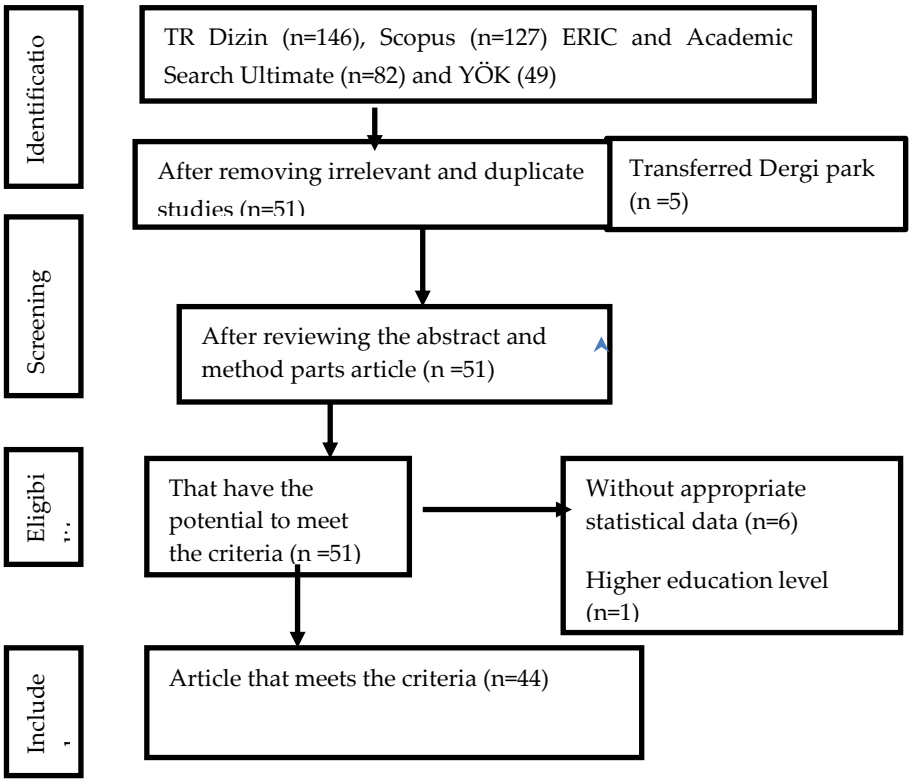
Moreover, teaching attitudes and behaviors differ according to cultures (Parlar, et al. 2017). Again, teachers' understanding of leadership differs according to their culture (Demir, 2015). For this reason, we focused on a single culture to make a better analytical evaluation.

Inclusion Criteria

Basic research: a) It should be reported between the years 2010 and 2022 in Turkish or English language. b) Analyzed leader should be a teacher. c) Location should be Turkey. d) Analyzed structures should focus on a minimum of one of the organizational, professional, or individual products. e) Education level should be K-12. f) It should include statistical data (pearson correlation coefficient, R^2 and N) sufficient for calculating effect size.

The researchers checked whether the selection criteria were included in the study abstract. Besides the mentioned databases, the “Dergipark” platform was also used to search for related studies. Five types of research from the “Dergipark” platform are included in this study. After this screening, a total of 44 basic types of research are included in the analysis. Features of all the basic research included in this study are presented in Appendix 1. The search included the years between 2010 and 2022. However, there was no research in the years 2010, 2011, 2012, and 2013 that met the criteria for this study. The data flow chart according to the general dataset is presented in Figure 1.

Figure 1. Data Flow Chart



Coding: Selected research are coded according to their features. A summary of the coding is presented in Table 1.

Table 1

Variable groups and the coding process

Group	Codes
Identification	Identification
Leadership Model	teacher leadership, self-leadership, transformational and other (democratic, charismatic, authoritarian)
General Outcomes	organizational, professional, individual
Organizational Outcome	organizational structure, organizational culture, organizational support, and other
Professional Outcome	teacher sufficiency and other
Individual Outcome	well-being and others
Education Level	primary education, secondary education, and combined
Education Zone Socio-economic level*	high, medium, and low

Research Quality	insufficient, low, medium, high
Publication year	2014-2016, 2017-2019, 2020-2022
Publication	published and not-published
Sampling method	random, proper, layered, unknown
School Type	government, private and combined

*Acar et al. (2019) determined six different education zone socio-economic levels. If the level is 1 or 2, it is coded high, if 3 or4 it is medium, and if 5 and 6 it is low.

Research Quality: The quality of research included in the meta-analysis is closely related to the reliability of calculated effect size (Luchini et al. 2021); quality evaluation of research included in this study is carried out for this purpose. A quality evaluation scale developed by Ciccolini et al. (2013) is used (Appendix 2).

Statistical Independence: If basic research focuses on more than one teacher leadership model, they are coded as independent research. Similarly, if basic research focuses on one teacher leadership model and more than one outcome, each outcome is coded as independent research. The dataset is divided into three independent sub-datasets according to the problem sentences. These sub-datasets are:

i) Teacher leadership and organizational outcomes

ii) Teacher leadership and professional outcomes

iii) Teacher leadership and individual outcomes

Statistical analyses are carried out independently for each sub-dataset. The same statistical processes conducted for each sub-dataset are presented below in detail.

Statistical Model

The use of the “random effects” model has suggested that samplings and other features of research are included in the meta-analysis (Konstantopoulos &

Hedges (2019). As samplings and structures, the analyses are different from one another, statistical analyses are carried out with a “random effect” model.

Effect Size Calculation

Pearson *r* value causes variance narrowing. Pearson *r* value is between 1 and -1. This distribution causes variance restriction (Borenstein et al. 2011). Because of this, Pearson *r* values are transformed to Fisher’s *z (Fz)* values (*r=Fz=ES*). On the other hand, the *r*-value is an effect size index that is very frequently used in social sciences (Funder & Ozer, 2019). For this reason, *Fz* values are transformed to Pearson *r* values while reporting the results of this research (Borenstein & Hedges, 2019).

Publication Bias Analysis

Effect size calculated in meta-analysis research might have publication bias. Unpublished master’s theses are included in this study to decrease the publication bias risk of calculated effect size (Anglin et al. 2021). Various statistical techniques are developed to determine publication bias in meta-analysis research (Jin et al. 2015). The funnel plot graphic is analyzed and interpreted to test the publication bias in this study. Publication bias is statistically tested with Begg and Mazumdar rank correlation test (BMRC) and Egger’s regression test (ER), Duval & Tweedie, trim and fill analysis (DTTF) techniques.

Moderator and Heterogeneity Analysis

Moderator variables that have the potential to affect the calculated effect size are determined. These variables are teacher leadership models, education level, education zone, research quality, publication year range, publication, sampling method, and school type. Moderator variables, organizational outcome types, professional and individual outcome types special to sub-datasets are analyzed. *Q*

intergroup test is used to determine if effect size varies according to moderator variables. Besides, Q is used for determining the total heterogeneity level of sub-datasets and I^2 is used for interpreting the heterogeneity level.

In cases where the effect sizes were insufficient (*k*<*3*), if statistical difference was found because of heterogeneity analysis, it was not interpreted. Because of the insufficiency of the effect size, comments were avoided. However, effect sizes are presented according to different groups. In cases where the effect sizes are insufficient (*k*<3), the aim is to present the effect size values for the subgroups.

Findings

Publication bias size analyses and mean effect sizes of sub-datasets are presented in this section of the study. After this, moderator and heterogeneity analyses of sub-datasets are presented.

Publication Bias Analyses According to Sub-Datasets

Funnel plot graphics about the sub-dataset are presented in Figures 2, 3, and 4. It is observed that the effect sizes and distribution of standard errors are symmetrical in Funnel plot graphics.

Figure 2. Organizational outcomes

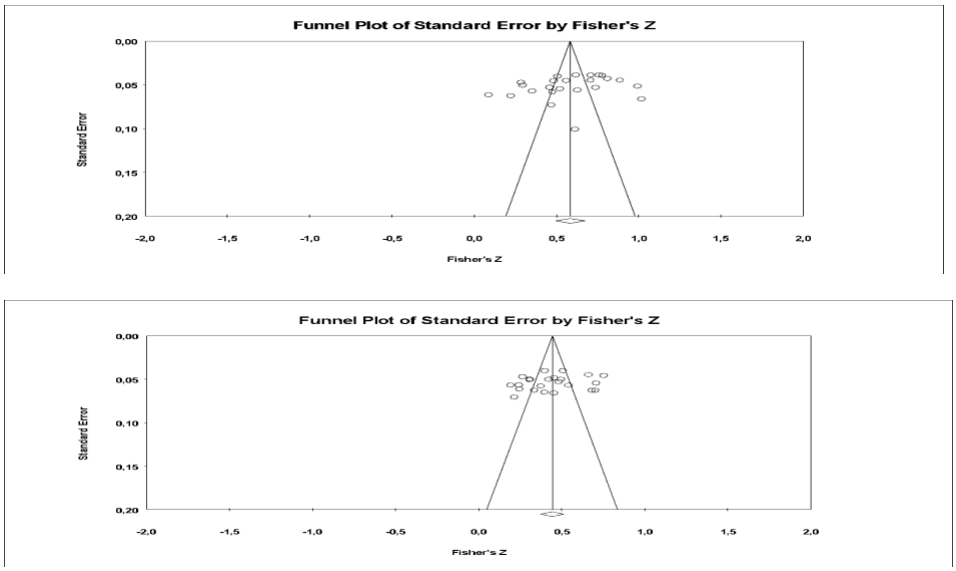


Figure 3. Professional outcomes

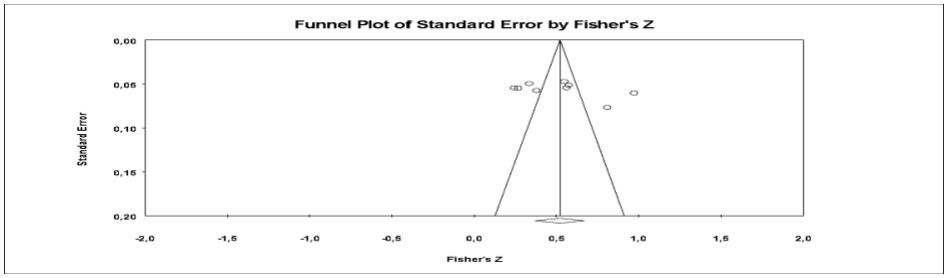


Figure 4. Individual factors

Publication bias analyses of the sub-datasets are presented in Table 2**.** BMRC, ER, and DTTF test results indicate that there is no publication bias in these datasets. When the results of the analyses are taken into consideration, it can be said that sub-datasets do not have publication bias.

Table 2
Publication bias analyses

	BMRC		ER		DTTF
General outcomes		*p*	*t*	*p*	*studies trimmed*
organizational	1.56	.12	1.43	.17	0
professional	.71	.48	.91	.37	0
individual	.73	.47	1.28	.24	0

Mean effect size and heterogeneity of the sub-dataset

Mean effect size and heterogeneity analyses of the sub-dataset are presented below.

Table 3
Mean effect size and heterogeneity of the dataset

General products	*k*	*ES(r)*	*LL*	*UL*	*Q(top)*	*p*	I^2
organizational	24	.53	.46	.59	454.66	<.01	94.94
professional	23	.42	.36	.47	218.68	<.01	89.94
individual	9	.48	.36	.58	137.10	<.01	94.16

The mean effect size between teacher leadership and organizational outcomes is calculated to be *ES*=.53 (LL=.46 UL=.59). The total heterogeneity of teacher leadership and organizational outcomes sub-datasets is *Q*(23)=454.66. It is

observed that the sub-dataset is highly heterogeneous (I^2=94, 94). It is found that the mean effect size between teacher leadership and professional outcomes is *ES*=.42 (LL=.36 UL=.47). It is calculated that teacher leadership and professional outcomes total heterogeneity is *Q*(22)=218.68. It can be said that the dataset is highly heterogeneous (I^2=89.94). On the other hand, the mean effect size between teacher leadership and individual outcomes is *ES*=.48 (LL=.36 UL=,58). The total heterogeneity of teacher leadership and individual outcomes sub-dataset is Q(8)=137.10'dur. It can be said that the dataset is highly heterogeneous (I^2=94.16)

Moderator and Heterogeneity Analysis of Teacher Leadership and Organizational Outcomes

Table 3

Mean effect size and heterogeneity about organizational outcomes dataset

Group	*k*	*ES*	*LL*	*UL*	*Q(b)*	*df*	*p*
Leadership model							
teacher leadership	17	.55	.48	.61			
transformational	3	.60	.44	.72			
self-leadership	3	.30	.09	.49			
other model	1	.55	.19	.78	6.86	3	.08
Organizational outcome types							
organizational culture	7	.55	.42	.66			
organizational structure	4	.44	.25	.60			
organizational support	3	.51	.29	.67			
other	10	.55	.44	.64	1.27	3	.74
Education level							
elementary	4	.46	.27	.62			
secondary	5	.56	.40	.68			
mixed	15	.53	.45	.61	.82	2	.66
Education zone (socio-economic level)							
high	6	.46	.33	.58			
medium	12	.59	.51	.66			
low	3	.60	.44	.72			
mixed	3	.29	.08	.48	10.81	3	.01
School type							

public	14	.53	.44	.60			
unknown	10	.53	.42	.62	.01	1	.97
Sampling							
random	6	.58	.45	.68			
convenience	3	.39	.17	.58			
stratified	2	.56	.32	.73			
other	2	.66	.46	.80			
unknown	11	.50	.39	.59	4.94	4,	.29
Quality							
high	19	.56	.50	.62			
medium	5	.36	.19	.51	6.40	1	.01
Publication							
published	18	.55	.47	.62			
unpublished	6	.46	.31	.59	1.26	1	.26
Year range							
2014-2016	5	.48	.32	.61			
2017-2019	14	.58	.50	.65			
2020-2022	5	.41	.25	.55	4.71	2	.09

Teacher leadership and organizational outcomes moderator and heterogeneity analyses are presented in Table 3. It is observed that the effect size of education zones meaningfully varies according to socioeconomic level ($Q(2)=10.81$ $p=0.01$). The relationship between teacher leadership and organizational outcomes in low socio-economic education zones created a bigger effect size when compared to the other zones. Besides, it is observed that the effect sizes according to quality levels of research meaningfully varied ($Q(2)=6.40$ p=0.01). Research with a high-quality level created a higher effect size when compared to the research with a medium quality level. The relationship between teacher leadership and organizational culture (*ES*=.55), and teacher leadership and organizational support *(ES*=.51) is strong. Teacher leadership relationship with organizational culture (*ES*=.44) is medium. Besides, it is determined that effect size according to teacher

leadership models, organizational outcome type, education level, school type, sampling method, publication, and the year of publication didn't statistically vary.

Moderator and Heterogeneity Analysis of Teacher Leadership and Professional Outcomes Dataset

Moderator and heterogeneity analysis of teacher leadership and professional outcomes are presented in Table 4. It is found that effect sizes did not vary according to teacher leadership models, professional outcome types, education level, education zone, school type, sampling method, research quality level, publication, and publication year range. It is determined that the relationship between teacher leadership and teacher sufficiency is medium level (*ES*=.42)

Table 4

Mean effect size and heterogeneity about professional outcomes dataset

Group	*k*	*ES*	*LL*	*UL*	*Q(b)*	*df*	*p*
Leadership model							
teacher leadership	16	.38	.31	.45			
self-leadership	3	.48	.32	.61			
transformational	1	.59	.33	.77			
other model	3	.46	.30	.60	3.79	3	.29
Professional outcome types							
teacher efficacy	19	.42	.36	.49			
Other	4	.38	.23	.51	.37	1	.54
Education level							
elementary	9	.41	.31	.50			
secondary	2	.49	.29	.65			
Mixed	12	.41	.32	.49	.62	2	.73
Education zone (socio-economic level)							
High	12	.41	.33	.48			
Medium	6	.51	.41	.59			
Low	1	.24	-.06	.50			
mixed	4	.34	.21	.47	6.46	3	.09
School type							
public	11	.44	.36	.51			
mixed	2	.20	-.03	.41			
private	1	.42	.13	.65			
unknown	9	.43	.34	.51	4.53	3	.21
Sampling							

random	2	.23	.01	.42		
convenience	4	.46	.33	.57		
stratified	2	.25	.04	.43		
other	2	.51	.33	.65		
unknown	13	.44	.37	.50	8.90	4	.06
Quality							
high	17	.41	.34	.48		
medium	6	.43	.31	.53	.04	1	.83
Publication							
published	19	.42	.35	.48		
unpublished	4	.40	.25	.53	.07	1	.79
Year range							
2014-2016	6	.47	.35	.57		
2017-2019	11	.37	.28	.46		
2020-2022	6	.44	.33	.54	1.98	2	.37

Moderator and Heterogeneity Analysis of Teacher Leadership and Individual Outcomes Dataset

Moderator and heterogeneity analyses about teacher leadership and individual outcomes are presented in Table 5. The effect size between teacher leadership and individual outcomes statistically varies according to the quality level of research ($Q(1)=16.72$ $p<.01$). It is observed that research with high-quality levels produce a lower effect size when compared to the research with medium quality level. Besides, it is seen that effect size didn't vary according to teacher leadership models, individual outcome types, education level, education zone, school type, sampling method, publication, and year range. The relationship between teacher leadership and well-being is strong (*ES*=.50).

Table 5

Mean effect size and heterogeneity about individual outcomes dataset

Group	*k*	*ES*	*LL*	*UL*	*Q(b)*	*df*	*p*
Leadership model							
teacher leadership	4	.41	.20	.59			
self-leadership	4	.57	.39	.71			
transformational	1	.33	-.13	.67	2.15	2	.34
Individual outcomes							
well-being	3	.50	.26	.68			
other	6	.47	.30	.61	.06	1	.81

Education level						
elementary	2	.44	.13	.67		
mixed	7	.49	.34	.62	.13	1 .72
Education zone						
high	4	.52	.28	.69		
medium	3	.40	.10	.64		
low	1	.52	.01	.82		
mixed	1	.50	-.02	.81	.49	3 .92
School type						
public	4	.50	.30	.65		
mixed	2	.59	.34	.76		
unknown	3	.37	.12	.57	1.92	2 .38
Sampling						
random	2	.30	.04	.52		
convenience	1	.52	.20	.74		
stratified	2	.64	.46	.78		
other	1	.24	-.13	.55		
unknown	3	.52	.34	.66	8.12	4 .09
Quality						
high	7	.40	.30	.48		
medium	2	.71	.60	.80	16.72	1 <.01
Publication						
published	7	.50	.36	.62		
unpublished	2	.39	.09	.63	.49	1 .48
Year range						
2014-2016	1	.24	-.21	.61		
2017-2019	3	.55	.34	.71		
2020-2022	5	.48	.30	.62	1.87	2 .39

Discussion

Findings of the relationship between teacher leadership and organizational, professional, and individual outcomes are presented in this section in three groups.

Teacher Leadership and Organizational Outcomes

As a result of this study, a strong relationship was found between teacher leadership and organizational outcomes (ES=r=.53). Support within the organization and organizational structure are two striking results in terms of organizational outcomes. The relationship between teacher leadership, organizational culture and support is strong. On the other hand, the relationship between teacher leadership and organizational structure is moderate. Related literature shows that teacher

leadership has an impact on changes in school culture (King & Stevenson, 2017; Sebastian, Huang, & Allensworth, 2017). The findings of Al-Zboon (2016) and Kwantes and Boglarsky (2007) also support this study.

On the other hand, Butler et al. (2014) mentioned that school stakeholders who do not have formal leadership positions are reluctant to have leadership behaviors. It can be argued that the administrative structure and school culture to which teachers belong play a role in the development of school culture. It can also be argued that in a supportive culture, teachers are more willing to have leadership behaviors. Teacher leadership plays a critical role in creating an effective administrative structure and a functional school culture. In this context, schools should encourage teachers to participate in decision-making processes. Moreover, the leadership behaviors of teachers should be supported by the school management to develop the school culture. Teachers are responsible for classroom management; in-classroom application is an area that enables teachers to show leadership performances efficiently. In classroom application, efficient teaching practices should be encouraged and supported by the school management. According to the results of this study, the relationship between teacher leadership and organizational outcomes is higher in education zones with lower socioeconomic levels. Smith & Gümüş (2022) find evidence of a potential for teacher-leader dialogue to reduce between-school inequality in mathematics achievement. The reason for this situation might be that teachers working in lower socio-economic education zones participate more in school administration practices. The socio-economic level is generally a structure that is based on more than one indicator. Hallinger (2018) claims that contextual features of the school environment (socio-economic structure etc.) might have important effects on school leadership. This

claim is in line with the findings of this study. Steinberg & Yang (2020) and, Gümüş et al. (2022) showed that leadership practices in schools with low socio-economic structures contribute more to success as they compensate for the inequalities in school resources. These findings directly support the results of this study. In this context, it can be argued that teacher leaders who serve in education zones with low socioeconomic levels carry out efficient roles. In parallel with this, leadership programs for teachers working in these zones should be designed and applied.

Teacher Leadership and Professional Outcomes

This study determined that there is a medium-level relationship between teacher leadership and professional outcomes (ES=r=.42). Teacher sufficiency is highly significant in terms of professional outcomes. There is a medium-level relationship between teacher leadership and teacher sufficiency. Research studies in the literature support this finding (Lieberman, Saxl & Miles, 1988; York-Barr & Duke, 2004). Buna Gunter (2005) emphasizes that teacher leadership affects different professional outcomes such as professional cooperation and developing social relationships. Gunter's research results are partially in line with the results of this study. Teacher leadership has a close relationship with professional knowledge, skills, and competence. Classroom management sufficiency of teachers is important in terms of the abilities including efficient use of teaching methods, guiding students, and serving as role models. In-service training prepares teachers for improving professional sufficiency; teachers should be encouraged and supported to participate in these programs. In-service training programs should be constructed in cooperation with universities in education zones according to the conditions of regions. Cooperation between university and education zones should be ensured and supported to encourage teachers to have sustainable professional development.

Teacher Leadership and Individual Outcomes

This study found that there is a medium-level relationship between teacher leadership and individual products (ES=r=.48). Well-being is highly important in the scope of individual products. There is a medium-level relationship between teacher leadership and well-being. Compilation research on the issue show that the efficacy of teacher leadership is closely related to the psychological features of teachers (Muijs & Harris, 2006; Nguyen, Harris, & Ng, 2020; York-Barr & Duke, 2004). Based on the studies in the literature, it can be said that these research results are in line with the results of this study. In contrast to this, John (2015) analyzed case studies and claimed that teacher leadership is an organizational phenomenon rather than an individual effort. When school outcomes are compared and analyzed, it can be said that the relationship between teacher leadership and organizational outcomes is more powerful. It can be expected that the relationship between organizational conditions and teacher leadership is stronger in countries where centralized administration is dominant. This situation also indicates that the leadership behaviors of teachers are closely related to the organizational features of their school.

Limitations and Suggestions for Future Studies

This study is limited to Turkish sampling. Meta-analysis studies that compare cultures of different countries can be carried out to reach more comprehensive results. This study includes teacher leadership (general), teacher self-leadership, transformational and teacher leadership styles (democratic, authority, etc.) leadership, and models. Distributed leadership model comprises both school administrators and teachers. This leadership model can be regarded as a teacher leadership model in future research. Besides these, this study includes organizational, professional, and individual outcomes. Analyses of teacher

leadership and organizational outcomes can be included in future research processes. Additionally, professional, and individual products can be more comprehensively analyzed (including different languages, countries, etc.).

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Appendix 1

Characters of the included research study	n	r	Teacher Leadership	Outcomes	general	level	SES	report	quality	school type
Göksoy et al. (2014)	394	0,287	Self Leadership	Other Organizational Factor	O	mixed	H	P	H	public
Kılınç et al. (2015)	302	0,36	Teacher Leadership	Teacher Efficacy	PROF	elementary	M	P	H	unknown
Öntaş & Okut (2017)	233	0,425	Teacher Leadership	Teacher Efficacy	PROF	mixed	H	P	H	private
Korkmaz & Köse (2019)	409	0,325	Transformational	Other	IND	mixed	M	P	H	unknown
Ağırman & Erçoşkun (2017)	312	0,192	Teacher Leadership	Teacher Efficacy	PROF	elementary	H	P	H	mixed
Savaş (2017)	230	0,77	Teacher Leadership	Organizational Culture And Climate	O	secondary	M	P	H	public
Yılmaz et al. (2017)	338	0,61	Teacher Leadership	Teacher Efficacy	PROF	mixed	M	P	H	unknown
Üredi & Gül (2018)	313	0,239	Teacher Leadership	Teacher Efficacy	PROF	mixed	L	P	H	unknown
Ergül (2020)	383	0,52	Teacher Leadership	Well-Being	IND	mixed	L	P	H	unknown
Aslan et al. (2019)	402	0,3	Teacher Leadership	Other	PROF	elementary	M	P	H	public
Cansoy & Parlar (2018)	546	0,67	Teacher Leadership	Other Organizational Factor	O	mixed	H	P	H	unknown
Cemaloğlu & Savaş (2018)	485	0,45	Teacher Leadership	Organizational Support	O	secondary	M	P	H	public
Akıncı, & Ekşi (2017)	392	0,3	Teacher Leadership	Teacher Efficacy	PROF	secondary	H	P	H	unknown
Öztürk & Şahin (2017)	502	0,71	Teacher Leadership	Organizational Culture and Climate	O	mixed	M	P	H	public
Öztürk & Şahin (2017)	502	0,61	Teacher Leadership	Other Organizational Factor	O	mixed	M	P	H	public
Kasapoglu (2020)	305	0,364	Teacher Leadership	Other	IND	elementary	M	P	H	mixed
Özdemir (2020)	477	0,638	Self Leadership	Other	PROF	secondary	M	P	H	public
Türker (2016).	359	0,45	Teacher Leadership	Teacher Efficacy	PROF	mixed	H	P	H	public
Türker (2016).	359	0,43	Teacher Leadership	Organisational Structure	O	mixed	H	P	H	public
Memişoğlu & Çakır (2015)	426	0,426	Leadership Style	Teacher Efficacy	PROF	mixed	H	P	H	public
Demir (2015)	378	0,76	Teacher Leadership Culture	Other Organizational Factor	O	elementary	M	P	H	public
Kılınç (2014)	259	0,22	Teacher Leadership	Organizational Culture And Climate	O	elementary	M	P	M	public
Akman (2021).	401	0,4	Teacher Leadership	Teacher Efficacy	PROF	mixed	H	P	H	public
Akman (2021).	401	0,46	Teacher Leadership	Teacher Efficacy	PROF	mixed	H	P	H	public
Kaya & Erdik (2014)	256	0,608	Democratic	Teacher Efficacy	PROF	elementary	H	P	M	unknown
Kaya & Erdik (2014)	256	0,324	Authoritarian	Teacher Efficacy	PROF	elementary	H	P	M	unknown
Kaya & Erdik (2014)	256	0,593	Charismatic	Teacher Efficacy	PROF	elementary	H	P	M	unknown
Hoşgörür & Yorulmaz (2015)	340	0,24	Teacher Leadership	Other	IND	mixed	H	P	H	unknown
Akar & Ustuner (2019)	658	0,61	Transformational	organizational support	O	mixed	L	P	H	unknown
Akar & Ustuner (2019)	658	0,55	Transformational	other organizational factor	O	mixed	L	P	H	unknown

Akar & Ustuner (2019)	658	0,64	Transformational	organizational culture and climate	O	mixed	L	P	H	unknown
Arslangiray et al. (2018).	101	0,548	Leadership Style	organizational culture and climate	O	secondary	M	P	M	unknown
Sesen et al. (2017).	452	0,26	Self Leadership	Other	PROF	elementary	mixed	P	H	public
Sesen et al. (2017).	452	0,28	Self Leadership	other organizational factor	O	elementary	mixed	P	H	public
Sesen et al. (2017).	452	0,5	Self Leadership	Other	IND	elementary	mixed	P	H	public
Kılınç et al. (2021)	618	0,47	Teacher leadership	teacher efficacy	PROF	mixed	mixed	P	H	public
Kılınç et al. (2021)	618	0,47	Teacher leadership	Other Organizational Factor	O	mixed	mixed	P	H	public
Kılınç et al. (2021)	618	0,38	Teacher leadership	Teacher Efficacy	PROF	mixed	mixed	P	H	public
Dinçer (2017)	190	0,44	Teacher leadership	Other Organizational Factor	O	elementary	M	UNP	H	unknown
Akkuş (2018)	309	0,495	Self Leadership	Teacher Efficacy	PROF	mixed	M	UNP	M	unknown
Yaz (2018)	502	0,58	Teacher Leadership	Teacher Efficacy	PROF	elementary	M	UNP	H	public
Alim (2019)	650	0,653	Teacher Leadership	Other Organizational Factor	O	mixed	M	UNP	H	unknown
İskender (2019)	203	0,212	Teacher Leadership	Teacher Efficacy	PROF	mixed	H	UNP	M	mixed
İnanır (2020)	267	0,242	Teacher Leadership	Other	PROF	mixed	mixed	UNP	M	unknown
İnanır (2020)	267	0,088	Teacher Leadership	Organizational Culture And Climate	O	mixed	mixed	UNP	M	unknown
Palak (2022)	337	0,264	Self Leadership	Well-Being	IND	mixed	H	UNP	H	public
Tankut (2021)	355	0,63	Teacher Leadership	Organizational Culture And Climate	O	mixed	M	UNP	H	public
Gül (2021)	308	0,34	Self Leadership	Organisational Structure	O	mixed	H	UNP	M	unknown
Akdoğan (2021)	342	0,51	Teacher Leadership	Other	IND	mixed	M	UNP	H	public
Yılmaz (2018)	340	0,48	Teacher Leadership	Organisational Structure	O	mixed	H	UNP	H	public
Parlar & Cansoy (2017)	492	0,51	Teacher Leadership Culture	Organisational structure	O	secondary	H	P	H	public
Uğurlu & Yigit (2014)	320	0,558	Teacher Leadership	Other Organizational Factor	O	mixed	M	P	M	unknown
Dağlı & Kalkan (2021)	298	0,444	Teacher Leadership	Organizational Support	O	secondary	M	P	H	public
Fidan (2019)	278	0,75	Self Leadership	Other	IND	mixed	H	P	M	mixed
Korkmaz &Özen (2019)	240	0,379	Teacher Leadership	Teacher Efficacy	PROF	elementary	H	P	H	public
Fidan (2020)	173	0,67	Self Leadership	Well-Being	IND	mixed	H	P	M	public

P= Published, UNP=Unpublished, O=Organizational PRO=Professional, IND=Individuals, H= High, M=Medium L= Low

Appendix 2

Quality assessment and validity tool for correlational studies.

Study	First author:	
Publication date:	Journal:	
DESIGN:	no	yes
1. Was the study prospective?	0	1
SAMPLE:	0	1
1. Was probability sampling used?	0	1
2. Was sample size justified?	0	1
3. Was sample drawn for more than one site?	0	1
4. Was anonymity protected?	0	1
5. Response rate was more than 60%?	0	1
MEASUREMENT:	0	1
1. Was the outcome measured reliably?	0	1
2. Was the outcome measured using a valid instrument?	0	1
3. Was the dependent variable measured using a valid instrument?	0	1
4. If a scale was used for measuring the dependent variable, was the internal consistency ≥ .70?	0	1
5. Was a theoretical framework used for guidance?	0	1
STATISTICAL ANALYSIS	0	1
1. If multiple outcomes were studied, are correlation analyzed?	0	1
2. Were outliers managed?	0	1

by Cicolini et al. (2013)