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The Role of Distributed Leadership and School Climate in Explaining the Relationship between Self-Efficacy and Job Satisfaction among Teachers in Türkiye. Evidence from Talis 2018

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Abstract

In this study, the author examined the role of teachers' self-efficacy, distributed leadership, and school climate in job satisfaction among teachers in Türkiye. The study explored further whether distributed leadership and school climate measures mediate the relationship between self-efficacy and job satisfaction. The current study is a secondary analysis of data from the 2018 International Teaching and Learning Survey database. The study adopted a cross-sectional survey design. A total of 3204 teachers and 173 principals at the lower secondary level from Türkiye took part in the 2018 TALIS. Data analysis conducted using SEM in Mplus. The results reveal that teacher classroom management efficacy, student management efficacy, teachers' perceived disciplinary climate, and participation among stakeholders measures had a positive and statistically significant association with teachers' satisfaction with their work environment, while the teacher instruction efficacy, teachers' perceived disciplinary climate, and participation among stakeholders measures had a positive statistically significant association with teachers' satisfaction with their profession. Distributed leadership and school climate measures did not mediate the relationship between teachers' self-efficacy and job satisfaction. School administrators can increase teachers' job satisfaction by increasing teachers' self-efficacy through professional development activities.

Keywords

School Climate, Job Satisfaction, Distributed Leadership, Self-Efficacy, TALIS, Secondary Analysis, Structural Equation Modelling

1. Introduction

Teacher job satisfaction continues to be a concept of interest to researchers, educators, and policy makers, in part due to its potential impact on teachers' work and their learners, and most probably the school community (Brezicha, Ikoma, Park, & LeTendre, 2020). Job satisfaction is the feelings and attitudes towards one's work, and profession, and what he or she should get from it (Al-Jadidi, 2022: p. 121). Teachers need to be satisfied and enjoy the work they do to teach better (Biçer, 2023). Several studies have found a relation between job satisfaction and phenomena such as teacher commitment, teacher turnover intentions, students' welfare, and organizational citizenship behavior (See: Estandiari & Kamali, 2016; Kengatharan, 2020; Brezicha, Ikoma, Park, & LeTendre, 2020; Yorulmaz, Colak, & Altinkurt, 2017). Job satisfaction is central to the quality of work and achievements of organizations including educational institutions (Yorulmaz, Colak, & Altinkurt, 2017; Karabiyik & Korumaz, 2014). The important role teaching plays in the success of learners' educational and professional achievements cannot be overemphasized (Esfandiari & Kamali, 2016). Yet, teachers' working conditions seem to be the most stressful, tiring and have high rate of attrition among all other professions (Karaçöp & Inaltekin, 2022). In view of the prominent role of teachers in learners' achievements, teachers' attitudes and reactions to their profession and work environment deserve all the attention from researchers, policy makers, and school leadership.

Several studies have explored the antecedents of job satisfaction among teachers. For example, job satifaction and self-efficacy (Karabiyik & Korumaz, 2014; Kasalak & Dağyar, 2020); self-efficacy, school culture, and teaching anxiety (Karaçöp & Inaltekin, 2022); school climate and teacher self-efficacy (Zakariya, 2020); extrinsic and intrinsic factors (Ceylan & Özdoğan Özbal, 2020); analysis of teacher, school, and principal effect (Özkan & Akgenç, 2022); selected factors contributing to teacher job satisfaction (Wang, Li, Luo, & Zhang, 2020), distributed leadership and teacher efficacy (Zheng et al., 2019). Despite job satisfaction being one of the phenomena extensively investigated, Kengatharan (2020) noted that studies on teacher job satisfaction are insufficient to adequately "demonstrate empirical evidence to support factors contributing to teacher job satisfaction" p. 2. The author's observation exemplifies the need for further research on the antecedents of teachers' job satisfaction and ways to increase it. In addition, Niu, Fan, and Chen (2023) suggested that future studies on ways to improve teacher job satisfaction must consider specific cultural settings, educational systems, and social structures, because in the authors' view there is still no consensus on the factors contributing to teachers' job satisfaction. For instance, in the TALIS 2008, teachers in Türkiye "reported average levels of self-efficacy" and below average levels of job satisfaction (OECD, 2013: p. 11). Therefore, one of the objectives of the present study is to contribute to the knowledge gap on factors affecting teachers' job satisfaction within the context of Türkiye and more broadly, since such studies are limited (Oldac & Kondakci, 2019).

In addition, studies have demonstrated the impact of principal leadership on school systems. For example, Amzat et al. (2022) reported that principal instructional and distributed leadership improved the relationship and trust between teachers and principals in a study in Jakarta. Even though Gronn (2000) noted the serious misapprehension among practitioners and commentators about the nature of leadership, and the need to address the deficiencies to create a new leadership framework. The author argues that leadership properties displayed are more likely to take the form of distributed leadership.

The concept of distributed leadership in the present study has significance within the context of Türkiye where hierarchy is entrenched in the culture in general and exclusively in school principal leadership (Al-Harthi & Al-Mahdy, 2017). For example, school principals oversee implementing the agenda of the Turkish Ministry of National Education (MoNE) with little autonomy, despite a few policy changes over the decade (Çoban, Özdemir, & Bellibaş, 2020). Arguably, distributed leadership has the potential to increase school improvement (Liu, 2020). Therefore, being a democratic and tolerant principal may be an effective leadership style in the context of Türkiye schools (Karatas, Arslan Dönmez, Yörük, Yanık Özdemir, Gök, & Doğan, 2024; Woods & Gronn, 2009). Litchka and Babaoglan (2018) found in a comparative study that in both Türkiye and the US, most principals, both male and female perceived their leadership style as democratic. In this regard, distributed leadership framework challenges school leaders who experience primarily top-down leadership structures (DeMarco, 2018), and has a great impact on the school systems when structural barriers of such leadership are a part of the culture (Harris, 2011). Therefore, distributed leadership was included as a concept to capture the influence of the leadership aspect on teacher job satisfaction within the context of schools in Türkiye. Furthermore, several studies have reported the association between teachers' self-efficacy beliefs, principal leadership, and job satisfaction (see: Biçer, 2023; Çoban, Özdemir, & Bellibaş, 2020; Kasalak & Dağyar, 2020). For example, in a multi-level analysis of factors on job satisfaction across Japan and South Korea, using TALIS 2018 data, the study identified self-efficacy as one of the factors exerting crucial influence on teachers' job satisfaction (Niu, Fan, Wang, & Chen, 2023).

In view of the lack of consensus on the factors influencing teacher job satisfaction more broadly, and the lack of similar studies in the context of Türkiye. The aim of the present study is to contribute to the knowledge gap by examining the role of distributed leadership, school climate, and teacher self-efficacy in teacher job satisfaction, and any indirect effects. If there is statistically significant relationship between the variables in the current study, it may provide a framework for training school leaders.

1.1. Teaching and Learning International Survey (TALIS)

Teaching and Learning International Survey (TALIS) is a survey conducted by the Organization for Economic Cooperation and Development (OECD). TALIS is the

first international series of surveys with the major focus on the learning environment and the working conditions of teachers in the schools (OECD, 2019). TALIS 2018 was an OECD managed initiative on behalf of the 49 participating countries and economies. "The aim of the initiative was to create a coherent set of data to facilitate the studies of teachers and teaching, and the impact teachers can have on student learning." (OECD, 2019: p. 35) The survey included teachers and principals from primary schools (ISCED 1) lower secondary schools (ISCED 2), and high secondary schools (ISCED 3). The OECD authorized all participating countries/economies to administer the ISCED level 2-core survey to teachers and principals for TALIS 2018 (OECD, 2019).

1.2. Türkiye Context

The educational system of Türkiye has a highly centralized system of governance, with decisions and management made by the Ministry of National Education (MoNE) particularly in state-owned schools except tertiary institutions (OECD, 2013; İnce et al., 2022). Because of the centralized leadership system of Türkiye's education, educational policymaking leaves no room for schools and stakeholders to have any power of decision-making (Karlidag-Dennis, 2017). In 2010, the MoNE introduced standards for schools to self-assess and develop school improvement plans. The aim of the initiative was "to empower schools and to support the decentralization plans of MoNE" (OECD, 2013: p.11). The major role of school principals in Türkiye is administrative rather than pedagogical leadership. Their primary task is limited to the budget and its allocation as reported in TALIS 2018. In the TALIS 2008, teachers in Türkiye "reported average levels of self-efficacy" and below average levels of job satisfaction (OECD, 2013: p. 11). In Türkiye, teachers begin training at specific secondary higher schools after obtaining a bachelor's degree, being under 40 years and passing the Public Staff Selection Exam. In TALIS 2008, it was reported that "18% of teachers in Türkiye were in their first two years of training more than double the OECD average" (OECD, 2013: p. 11). Bektaş et al. (2022) noted that principals in Turkish schools find it challenging to adopt distributed form of leadership in practice. This is because school context plays an important role with respect to school structure, staffing, norms of interaction and collaborative engagement (Torrance, 2013). However, in a 2018 comparative study of gender perceptions of leadership styles of school principals in Türkiye and USA, the results showed that both male and female principals in Türkiye described the leadership style as democratic. Further suggesting that teachers are more effective when involved in instruction decision-making (Litchka & Babaoglan, 2018). It will be interesting to examine any direct or indirect effects of distributed leadership, school climate, and teacher self-efficacy on job satisfaction among teachers in Türkiye. Furthermore, studies examining distribution of leadership within hierarchical organizational structures such as schools in Türkiye are limited (Oldac & Kondakci, 2019). Lu and Smith (2021) made a similar observation in the Chinese context.

2. Literature Review

2.1. Distributed Leadership

School leadership and administrative decisions heavily affect the nature of the school environment in which teachers operate, which in turn affects teachers' levels of satisfaction (Moore, 2012). Woods and Gronn (2009) report on the continuing influence of distributed leadership in the field of educational leadership. Gronn (2002) argues that distributed leadership may be the most accurate representation of the patterns of leadership in organizations. According to Social Determination Theory (SDT), fostering workplace conditions where employees feel supported in their autonomy leads to employee satisfaction and growth, and organizational effectiveness (Deci, Olafsen, & Ryan, 2017). Increasingly over the last decade, distributed leadership in school leadership and management has gained traction among researchers, policy makers, and practitioners (Spillane & Healey, 2010). The concept of distributed leadership originated from social psychology (Gronn, 2002). Although not a new concept in education, the idea of distributed leadership gained attention among educators in the 1990s (Al-Harthi & Al-Mahdy, 2017). In the West, distributed leadership is a leadership framework that balances weaknesses and combines the capabilities of different individuals in knowledge-based societies (Lu, 2022). The theoretical framework of Spillane and Healey (2010) informs distributed leadership in the current study. The authors identify a leader-plus aspect and practice aspect to distributed leadership. The leader-plus aspect recognizes that there are other individuals in formal positions in the school apart from the school principal involved in leading and managing schools (Spillane & Healey, 2010). The practice aspect of distributed leadership suggests the involvement of individuals without formal positions who can assume leading and managing responsibilities. For instance, "in schools where distributed leadership practices are enacted and supported, teachers are more likely to act as change agents and exert further effort and time to contribute to students' education" (Polatcan, 2024: p. 793). However, Spillane (2006) argues that the practice of distributed literacy is fundamentally about individual interactions. Mayrowetz (2008) identified four common usages of the concept of distributed leadership, which include three descriptions of shared leadership in schools to improve practice. For example, distributed leadership allows for collaborative teamwork among capable and willing teachers, and with other stakeholders to enhance school improvement (Botha & Triegaardt, 2015).

Furthermore, Diamond and Spillane (2016) argue that despite the involvement of many people in leadership, distributed leadership perspective focuses on the "interdependencies" across what appears to be a set of different activities by the many people involved to achieve the goal. Thus, distributed leadership is about social interactions and leadership practices with the role of the principal or formal leader pivotal to its practice (Mayrowetz, 2008; Harris, 2011). For example, Harris (2011) reported that principals in an England school intentionally shared leadership responsibilities to support innovation and change during school reform. The

willingness of the formal leader to share leadership responsibilities determines the level of benefits that accrue to the school system through distributed leadership. Despite the potential benefits, research on distributed leadership is based on the presumption that employees will share their knowledge, and that leaders will provide opportunities for employees to participate in leadership-related activities (Jones, Harvey, Lefoe, & Ryland, 2014; Liu, 2020). The authors further assert that the description of distributed leadership is more about activities than a role (Jones et al., 2014; Gronn, 2000). Distributed leadership is a multifaceted framework involving individuals in both formal and informal leadership positions in teaching, and support staff to varying degrees (Torrance, 2013). The distributed leadership framework offers a powerful solution suitable for the complex and interdependent environment such as the school (Bolden, 2008). For example, a study of the effect of principal instructional and distributed leadership on professional development of teachers in Jakarta and Indonesia found a direct effect of principal leadership on teacher professional development and concluded that principal leadership significantly improves the relationship and trust between principals and teachers (Amzat, Yanti, & Suswandari, 2022). Thus, the inclusion of distributed leadership as a factor in the current study is for both an interest in the theoretical aspect and practical significance (Heck & Hallinger, 2009). For instance, the Ministry of Education makes all the education-related decisions, limiting the actions of school principals in Türkiye (OECD, 2013). In addition, a third of teachers in a study perceived the leadership styles of the school principals to be anything other than collaborative (Arar, Beycioglu, & Oplatka, 2016).

2.2. School Climate

Schools like organizations have certain characteristics that represent organizational climate. However, there is no national or international consensus on the definition of school climate and its related dimensions (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013). According to the existing literature, school climate consists of the common values, beliefs, faith and opinions, and it is these common values, beliefs, faith and opinions that govern the interactions of stakeholders and code of conduct of the school (Türker & Kahraman, 2021). School climate reflects formal collaboration, participation in decision-making, and innovation (Dou, Devos, & Valcke, 2017). The stakeholders in the context of school include teachers, students, administrators, parents and other staff of the school. School climate is the special atmosphere related to the quality of the school environment (Ertem, Arslan, & Özenir Üren, 2021). Türker & Kahraman (2021) describe school climate as the psychosocial environment where teachers instruct and teach. Autonomy-supportive work climates are ones in which managers can take employees' perspectives, provide greater choice, and encourage self-initiation (Gagne & Deci, 2005: p. 48). Several studies found association between school climate and variables such as job satisfaction, teacher self-efficacy, student-teacher relationship, and student behaviour (see Almessabi, 2021; Katsantonis, 2019). The school cli-

mate works together with teacher experiences, and professional development opportunities to ensure a healthy teacher self-efficacy, and with an increase in these factors, teachers' self-efficacy increases (Sodergren, Kettler, Sulak, & Payne, 2023). It will be interesting to find out possible mediating effect of distributed leadership and school climate on the relationship between self-efficacy and teachers' job satisfaction, as observed in a study of teacher collaboration on teacher practices by Xie, Sui, Liu, and Liu (2023).

2.3. Teacher Self-Efficacy

Self-efficacy has many definitions as well as measures because it is a multi-faceted and complex concept (Uline et al., 1998). In schools, principals through their leadership can create an environment that enables teachers to believe in their capabilities to influence students positively (Moore, 2012). According to Bandura (1997), self-efficacy is "people's judgements of their capabilities" to initiate and complete a task required to "attain designated types of performances". Self-efficacy is a person's perception of their control over and capability to complete a task (Cambridge University Press, 2020; Pandia, Jufrizen, Khair, & Tanjung, 2023). Sokmen and Kilic (2019) noted in their study that the few studies conducted on the relationship between teacher self-efficacy and job satisfaction concluded that higher levels of teacher self-efficacy are associated with higher levels of job satisfaction while lower level of self-efficacy is associated with higher levels of burn out. Furthermore, there is evidence in the extant literature establishing a link between self-efficacy and concepts such as burn out, school climate, autonomy, work environment, commitment and emotional exhaustion (see Konermann, 2012; Sokmen & Kilic, 2019; Almessabi, 2021; Niu et al., 2023). For example, Kasalak and Dağyar (2020) in a meta-analysis of the Teaching and Learning International Survey (TALIS) found that teacher self-efficacy has a significantly positive relationship with job satisfaction. Similar findings were reported by Niu et al. (2023), using TALIS 2018 data for Japan and South Korea. Thus, self-efficacy is the individual's perceptions of the environment and personal talents (Karabiyik & Korumaz, 2014).

The self-efficacy scale is a three-factor structure (classroom management, instruction, and student engagement (OECD, 2019; Sokman & Kilic, 2019; Cayupe, Bernedo-Moreira, Morales-García, Alcaraz, Peña, Saintila, & Flores-Paredes, 2023). However, instructional efficacy appears to have the greatest effect on teacher job satisfaction (Zakariya, 2020; Jentsch, Hoferichter, Blömeke, König, & Kaiser, 2022). Biçer (2023) found positive and significant relationships between teachers, self-efficacy perceptions and job satisfaction, and self-efficacy predicted job satisfaction. Therefore, based on the evidence from literature, only the instruction subscale of self-efficacy is included in the present study because the core of teachers' jobs is instruction-related. Furthermore, self-efficacy appears to be a culturally stable concept across diverse settings and shows similar relationships with teachers' job satisfaction as observed in five contrasting settings (Klassen & Chiu, 2010).

2.4. Teachers' Job Satisfaction

Job satisfaction as defined by Locke (1976) refers to the positive emotional state of individuals about their job and job experiences. Several studies have linked various concepts to job satisfaction, such as burn out (Yorulmaz, Colak, & Altinkurt, 2017), workplace conditions (Perie, Baker, & Bobbitt, 1997), teacher motivation (Fradkin-Hayslip, 2021), and teacher commitment (Al-Jadidi, 2022). Job satisfaction is a multidimensional construct and varies in organizational and institutional conditions. Thus, a teacher may be satisfied with the teaching profession but not the work environment of a school which may result in the teacher seeking another school (Liu, Keeley, Sui, & Sang, 2021). Teacher job satisfaction has increasingly become the focus of both educators and policymakers because of its effects on the quality of education and learning (Kengatharan, 2020). Job satisfaction contributes to an increase in positive feelings, enhances loyalty, a sense of belonging and responsibility, and leads to creativity in work (Al-Jadidi, 2022).

2.5. Conceptual Framework

Two critical theories that come together to establish the links between the variables in this study are Bronfenbrenner's social-ecological theory and Social Cognitive Theory (SCT). Socio-ecological theory is a useful analytical tool for the study of the complex and hierarchical nature of schools. Schools are organized in layers within systems, layers such as the classroom, the school, the neighborhood and city where the school is located, the school system itself, the state, and the national government. All of which contribute to creating the environment where teachers experience either satisfaction or dissatisfaction (Moore, 2012). The current study adapts Moore's (2012) application of the theory and is intended to provide an anchor to a philosophical perspective rather than an operational model to guide a detailed data analysis (Tong & An, 2024). The microsystem includes family, peers, classroom and school, the class being the immediate environment within which the teacher works and carries out his/her responsibilities. It is in the microsystem that the teacher demonstrates his or her efficacy in teaching—the belief in his or her ability to successfully perform the responsibilities associated with teaching. The mesosystem represents the interactions among microsystems. These will include the classroom, schools, colleagues, teachers, students, and their families. Teachers in the school form connections with students, colleagues, and administrative staff, which could impact their sense of belonging as individuals within the school environment. Consequently, teachers' psychological and behavioral will be positively impacted (Longaretti, 2020). The exosystem constitutes indirect settings such as education policy, laws and regulations governing how teachers do their work, and their impact on their job satisfaction. The macrosystem is the broader sociocultural expectations emanating from the larger school district and community where the teachers operate, live, and interact within the Turkish culture (Moore, 2012; Almughyiri, 2025). All four systems combine to form the school ecological system, and school climate is a part of the overall school envi-

ronment. According to the socio-ecological framework, school facilities, emotional state and teachers' job satisfaction directly impact the learning environment. In addition, job satisfaction is a complex phenomenon tied to several school-level factors such as leadership style, student behaviour, school climate, teacher attrition, stress and self-efficacy (see: Özkan & Akgenç, 2022; Liu, Keeley, Sui, & Sang, 2021; Zakariya, 2020). In view of the critical role the school environment plays, any attempt to understand teacher job satisfaction should include measures of the school environment (Moore, 2012). In the present study, school climate is the measure selected for inclusion in the investigation because previous studies have established association between school climate and teachers' job satisfaction.

According to the Social Cognitive Theory (SCT), human beings are not passive objects molded and guided by contingent consequences of the environment; rather they acquire various attributes and knowledge, learn appropriate behavior and understand the consequences of their behavior through active interactions with others in social settings (Hameli, Ukaj, & Çollaku, 2024). Based on the need for self-regulations according to the SCT, Bandura (1977) introduced self-efficacy as belief formed by individual appraisal of how well one can carry out a course of action required successfully, and in 1982 Bandura conceptualized self-efficacy as the main mechanism in human agency because of its influence on thoughts, behavior, and emotions of individuals in social settings.

Although studies rarely explore the four concepts in a single study, studies have explored the paired relationship between distributed leadership, school climate, teacher self-efficacy and job satisfaction in separate studies. In this regard, the present study establishes its conceptual framework to provide an in-depth and holistic understanding of the relationship between distributed leadership, school climate, teacher self-efficacy, and teacher job satisfaction. However, unlike similar studies, the current study will explore the relationship between the variables using the subscales of the selected constructs. The goal is to identify specific subscales responsible for predicting teachers' job satisfaction with the work environment and profession.

3. Research Methodology

The current study is a secondary analysis of data from the 2018 International Teaching and Learning Survey database. The study design is cross-sectional survey design. Selection of the study sample and variables was based on the related literature. In the current study, teachers' job satisfaction measures were determined as the dependent (predicted) variables, while school climate, distributed leadership, and teacher self-efficacy measures were determined as the independent (predictor) variables.

3.1. Data and Participants

The data for the present study were drawn from the Organization for Economic

Cooperation and Development's (OECD) third cycle of the TALIS 2018 database. More than one hundred thousand school principals and teachers from 48 countries participated in the third cycle of TALIS 2018. A two-stage stratified probability sampling procedure was used. In the first stage, 200 schools in each participating country were randomly selected, and in the second stage, 20 teachers were randomly selected from the selected schools. The teachers selected provide instruction at ISCED 2 level (International Standard of Classification of Education). All participating countries/economies are mandated by the TALIS 2018 to administer the ISCED 2 core survey to teachers and their principals (OECD, 2019: p. 112). Three thousand two hundred and four (3204) teachers from Türkiye took part in the 2018 Teaching and Learning Survey. The participants responded to questions related to teacher beliefs and practices, teachers' work, feedback and recognition, school leadership, school climate and job satisfaction. For data quality assurance, with permission countries run standardized checks on their data to detect inconsistencies, duplicate records or erroneous data entry (OECD, 2019).

3.2. Research Model and Hypothesis

The proposed research model for the present study, in Figure 1, hypothesizes the following:

Hypothesis 1: Teacher self-efficacy measures directly and positively predict both job satisfaction subscales (JSENV & JSPRO).

Hypothesis 2: Distributed leadership directly and positively predicts both job satisfaction subscales (JSENV & JSPRO).

Hypothesis 3: School climate measures directly and positively predict both job satisfaction subscales (JSENV & JSPRO).

Hypothesis 4: Distributed leadership and school climate measures mediate the effect of Teacher self-efficacy measures on Job Satisfaction subscales (JSENV & JSPRO).

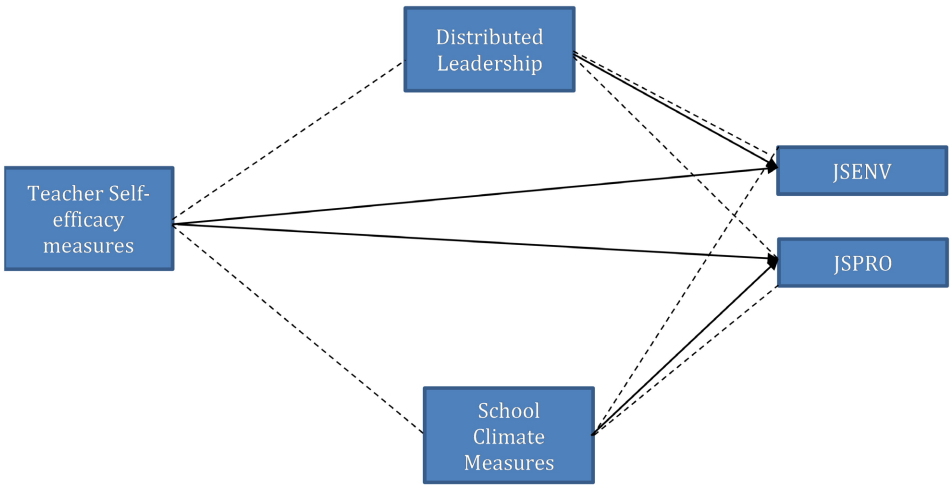

Figure 1. Research model.

3.3. Variables and Measures

The measurement model of the present study consists of four scales: distributed leadership, school climate, teachers' self-efficacy, and teachers' job satisfaction. The participants responded to 38 items underlying four main factors from TALIS 2018 data. OECD tested collection instruments and measurement invariance techniques used to ensure comparability across geographical regions (OECD, 2019). According to the OECD technical report, some items are reverse coded. However, in the database the items are not reversed coded. Therefore, these items were reversed coded in the current study before running the analysis. A similar observation was made in an earlier study (see Zakariya, 2020). The preceding section explains the measures and variables used in this study.

3.3.1. Distributed Leadership (T3DLEAD) Is the First Mediator Variable of the Study

Distributed leadership was measured by the following items in the TALIS 2018 principals' questionnaire: TC3G26A, TC3G26B, TC3G26C, TC3G26D, & TC3G26F. School principals were asked to rate the extent to which they agree with 5 items (from 1 = *strongly disagree* to 4 = *strongly agree*) about distributed leadership within their schools (see **Table 1** and **Table 2**). A sample item is: "There is a collaborative school culture which is characterized by mutual support". From an epistemological perspective, it is valuable to seek the perspectives of all organizational members particularly teachers who are often not considered followers of leadership (Spillane, Camburn, Pustejovsky, Pareja, & Lewis, 2009). The Cronbach alpha for the distributed leadership scale is 0.777 and omega coefficient is 0.777.

3.3.2. School Climate Is the Second Mediator Variable of the Study

The measure consists of three subscales: teachers' perceived disciplinary climate (T3DISC), Teacher-student relations (T3STUD), and participation among stake holders (T3STAKE). Teachers were asked to rate the extent to which they agree with 13 items (from 1 = *Strongly disagree* to 4 = *Strongly agree*) (see **Table 3**). A sample item is "TT3G48C—This school provides students with opportunities to actively participate in school decisions". The Cronbach alpha for the school climate scale is .783 and omega coefficient is 0.783. The Cronbach alpha for the subscales is as follows: T3DISC is 0.931, T3STUD is 0.788, and T3STAKE is 0.883.

3.3.3. Teacher Self-Efficacy Is the Independent Variable

The self-efficacy scale (OECD, 2019) consists of three subscales: self-efficacy in classroom management (T3SECLS), self-efficacy in instruction (T3SEINS), and self-efficacy in student engagement (T3SEENG). The three subscales of self-efficacy used in the study constituted the multidimensional scale of self-efficacy according to TALIS 2018 (OECD, 2019). Teachers were asked to rate 12 items on a Likert-type scale ranging from 1 to 4, with 1 for "not at all" and 4 for "a lot". A sample item is "There much disruptive noise in this class" (TT3G41D). The Cronbach alpha for the self-efficacy scale is 0.817 and omega coefficient is 0.817, and the

Cronbach alpha for the subscales are as follows: T3SECLS is 0.856, T3SEINS is 0.857, and T3SEENG is 0.936.

3.3.4. Teacher Job Satisfaction Is the Dependent Variable in the Study

The job satisfaction *measure* consists of two subscales, job satisfaction with work environment (T3JSENV) and job satisfaction with profession (T3JSPRO). Teachers were asked how they generally feel about their job and were asked to rate the extent to which they agree or disagree that they have (from 1 = *strongly disagree* to 4 = *strongly agree*) (see **Table 3**). A sample item is "The advantages of being a teacher clearly outweigh the disadvantages (TT3G53A)" The Cronbach alpha for the job satisfaction scale is 0.813 and omega coefficient is 0.813. The results of the reliability of the Cronbach's alpha coefficient for the subscales, T3JSENV is 0.783 and T3JSPRO is 0.771. All the measures used in the study have Cronbach alpha greater than 0.6, and according to Hair et al. (2010), an item with a Cronbach's alpha coefficient of 0.6 or above is considered reliable.

3.4. Data Analysis

A Structural Equation Modelling (SEM) approach using Mplus Version 8.3 (Muthen & Muthen, 1998-2019) was used to test the hypothesized model. A measurement model was established to test the validity of the latent constructs through Confirmatory Factor Analysis (CFA). SEM and CFA were estimated using the robust Maximum Likelihood (MLR) estimator to compute the parameter estimates and standard errors through Mplus. The teacher weight (TCHWGT) and teacher ID (IDTEACH) in TALIS dataset were used as weighting and clustering variables to address unequal probability of selection and the non-independence of teachers. To calculate standard errors and chi-square test statistics, Full Information Maximum Likelihood estimation (FIML) in Mplus, which is robust to non-normality was used. Missing data were handled using the Mplus multiple imputation procedure (Asparouhov & Muthen, 2010). As recommended by Kline (2016), multiple fit indices for evaluating model fit were reported: Comparative Fit Index (CFI) and Tucker-Lewis's Index (TLI) with values greater than 0.90 indicating acceptable good model fit; Root Mean Square Error of Approximation (RMSEA) less than or equal to 0.05 indicates close approximate fit, values between 0.05 and 0.08 indicates reasonable error of approximation, and values greater than or equal to 0.10 indicates poor fit. Standardized root mean square residual (SRMR) values less than or equal to 0.08 suggest acceptable fit (Hu & Bentler, 1999).

3.4.1. Descriptive Statistics

The mean, standard deviation, skewness and ketosis for all the constructs are reported in **Table 1**. The mean score ranged from 2.19 to 3.41 and no standard deviation was greater than 1.00, indicating that participants' responses spread close to the mean. The skewness and ketosis indices were examined to check the univariate normality in the data. Skewness ranged from −0.153 to −0.536 and ketosis

ranged from −0.501 to 1.489, respectively. According to Kline's (2011) recommendation that the skewness and ketosis indices should not be more than |3| and |10|, respectively, the data in this study were declared normal and eligible for further analyses.

Table 1. Number of items, mean, standard deviation, skewness and ketosis of measures.

Constructs	No. of items	Mean	Standard Deviation	Skewness	Ketosis
T3SECLS	4	3.4047	0.52826	−0.488	−0.508
T3SEINS	4	3.4142	0.50485	−0.415	−0.496
T3SEENG	4	3.4122	0.52422	−0.536	−0.419
T3DLEAD	5	3.2972	0.48812	−0.530	1.489
T3DISC	4	2.1983	0.57537	0.268	0.691
T3STUD	4	3.2356	0.50235	−0.153	0.839
T3STAKE	5	2.9285	0.62935	−0.469	0.844
T3JSENV	4	2.9687	0.62418	−0.349	0.107
T3JSPRO	4	2.9361	0.66935	−0.334	−0.311

Table 2. Inter-construct correlations square root of average variance extracted.

Measures	*T3SECLS*	*T3SEINS*	*T3SEENG*	*T3DLEAD*	*T3DISC*	*T3STUD*	*T3STAKE*	*T3SENV*	*T3JSPRO*
T3SECLS	**0.781**								
T3SEINS	0.727**	**0.775**							
T3SEENG	0.772**	0.765**	**0.775**						
T3DLEAD	0.013	0.023	0.027	**0.714**					
T3DISC	−0.245**	−0.206**	−0.267**	−019	**0.775**				
T3STUD	0.276**	0.295**	0.308**	0.067**	−0.201**	**0.819**			
T3STAKE	0.200**	0.217**	0.217**	0.120**	−0.164**	0.536**	**0.854**		
T3JSENV	0.218**	0.218**	0.245**	0.111**	−0.219**	0.395**	0.455**	**0.721**	
T3JSPRO	0.186**	0.210**	0.232**	0.016	−0.208**	0.243**	0.240**	0.449**	**0.707**

Note: **p < 0.01 values are significant, Bold values in diagonal are the square root of AVE.

Table 3. Standardized Factor loadings and results of reliability tests.

Measures	*Items*	*Factors Loadings*	*t-values*	*CR*	*AVE*	*α*
Teacher self-efficacy in classroom management	TT3G34D	0.799	55.042	0.86	0.61	0.862
	TT3G34F	0.718	34.023			
	TT3G34H	0.805	45.469			
	TT3G34I	0.792	46.460			
Teacher self-efficacy in instruction	TT3G34C	0.712	34.532	0.84	0.60	0.856
	TT3G34J	0.773	52.060			
	TT3G34K	0.754	42.784			
	TT3G34L	0.794	55.238			

Continued

Teacher self-efficacy in student engagement	TT3G34A	0.758	38.888	0.85	0.60	0.853
	TT3G34B	0.786	47.296			
	TT3G34E	0.773	49.340			
	TT3G34G	0.760	50.494			
Distributed Leadership	TC3G26A	0.599	25.461	0.83	0.51	0.777
	TC3G26B	0.847	54.838			
	TC3G26C	0.875	80.781			
	TC3G26D	0.602	22.912			
	TC3G26F	0.569	27.397			
Teacher perceived disciplinary school climate	TT3G41A	0.780	34.854	0.85	0.60	0.817
	TT3G41B*	0.502	15.838			
	TT3G41C	0.888	72.680			
	TT3G41D	0.864	38.261			
Teacher-student relations	TT3G49A	0.791	44.072	0.89	0.67	0.883
	TT3G49B	0.888	72.977			
	TT3G49C	0.889	83.555			
	TT3G49D	0.694	39.102			
Stakeholder participation	TT3G48A	0.861	74.177	0.93	0.73	0.931
	TT3G48B	0.774	33.979			
	TT3G48C	0.821	58.365			
	TT3G48D	0.895	61.642			
	TT3G48E	0.901	90.723			
Job satisfaction with work environment	TT3G53C*	0.609	20.441	0.81	0.52	0.783
	TT3G53E	0.849	48.060			
	TT3G53G	0.830	44.639			
	TT3G53J	0.535	17.076			
Job satisfaction with profession	TT3G53A	0.579	20.370	0.78	0.50	0.771
	TT3G53B	0.803	42.354			
	TT3G53D*	0.663	28.151			
	TT3G53F*	0.701	23.635			

Note: Measurement Model Statistics (chi-square = 24329.968, df = 703, TLI = 0.902; CFI = 0.912, RAMSEA = 0.032 [0.031 – 0.033], SRMR = 0.049) *Reverse coded items.

3.4.2. Mediating Effects

Analysis of the indirect effects was conducted with Mplus Version 8.3 (Muthen & Muthen, 1998-2019). The following relations were examined in the analysis.

Whether distributed leadership and school climate mediated the relationship between teacher self-efficacy and teacher job satisfaction.

4. Findings

4.1. Evaluation of the Measurement Model

The measurement model was assessed by conducting CFA using Mplus Version 8.3 (Muthen & Muthen, 1998-2019). As shown in **Table 3**, all standardized factor loadings ranged from 0.502 to 0.901 and were statistically significant ($p < 0.05$) as

indicated by *t*-values more than 1.96. The measurement model had adequate validity because all factor loadings were greater than 0.50 (Hair et al., 2010).

Fornell and Larcker (1981) recommend that to assess the convergent validity of the measurement items, the factor loading of each item, the composite reliability of each construct, and the average variance extracted must be examined. As reported in **Table 3**, the values of the composite reliability of each of the constructs ranged from 0.771 to 0.931 and were higher than 0.70, recommended by Nunnally and Bernstein (1994). The final criterion for convergent validity was the measure of the Average Variance Extracted (AVE) for each construct. From **Table 3**, AVE for all constructs was greater than 0.50. For example, Teacher self-efficacy in instruction (0.60), Distributed leadership (0.51) and Job satisfaction with work environment (0.52). Therefore, all three criteria necessary for convergent validity were satisfied by the measurement properties. The results in **Table 3**, suggest that all the constructs in the study are different from each other.

The discriminant validity was assessed by the Fornell-Larcker criterion (Fornell & Larcker, 1981). **Table 3** shows that the shared variance between each pair of constructs was less than the square root of AVEs (see **Table 2**), supporting discriminant validity.

4.2. Evaluation of Structural Model

A structural model test showed a good model fit ($X^2 = 142.525$, $df = 3$, CFI = 1.000; TLI = 1.000; RMSEA = 0.000; SRMR = 0.000). The results indicated that teacher perceived disciplinary climate ($\beta = (0.146,\ p < 0.001)$ and participation among stakeholders' $\beta = (0.480,\ p < 0.001)$ subscales of school climate had a direct statistically significant effect on Job satisfaction with the work environment. Similarly, the self-efficacy in classroom management $\beta = (0.72,\ p < 0.001)$ and self-efficacy in student engagement $\beta = (0.57,\ p < 0.001)$ subscales of teacher self-efficacy had a direct statistically significant effect on satisfaction with the work environment respectively.

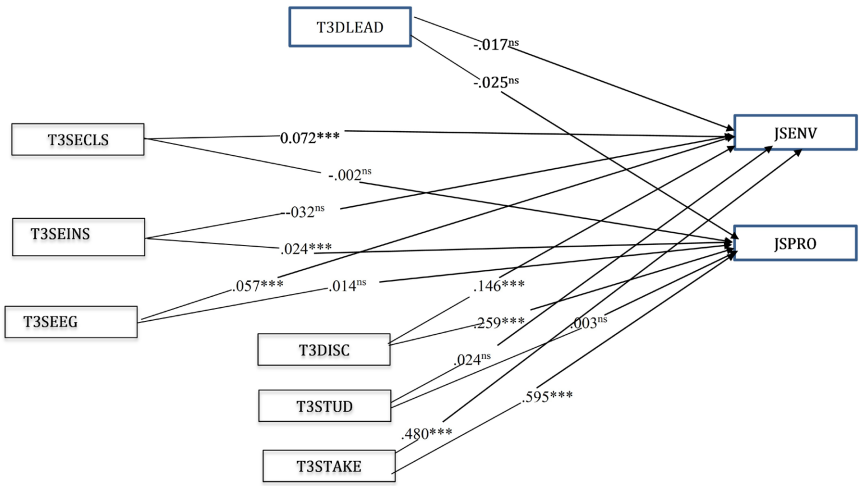

Figure 2. Structural model with standardized coefficient.

With job satisfaction with profession, a similar pattern was observed about the school climate subscales. Teacher perceived disciplinary climate $\beta = (0.259,\ p < 0.001)$ and stakeholder participation $\beta = (0.595,\ p < 0.001)$ had direct statistically significant effect on satisfaction with the profession. However, with teacher self-efficacy subscales, only teacher efficacy in instruction had a direct statistically significant effect on job satisfaction with the profession $\beta = (0.024,\ p < 0.001)$. Distributed leadership had no statistically significant effect on either job satisfaction measures (work environment and profession). The hypothesized relationships between the constructs are represented in **Figure 2**.

The results of the structural model (**Table 4**) show the hypothesis supported by the data, notably subscales of teacher self-efficacy and school climate measures. Job satisfaction measures (work environment & profession) were the endogenous variables tested in the model. Teacher efficacy in classroom management, student engagement together with teacher perceived disciplinary climate, and participation among stakeholders predicted teachers' satisfaction with the work environment with R^2 of .375 (37.5% of variance explained). Similarly, teacher perceived disciplinary climate, participation among stakeholders, and teacher efficacy in instruction with R2 of .654, predicted job satisfaction with the profession (65.4% of variance explained) (see **Table 4**).

Table 4. Structural model test results.

Hypothesized Relationships	Standardized Estimates	*t*-values	Hypothesis Supported
H1: Teacher self-efficacy subscales → Job satisfaction			
Path: T3SECLS → JSENV	0.072	2.845***	Supported
Path: T3SECLS → JSPRO	−0.002	-0.113^{NS}	Not supported
Path: T3SEINS → JSENV	−0.032	-1.350^{NS}	Not supported
Path: T3SEINS→JSPRO	0.024	4.697***	Supported
Path: T3SEENG → JSENV	0.057	5.622***	Supported
Path: T3SEENG → JSPRO	0.014	1.207^{NS}	Not supported
H2a: Distributed leadership → Job satisfaction (JSENV)	−0.017	-0.713^{NS}	Not supported
H2a: Distributed leadership → Job satisfaction (JSPRO)	−0.025	-1.671^{NS}	Not supported
H3: School climate subscales → Job satisfaction			
Path: T3DISC → JSENV	0.146	14.348***	Supported
Path: T3DISC → JSPRO	0.259	16.259***	Supported
Path: T3STUD → JSENV	0.024	0.760^{ns}	Not supported
Path: T3STUD → JSPRO	0.003	0.312^{ns}	Not supported
Path: T3STAKE → JSENV	0.480	14.804***	Supported
Path: T3STAKE → JSPRO	0.595	46.342***	Supported
Square multiple correlations (R^2)	JSENV	JSPRO	
Teachers' Job Satisfaction	0.375	0.654	
Model fit statistics			
CFI = 1.000; TLI = 1.000; RMSEA = 0.000; SRMR = 0.000)			

4.3. Mediating Effects

The indirect effects from self-efficacy subscales through distributed leadership measures and school climate subscales to Job Satisfaction with Environment (JSENV) and Job Satisfaction with Profession (JSPRO) were all statistically not significant. Findings in the present study are in contrast with findings by Bildirici and Özdemir (2021). A possible explanation for the lack of mediation may be due to how the effects of distributed leadership and school climate manifests in the study country (Reynolds, 2010).

5. Discussion

The present study tested the relation between self-efficacy subscales and job satisfaction measures, as well as the mediation effect of distributed leadership and school climate subscales in the relation among teachers from Türkiye who participated in the TALIS 2018.

5.1. Association of Self-Efficacy Measures, Distributed Leadership, School Climate Measures and Job Satisfaction

Overall, the self-efficacy factors (teacher factors), and school climate factors (contextual factors) had positive association with teachers' job satisfaction measures among Turkish teachers. First, of the three subscales of teacher self-efficacy, efficacy in classroom management and efficacy in student engagement had a significantly positive effect on teacher job satisfaction with the work environment. However, only teacher self-efficacy in instruction had significantly positive effect on teacher satisfaction with the professional measure of job satisfaction. Thus, the current study confirms the findings of previous studies of the association between self-efficacy and job satisfaction (see: Hakasa, Metroyahi, & Novitawati, 2023; Kasalak & Dağyar, 2020; Kirby, 2011; Pandia, Jufrizen, Khair, & Tanjung, 2023). However, all the previous studies determined the relation between general self-efficacy and teachers' job satisfaction, and the current study is among very few studies to examine these main constructs at the subscale level. Thus, the study determined teacher efficacy in classroom management and student engagement as the predictors of teachers' satisfaction with their work environment. Accordingly, as teachers' belief in their ability to manage the classroom, and student engagement increases, teachers' levels of satisfaction with the work environment increase. Therefore, teachers experiencing difficulties related to the workplace are more likely to be dissatisfied (Biçer, 2023). In addition, the current study determined that though teacher self-efficacy in instruction is not a predictor of environment dimensions of job satisfaction, it is the only predictor of teachers' satisfaction with the profession dimension. This confirms findings of previous studies (Zakariya, 2020; Jentsch, Hoferichter, Blömeke, König, & Kaiser, 2022). This is not surprising because the main responsibility of teachers is instruction-related. Therefore, based on the findings of the current study and supported by previous studies, it can be suggested that as teachers' perceptions of self-efficacy in instruc-

tion increases, their job satisfaction will increase (see: Zakariya, 2020; Kasalak & Dağyar, 2020; Pandia, Jufrizen, Khair, & Tanjung, 2023; Karabiyik & Korumaz, 2014). According to Bandura (1997), one can argue that teachers whose belief in their ability to teach, manage the classroom, and engage students increases, their level of job satisfaction increases. Second, the current study demonstrated that distributed leadership had a reasonably negative effect on both subscales of teachers' job satisfaction but the effect was not statistically significant. Although the finding in the present study is not significant, it aligns with findings by Bildirici and Özdemir (2021), who found in their study, a negative and significant relationship between teachers' school effectiveness and distributed leadership perceptions and their intention to leave a job, and that distributed leadership partially mediates the relationship among secondary school teachers in Türkiye. Meanwhile distributed leadership had a positive effect on school outcomes including teachers' job satisfaction in countries such as South Africa and Bangladesh (see: Islam, 2019; Botha & Triegaardt, 2015; Harris, 2011; Mullick, Sharma, & Depeller, 2013). According to Arar et al. (2016), school principals in Türkiye find it very difficult to overcome interference from the centralized and bureaucratic leadership system, which may limit their actions and make it difficult for them to share leadership. The negative association between distributed leadership and the constructs investigated in the context of Türkiye may be due to how the construct is operationalized in the study area. Therefore, future studies should consider investigating the conceptualization of "Distributed leadership" in the context of Türkiye.

Of the three school factors, teacher-student relations had no statistically significant effect on either measure of job satisfaction (environment & profession). However, the finding of the current study is contrary to studies that used TALIS data for the United States, Japan and South Korea (see: Niu et al., 2023; Wang et al., 2020; Leithwood & Jantzi, 2006). The findings of these studies suggest that context matters in studies about factors affecting teachers' job satisfaction. Accordingly, the results show that the two school climate factors, teacher perceived classroom disciplinary climate and participation among stakeholders are the predictors of both measures of job satisfaction (environment, profession). This finding of the current study confirms findings of previous studies (see Wang, Li, Luo, & Zhang, 2020; Liu & Meyer, 2005; Zhang, Fathi, & Mohammaddokht, 2023). The results imply teachers who perceive student discipline problems in the classroom could be dissatisfied with their job. Conversely, teachers' job satisfaction will increase when they perceive no problems with students' classroom discipline. In addition, stakeholder participation in school affairs as a strong predictor of teacher job satisfaction measures (environment, profession) (Leithwood & Jantzi, 2006), suggests that when teachers, students, and parents participate in school administrative duties, it can improve school management leading to increase in teachers' satisfaction with the work environment and their profession respectively.

5.2. Conclusion

Overall, based on Bronfenbrenner's ecological system theory, and social cognitive theory, the study examined contextual and psychological factors associated with Turkish teachers' job satisfaction. The hypothesized model proposed that self-efficacy could directly and indirectly (through distributed leadership and school climate) influence teachers' job satisfaction measures. First, of the three self-efficacy measures (teacher factors), efficacy in classroom management, and in student engagement are the predictors of the work environment measure of teachers' job satisfaction, while teacher efficacy in instruction is the predictor of job satisfaction with the profession among Turkish teachers. Teachers who feel efficacious in classroom management and in student engagement are more likely to be satisfied with their work environment. Similarly, teachers who feel they are efficacious in their instructions will be satisfied with their teaching. Overall, the study confirms that an increase in teacher self-efficacy could lead to an increase in Turkish teachers' job satisfaction. Second, teachers perceived classroom disciplinary climate (student factor), and stakeholder participation (school factor) are the predictors of both measures of teachers' job satisfaction (environment & profession). The findings suggest that teachers' overall job satisfaction is likely to increase if they have a positive view of the school climate. Consequently, hypothesis 1—Teacher self-efficacy measures directly and positively predict both job satisfaction, and hypothesis 3—School climate measures directly and positively predict both job satisfaction were supported.

According to Wang et al. (2020), the factors identified in the current study "support the process theories more than the content theories" (p. 528). Thus, the current study identified the specific factors that influence the respective dimensions of teachers' job satisfaction. However, distributed leadership had a non-significant association with teachers' job satisfaction and did not mediate the relationship between self-efficacy and job satisfaction. The results show that hypothesis 2—Distributed leadership directly and positively predicts both job satisfaction, and hypothesis 4—Distributed leadership and school climate measures mediate the effect of Teacher self-efficacy measures on Job Satisfaction were not supported.

5.3. Implications and Limitations

In view of the multiplicity of factors affecting teachers' job satisfaction and challenges, it poses a challenge to school principals to identify ways to create a conducive work environment and factors to influence teachers' job satisfaction. The current study makes the following suggestions for school principals to prioritize.

First, school administrations should consider organizing professional development training in the areas of classroom management and student engagement to increase teacher efficacy. Since increase in teacher efficacy in classroom management and student engagement increases teachers' satisfaction. In addition, in the TALIS 2008 data, teachers in Türkiye "reported average levels of self-efficacy" and below-average levels of job satisfaction (OECD, 2013: p. 11). According to the re-

sults of the current study, the level of job satisfaction may increase among Turkish teachers with an improved level of teacher self-efficacy in instruction through professional development activities. School administrators can work with teachers to create a learning community platform for experience sharing, enabling novice and inexperienced teachers to learn from experienced teachers (Sodergren et al., 2023). In addition, school administrations should give teachers some level of autonomy to make decisions on teaching-related issues, for example, teaching formats and selecting textbooks. A program of this kind can increase teachers' belief in their self-efficacy in instruction and by extension, increase teachers' satisfaction with the profession.

Second, school principals can create opportunities for teachers, parents, and students to participate in decision-making about school policies and administration, so that they too can own the decisions of the school and increase satisfaction. This is because according to the expectancy theory of motivation, if teachers foresee opportunities for participation in school decision-making, they are more likely to stay longer (Wang et al., 2020). Finally, school administrations can increase teachers' job satisfaction by creating a supportive and collaborative school atmosphere (Ker, Lee, & Ho, 2022; Hulpia & Devos, 2010). A collaborative school atmosphere may also lead to the institution of policies to reduce classroom disciplinary problems and hence increase overall teachers' job satisfaction. Finally, teacher preparatory programs could use the findings of the current study to guide the preparation of teachers with a high sense of efficacy in teaching, classroom management, and student engagement.

5.4. Limitations

The immediate limitation of the present study is that the TALIS 2018 data were self-reported and therefore the relationships examined among the concepts reflected teachers' perceptions rather than objective indicators. The study had to rely on teachers' perceptions because of the multiple sources of influence on job satisfaction through distributed leadership and self-efficacy in schools, making it difficult to isolate practices exclusive to these constructs. Although Spillane et al. (2009) argued that whether "data is collected from the designated organization or live organization, there is considerable agreement with respect to individuals over whom leadership is distributed in schools" (p. 78). Future studies should adopt a more comprehensive approach by triangulating data from principals' and students' perspectives (Al-Harthi & Al-Mahdy, 2017). In addition, a multi-country study in future research may reveal whether teachers' perceptions about the study constructs are similar or vary, and the related antecedents. Second, the cross-sectional design adopted in the current study suggests no evidence of causality among the study variables (distributed leadership, school climate, teacher efficacy in instruction, and teacher job satisfaction). As such, future studies should consider research designs that allow for exploration of causality, including longitudinal effects. Third, the OECD determined the definition of distributed leadership; the

definition of the same construct might vary in other studies. In addition to the OECD defined distributed leadership, future studies should include definitions from other theoretical and empirical studies as well. Fourth, OECD collected only quantitative data and thus was limited in the extent of explaining the results. Therefore, future studies should consider collecting qualitative data to support explaining the results from quantitative data in secondary analysis. Finally, the model fit statistics (X^2 = 142.525, df = 3, CFI = 1.000; TLI = 1.000; RMSEA = 0.000; SRMR = 0.000) suggest a saturated model; hence the results should be interpreted with caution. Future studies should consider reporting multicollinearity by using analytical programs with inbuilt function for examining multicollinearity. Despite the observations made about the present study, all the required analytical conditions were satisfied in the present study before running the structural modeling equation analysis.

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The TALIS 2018 is publicly available on the OECD website for use, and credit is given.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

Al-Harthi, A. S. A., & Al-Mahdy, Y. F. H. (2017). Distributed Leadership and School Effectiveness in Egypt and Oman: An Exploratory Study. *International Journal of Educational Management, 31,* 801-813. https://doi.org/10.1108/ijem-05-2016-0132

AL-Jadidi, N. A. A. (2022). Job Satisfaction among Early Childhood Female Teachers and Its Impact on Professional Commitment. *PEGEM Journal of Education and Instruction, 12,* 111-129.

Almessabi, A. (2021). Culturally Foreign Teachers' Perceptions of School Climate and Its Relationship to Their Self-Efficacy. *Sage Open, 11,* 1-11. https://doi.org/10.1177/21582440211043927

Almughyiri, S. (2025). Influence of Bronfenbrenner Ecological Theory on Career Choices of Preservice Teachers of Students with Developmental Disabilities. *Scientific Reports, 15,* Article No. 29023. https://doi.org/10.1038/s41598-025-14958-1

Amzat, I. H., Yanti, P. G., & Suswandari, S. (2022). Estimating the Effect of Principal Instructional and Distributed Leadership on Professional Development of Teachers in Jakarta, Indonesia. *Sage Open, 12,* 1-19. https://doi.org/10.1177/21582440221109585

Arar, K., Beycioglu, K., & Oplatka, I. (2016). A Cross-Cultural Analysis of Educational Leadership for Social Justice in Israel and Turkey: Meanings, Actions and Contexts. *Compare: A Journal of Comparative and International Education, 47,* 192-206. https://doi.org/10.1080/03057925.2016.1168283

Asparouhov, T., & Muthen, B. O. (2010). *Multiple Imputation with MPLUs (Version 2) (Technical Appendices).* Muthen and Muthen.

Bandura, A. (1997). *Self-Efficacy: The Exercise of Control.* Freeman.

Bektaş, F., Kılınç, A. Ç., & Gümüş, S. (2022). The Effects of Distributed Leadership on Teacher

Professional Learning: Mediating Roles of Teacher Trust in Principal and Teacher Motivation. *Educational Studies, 48,* 602-624. https://doi.org/10.1080/03055698.2020.1793301

Biçer, N. (2023). Evaluation of Self-Efficacy and Job Satisfaction of Teachers Teaching Turkish as a Foreign Language. *Sage Open, 13,* 1-12. https://doi.org/10.1177/21582440231196993

Bildirici, S., & Özdemir, G. (2021). The Effect of School Effectiveness on the Intention to Leave a Job in Secondary. *International Journal of Eurasian Education and Culture, 6,* 659-701. https://doi.org/10.35826/ijoecc.188

Bolden, R. (2008). Distributed Leadership. In A. Marturano, & J. Gosling (Eds.), *Leadership: The Key Concepts* (pp. 42-45). Routledge.

Botha, R. J., & Triegaardt, P. K. (. (2015). The Role of Distributed Leadership in Functional South African Schools. *Journal of Social Sciences, 43,* 207-215. https://doi.org/10.1080/09718923.2015.11893438

Brezicha, K. F., Ikoma, S., Park, H., & LeTendre, G. K. (2020). The Ownership Perception Gap: Exploring Teacher Job Satisfaction and Its Relationship to Teachers' and Principals' Perception of Decision-Making Opportunities. *International Journal of Leadership in Education, 23,* 428-456. https://doi.org/10.1080/13603124.2018.1562098

Cambridge University Press (2020). *Self-Efficacy.*

Cayupe, J.C., Bernedo-Moreira, D.H., Morales-García, W.C., Alcaraz, F.L., Peña, K.B.C., Saintila, J., & Flores-Paredes, A. (2023). Self-Efficacy, Organizational Commitment, Workload as Predictors of Life Satisfaction in Elementary School Teachers: The Mediating Role of Job Satisfaction. *Frontiers in Psychology, 14,* Article 1066321.

Ceylan, E., & Özdoğan Özbal, E., (2020). The Effects of Extrinsic and Intrinsic Factors on Teachers' Job Satisfaction in TALIS 2018. *International Online Journal of Primary Education, 9,* 244-259.

Çoban, Ö., Özdemir, N., & Bellibaş, M. Ş. (2020). Trust in Principals, Leaders' Focus on Instruction, Teacher Collaboration, and Teacher Self-Efficacy: Testing a Multilevel Mediation Model. *Educational Management Administration & Leadership, 51,* 95-115. https://doi.org/10.1177/1741143220968170

Deci, E. L., Olafsen, A. H., & Ryan, R. M. (2017). Self-Determination Theory in Work Organizations: The State of a Science. *Annual Review of Organizational Psychology and Organizational Behavior, 4,* 19-43. https://doi.org/10.1146/annurev-orgpsych-032516-113108

DeMarco, A. L. (2018). *The Relationship between Distributive Leadership, School Culture, and Teacher Self-Efficacy at the Middle School Level* (p. 2594). Ph.D. Thesis, Seton Hall University. https://scholarship.shu.edu/dissertations/2594

Diamond, J. B., & Spillane, J. P. (2016). School Leadership and Management from a Distributed Perspective: A 2016 Retrospective and Prospective. *Management in Education, 30,* 147-154. https://doi.org/10.1177/0892020616665938

Dou, D., Devos, G., & Valcke, M. (2017). The Relationships between School Autonomy Gap, Principal Leadership, Teachers' Job Satisfaction and Organizational Commitment. *Educational Management Administration & Leadership, 45,* 959-977. https://doi.org/10.1177/1741143216653975

Ertem, H. Y., Arslan, A., & Özenir Üren, E. (2021). The Role of Teacher Autonomy and School Climate on Goal Orientations for Teaching. *Psycho-Educational Research Reviews, 10,* 203-212. https://doi.org/10.52963/PERR_Biruni_V10.N2.14

Esfandiari, R., & Kamali, M. (2016). On the Relationship between Job Satisfaction, Teacher

Burnout, and Teacher Autonomy. *Iranian Journal of Applied Language Studies, 8,* 73-98.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research, 18,* 39-50. https://doi.org/10.1177/002224378101800104

Fradkin-Hayslip, A. (2021). Teacher Autonomy, Motivation, and Job Satisfaction: Perceptions of Elementary School Teachers According to Self-Determination Theory. *Ilkogretim Online—Elementary Education Online, 20,* 198-205

Gagne, M., & Deci, E. L. (2005). Self-Determination Theory and Work Motivation. *Journal of Organizational Behavior, 26,* 331-362. https://doi.org/10.1002/job.322

Gronn, P. (2000). Distributed Properties: A New Architecture for Leadership. *Educational Management & Administration, 28,* 317-338. https://doi.org/10.1177/0263211x000283006

Gronn, P. (2002). Distributed Leadership. In K. A. Leithwood, & P. Hallinger (Eds.), *Second International Handbook of Educational Leadership and Administration* (pp. 653-696). Springer. https://doi.org/10.1007/978-94-010-0375-9_23

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th ed.). Prentice-Hall.

Hakasa, L., Metroyadi, M., & Novitawati, N. (2023). The Influence of Principal Transformational Leadership, Work Culture on Job Satisfaction through Self-Efficacy of State Elementary School Teachers. *International Journal of Social Science and Human Research, 6,* 3477-3481. https://doi.org/10.47191/ijsshr/v6-i6-32

Hameli, K., Çollaku, L., & Ukaj, L. (2024). The Impact of Job Burnout on Job Satisfaction and Intention to Change Occupation among Accountants: The Mediating Role of Psychological Well-Being. *Industrial and Commercial Training, 56,* 24-40. https://doi.org/10.1108/ict-06-2023-0040

Harris, A. (2011). Distributed Leadership: Implications for the Role of the Principal. *Journal of Management Development, 31,* 7-17. https://doi.org/10.1108/02621711211190961

Heck, R. H., & Hallinger, P. (2009). Assessing the Contribution of Distributed Leadership to School Improvement and Growth in Math Achievement. *American Educational Research Journal, 46,* 659-689. https://doi.org/10.3102/0002831209340042

Hu, L., & Bentler, P. M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6,* 1-55. https://doi.org/10.1080/10705519909540118

Hulpia, H., & Devos, G. (2010). How Distributed Leadership Can Make a Difference in Teachers' Organizational Commitment? A Qualitative Study. *Teaching and Teacher Education, 26,* 565-575. https://doi.org/10.1016/j.tate.2009.08.006

İnce, B. H., Dayıoğlu-Öcal, S., Soysal, N., Albayrak-Sarı, A., Bağcı, A., & Öztürk, M. (2022). Key Elements of Education for Sustainable Development in Turkey's Education: An Analysis of Policy Documents. In M. Öztürk (Ed.), *Sustainable Development Goals Series* (pp. 3-20). Springer. https://doi.org/10.1007/978-3-030-98962-0_1

Islam, M. R. (2019). Exploration of Distributed Leadership Approach for Implementation in the School of Bangladesh. *Journal of Teacher Education, 6,* 39-50.

Jentsch, A., Hoferichter, F., Blömeke, S., König, J., & Kaiser, G. (2022). Investigating Teachers' Job Satisfaction, Stress and Working Environment: The Roles of Self-efficacy and School Leadership. *Psychology in the Schools, 60,* 679-690. https://doi.org/10.1002/pits.22788

Jones, S., Harvey, M., Lefoe, G., & Ryland, K. (2014). Synthesising Theory and Practice:

Distributed Leadership in Higher Education. *Educational Management Administration & Leadership, 42,* 603-619. https://doi.org/10.1177/1741143213510506

Karabiyik, B., & Korumaz, M. (2014). Relationship between Teacher's Self-Efficacy Perceptions and Job Satisfaction Level. *Procedia—Social and Behavioral Sciences, 116,* 826-830. https://doi.org/10.1016/j.sbspro.2014.01.305

Karaçöp, A., & Inaltekin, T. (2022). Self-Efficacy, School Culture, and Teaching Anxiety as Predictors of Science Teachers' Job Satisfaction. *Kuramsal Eğitimbilim, 15,* 526-560. https://doi.org/10.30831/akukeg.1059709

Karatas, S., Arslan Dönmez, S., Yörük, T., Yanık Özdemir, S. N., Gök, R., & Doğan, A. (2024). Teachers' Perceptions Regarding Effective School Features and Effective Leadership Qualifications of School Principals in Turkey. *Sage Open, 14,* 1-11. https://doi.org/10.1177/21582440241233978

Karlidag-Dennis, E. (2017). *Basic Education and Hegemony: Thinking on Ideology, Policymaking and Civil Society.* Ph.D. Thesis, University of Nottingham.

Kasalak, G., & Dağyar, M. (2020). The Relationship between Teacher Self-Efficacy and Teacher Job Satisfaction: A Meta-Analysis of the Teaching and Learning International Survey (TALIS). *Educational Sciences: Theory and Practice, 20,* 16-33.

Katsantonis, I. G. (2019). Investigation of the Impact of School Climate and Teachers' Self-Efficacy on Job Satisfaction: A Cross-Cultural Approach. *European Journal of Investigation in Health, Psychology and Education, 10,* 119-133. https://doi.org/10.3390/ejihpe10010011

Kengatharan, N. (2020). The Effects of Teacher Autonomy, Student Behavior and Student Engagement on Teacher Job Satisfaction. Educational Sciences: *Theory and Practice, 20,* 1-15.

Ker, H., Lee, Y., & Ho, S. (2022). The Impact of Work Environment and Teacher Attributes on Teacher Job Satisfaction. *Educational Process International Journal, 11,* 28-39. https://doi.org/10.22521/edupij.2022.111.3

Kirby, D. M. (2011). *SELF-Efficacy and Job Satisfaction of Early Career Elementary School Teachers: A Mixed Methods Study.* Ph.D. Thesis, University of Phoenix.

Klassen, R. M., & Chiu, M. M. (2010). Effects on Teachers' Self-Efficacy and Job Satisfaction: Teacher Gender, Years of Experience, and Job Stress. *Journal of Educational Psychology, 102,* 741-756. https://doi.org/10.1037/a0019237

Kline, R. B. (2011). *Principles and Practices of Structural Equation Modeling.* Guilford Press

Kline, R. B. (2016). *Principles and Practices of Structural Equation Modeling* (4th ed.). Guilford Press.

Konermann, J. (2012). *Teachers' Work Engagement: A Deeper Understanding of the Role of Job and Personal Resources in Relationship to Work Engagement, Its Antecedents, and Its Outcomes.* Ph.D. Thesis, Universiteit Twente.

Leithwood, K., & Jantzi, D. (2006). Transformational School Leadership for Large-Scale Reform: Effects on Students, Teachers, and Their Classroom Practices. *School Effectiveness and School Improvement, 17,* 201-227. https://doi.org/10.1080/09243450600565829

Litchka, P. R., & Babaoğlan, E. (2018). Gender Perceptions of the Leadership Styles of School Principals in Turkey and the Usa. *Kastamonu Eğitim Dergisi, 26,* 297-306. https://doi.org/10.24106/kefdergi.388612

Liu, S., Keeley, J. W., Sui, Y., & Sang, L. (2021). Impact of Distributed Leadership on Teacher Job Satisfaction in China: The Mediating Roles of Teacher Autonomy and Teacher Collaboration. *Studies in Educational Evaluation, 71,* Article ID: 101099.

https://doi.org/10.1016/j.stueduc.2021.101099

Liu, X. S., & Meyer, J. P. (2005). Teachers' Perceptions of Their Jobs: A Multilevel Analysis of the Teacher Foliow-Up Survey for 1994-95. *Teachers College Record: The Voice of Scholarship in Education, 107,* 985-1003. https://doi.org/10.1177/016146810510700504

Liu, Y. (2020). Focusing on the Practice of Distributed Leadership: The International Evidence from the 2013 Talis. *Educational Administration Quarterly, 56,* 779-818. https://doi.org/10.1177/0013161x20907128

Locke, E. A. (1976). The Nature and Causes of Job Satisfaction. In M. D. Dunnette (Ed.), *Handbook of Industrial and Organizational Psychology* (pp. 1297-1343). Rand McNally.

Longaretti, L. (2020). Perceptions and Experiences of Belonging during the Transition from Primary to Secondary School. *Australian Journal of Teacher Education, 45,* 31-46. https://doi.org/10.14221/ajte.2020v45n1.3

Lu, X. (2022). Distributed Leadership in Chinese Higher Education: Conceptual Understanding and Barriers to Its Implementation. *Educational Management Administration & Leadership, 52,* 1352-1368. https://doi.org/10.1177/17411432221145408

Lu, X., & Smith, R. (2021). Exploring the Manifestation of Distributed Leadership in Chinese Higher Education. *International Journal of Leadership in Education, 27,* 1117-1135. https://doi.org/10.1080/13603124.2021.1956598

Mayrowetz, D. (2008). Making Sense of Distributed Leadership: Exploring the Multiple Usages of the Concept in the Field. *Educational Administration Quarterly, 44,* 424-435. https://doi.org/10.1177/0013161x07309480

Moore, A. (2012). *Teaching and Learning: Pedagogy, Curriculum and Culture* (2nd ed.). Routledge.

Mullick, J., Sharma, U., & Deppeler, J. (2013). School Teachers' Perception about Distributed Leadership Practices for Inclusive Education in Primary Schools in Bangladesh. *School Leadership & Management, 33,* 151-168. https://doi.org/10.1080/13632434.2012.723615

Muthen, L. K., & Muthen, B. O. (1998-2019). *MPLUS (Version 8.3) [Computer Software].* Muthen and Muthen.

Niu, J., Fan, C., Wang, Z., & Chen, Y. (2023). Multi-Level Analysis of Factors on Teacher Job Satisfaction across Japan and South Korea: Evidence from TALIS 2018. *Sage Open, 13,* 1-14. https://doi.org/10.1177/21582440231178533

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). McGraw-Hill.

OECD (2013). *Education Policy Outlook: Turkey.*

OECD (2019). *TALIS 2018 Conceptual Framework.* https://www.oecd-ilibrary.org/education/talis-2018-results-volume-i_1d0bc92a-en

Oldac, Y. I., & Kondakci, Y. (2019). Multilevel Analysis of the Relationship between School-Level Variables and Student Achievement. *Educational Management Administration & Leadership, 48,* 762-780. https://doi.org/10.1177/1741143219827303

Özkan, U. B., & Akgenç, E. (2022). Teachers' Job Satisfaction: Multilevel Analyses of Teacher, School, and Principal Effects. *FIRE: Forum for International Research in Education, 7,* 1-23. https://doi.org/10.32865/fire202273271

Pandia, M. M., Jufrizen, J., Khair, H., & Tanjung, H. (2023). Organization Citizenship Behavior: The Role of Spiritual Leadership, Self Efficacy, Locus of Control and Job Satisfaction. *Jurnal Organisasi dan Manajemen, 19,* 168-187. https://doi.org/10.33830/jom.v19i1.3489.2023

Perie, M., Baker, D., & Bobbitt, S. A. (1997). *Time Spent Teaching Core Academic Subjects*

in Elementary Schools: Comparisons across Community, School, Teacher, and Student Characteristics (Vol. 97, No. 293). US Department of Education, Office of Educational Research and Improvement.

Polatcan, M. (2024). An Exploration of the Relationship between Distributed Leadership, Teacher Agency, and Professional Learning in Turkey. *Professional Development in Education, 50,* 789-803. https://doi.org/10.1080/19415257.2021.1905050

Reynolds, D. (2010). *Failure-Free Education? The Past, Present and Future of School Effectiveness and School Improvement.* Routledge.

Sodergren, C. D. C., Kettler, T., Sulak, T., & Payne, A. (2023). Teacher Self-Efficacy, Innovativeness, and Preparation to Teach Cross-Curriculum Skills. *International Journal of Contemporary Educational Research, 10,* 197-209. https://doi.org/10.33200/ijcer.1104747

Sokmen, Y., & Kilic, D. (2019). The Relationship between Primary School Teachers' Self-Efficacy, Autonomy, Job Satisfaction, Teacher Engagement and Burnout: A Model Development Study. *International Journal of Research in Education and Science (IJRES), 5,* 709-721.

Spillane, J. P. (2006). *Distributed Leadership.* Jossey-Bass.

Spillane, J. P., & Healey, K. (2010). Conceptualizing School Leadership and Management from a Distributed Perspective: An Exploration of Some Study Operations and Measures. *The Elementary School Journal, 111,* 253-281. https://doi.org/10.1086/656300

Spillane, J. P., Camburn, E. M., Pustejovsky, J., Pareja, A. S., & Lewis, G. (2009). Taking a Distributed Perspective in Studying School Leadership and Management: The Challenge of Study Operations. In A. Harris (Ed.), *Distributed Leadership* (pp. 47-80). Springer. https://doi.org/10.1007/978-1-4020-9737-9_4

Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A Review of School Climate Research. *Review of Educational Research, 83,* 357-385. https://doi.org/10.3102/0034654313483907

Tong, P., & An, I. S. (2024). Review of Studies Applying Bronfenbrenner's Bioecological Theory in International and Intercultural Education Research. *Frontiers in Psychology, 14,* Article 1233925. https://doi.org/10.3389/fpsyg.2023.1233925

Torrance, D. (2013). Distributed Leadership: Still in the Gift of the Headteacher. *Scottish Educational Review, 45,* 50-63. https://doi.org/10.1163/27730840-04502006

Türker, Y., & Kahraman, Ü. (2021). School Climate and Self-Efficacy as Predictor of Job Satisfaction. *Kuramsal Eğitimbilim, 14,* 548-569. https://doi.org/10.30831/akukeg.901457

Uline, C. L., Miller, D. M., & Tschannen-Moran, M. (1998). School Effectiveness: The Underlying Dimensions. *Educational Administration Quarterly, 34,* 462-483. https://doi.org/10.1177/0013161x98034004002

Wang, K., Li, Y., Luo, W., & Zhang, S. (2020). Selected Factors Contributing to Teacher Job Satisfaction: A Quantitative Investigation Using 2013 TALIS Data. *Leadership and Policy in Schools, 19,* 512-532. https://doi.org/10.1080/15700763.2019.1586963

Woods, P. A., & Gronn, P. (2009). Nurturing Democracy: The Contribution of Distributed Leadership to a Democratic Organizational Landscape. *Educational Management Administration & Leadership, 37,* 430-451. https://doi.org/10.1177/1741143209334597

Xie, W., Sui, Y., Liu, X., & Liu, S. (2023). Effects of Teacher Collaboration on Teaching Practices in China and England: A Structural Equation Model with TALIS 2018 Data. *Sage Open, 13,* 1-14. https://doi.org/10.1177/21582440231177908

Yorulmaz, Y. I., Colak, I., & Altinkurt, Y. (2017). A Meta-Analysis of the Relationship be-

tween Teachers' Job Satisfaction and Burnout. *Eurasian Journal of Educational Research, 17,* 175-192. https://doi.org/10.14689/ejer.2017.71.10

Zakariya, Y. F. (2020). Effects of School Climate and Teacher Self-Efficacy on Job Satisfaction of Mostly STEM Teachers: A Structural Multigroup Invariance Approach. *International Journal of STEM Education, 7,* Article No. 10. https://doi.org/10.1186/s40594-020-00209-4

Zhang, L. J., Fathi, J., & Mohammaddokht, F. (2023). Predicting Teaching Enjoyment from Teachers' Perceived School Climate, Self-Efficacy, and Psychological Wellbeing at Work: EFL Teachers. *Perceptual and Motor Skills, 130,* 2269-2299. https://doi.org/10.1177/00315125231182269

Zheng, X., Yin, H., & Liu, Y. (2019). The Relationship between Distributed Leadership and Teacher Efficacy in China: The Mediation of Satisfaction and Trust. *The Asia-Pacific Education Researcher, 28,* 509-518. https://doi.org/10.1007/s40299-019-00451-7