Examining the Contributions of School Contexts to Teacher Self-regulation among Turkish Teachers: A Structural Equation Modelling Approach

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Título: Examen de las contribuciones de los contextos escolares a la autorregulación docente entre los docentes turcos: un enfoque de modelado de ecuaciones estructurales.
Resumen: La autorregulación tiene una importancia significativa en los campos de la educación, los negocios y la psicología, ya que permite a las personas monitorear y regular su conocimiento y práctica, fomentando en última instancia el autodesarrollo y el compromiso laboral. Basándose en la Teoría Cognitiva Social, el propósito de este estudio fue examinar la interacción entre las variables sociocontextuales y la autorregulación docente en Turquía. Se recopilaron datos de 314 maestros de secundaria en cuarenta y cinco escuelas utilizando la Escala de Autorregulación Docente (TSRS-TR) y la Escala Contextual Escolar (SCS-TR). Para abordar las preguntas de investigación, se empleó un enfoque de modelado de ecuaciones estructurales (SEM). El análisis mostró que las variables sociocontextuales explicaron el 41,4% de la varianza en la autorregulación docente. Las relaciones con los colegas predijeron fuertemente la pertenencia y la consonancia de valores, siendo esta última el predictor más potente de la autorregulación docente. Además, los análisis revelaron que las relaciones con los colegas y el apoyo de los supervisores tuvieron un efecto indirecto estadísticamente significativo sobre la autorregulación docente a través de la consonancia de valores. Los resultados de este estudio sugieren que cuando las creencias, normas y valores de los docentes están alineados con los de sus escuelas, los docentes están más dispuestos a monitorear, controlar y regular su práctica docente.
Palabras clave: Contexto escolar. Modelado de ecuaciones estructurales. Formación docente. Autorregulación docente.

Abstract: Self-regulation holds significant importance in the fields of education, business, and psychology because it enables individuals to monitor and regulate their knowledge and practice, ultimately fostering self-development and work engagement. Drawing on Social Cognitive Theory, the purpose of this study was to examine the interplay between social contextual variables and teacher self-regulation in Turkey. Data were collected from 314 middle school teachers across forty-five schools in Turkey using the Teacher Self-Regulation Scale (TSRS-TR) and the School Contextual Scale. A structural equation modeling approach was employed to address the research questions. The analysis showed that social contextual variables accounted for 41.4% of the variance in teacher self-regulation. Relations with colleagues strongly predicted belonging and value consonance, the latter being the strongest predictor of teacher self-regulation. Moreover, the analyses revealed that relations with colleagues and supervisory support had a statistically significant indirect effect on teacher self-regulation through value consonance. The findings of this study suggest that when teachers' beliefs, norms, and values are aligned with those of their schools, they are more willing to monitor, control, and regulate their teaching practice.
Keywords: School context. Structural equation modeling. Teacher education. Teacher self-regulation.

Introduction

Self-regulation is the capacity of individuals to guide their own thoughts, emotions, and behaviors (Zimmerman, 1990). Considering expectations that employees should identify and address challenges, contribute innovative ideas, and facilitate transformative changes within the workplace (Jabbar et al., 2023), self-regulation holds significant importance in the fields of education, business, and psychology (Porath & Bateman, 2006). Along with scientific and technological developments, as well as the role of education in society, teachers are expected to monitor and regulate their knowledge and practices. These expectations highlight the importance of teacher self-regulation in fostering professional development and job performance, as well as in becoming more effective educators.

In recent years, studies concerning the school environment have reported that the social structure of the school as an organization is an important determinant of teacher burnout, job satisfaction, and well-being (Salgado & Moscoso, 2022; Skaalvik & Skaalvik, 2011). This also applies to self-regulation, as Albert Bandura argued that social factors influence self-regulative behaviors in Social Cognitive Theory. Understanding the role of social factors within school organizations in shaping teacher self-regulation is especially important in countries such as Turkey, where socialization plays a greater role than in many European contexts (Aşkun et al., 2024). To date, no study has addressed the interplay between social context and teacher self-regulation. Addressing this gap, the purpose of the present study is to examine the complex interplay among social contextual variables (support from colleagues and supervisors, belonging, value consonance, and time pressure) and their contribution to teacher self-regulation in Turkey.

Self-regulation

Self-regulation is defined as the ability of individuals to monitor, regulate, and control their own thoughts, emotions, and behaviors toward specific goals (Zimmerman, 2000). In the highly cited Handbook of Self-regulation, Vohs and Baumeister (2004) state that self-regulation includes both

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conscious and non-conscious processes that enable individuals to modify their inner states and responses. Particularly in overcoming challenges encountered during learning and maintaining motivation, self-regulation is a critical skill that positively affects individuals' work performance, success, and overall development (Pintrich, 2005; Zimmerman, 2000). Individuals with well-developed self-regulation skills set learning goals, develop strategies to achieve them, and continuously monitor and evaluate their performance throughout the process. This ability not only contributes to success but also supports emotional and social development.

Zimmerman's (2000) self-regulation model, based on Bandura's Social Cognitive Learning Theory, consists of three phases: forethought, performance control, and self-reflection. The forethought phase involves setting learning goals and making plans accordingly, including task analysis and motivational beliefs. Task analysis enables individuals to develop strategies for learning and use their resources effectively, while motivational beliefs encompass self-efficacy and outcome expectations. The performance control phase focuses on attention, self-monitoring, and self-control during the learning process. This phase is critical for observing and regulating one's performance. The self-reflection phase occurs at the end of the learning process, when individuals evaluate their performance and draw conclusions for future learning. Processes of self-judgment and self-reaction allow individuals to analyze their success and restructure future goals (Zimmerman, 2000).

Self-regulation skills are shaped not only by individual characteristics but also by environmental factors. Support in the learning environment, classroom atmosphere, and institutional culture can positively or negatively influence these processes (Mattern & Bauer, 2014). Teachers with strong self-regulation skills tend to be more effective in instructional practices and less vulnerable to emotional burnout despite heavy workloads (Hobfoll, 2002). Moreover, they are more receptive to feedback that enhances professional development and are inclined to continuously improve their teaching practices (Çapa-Aydın et al., 2009). In conclusion, self-regulation is a fundamental skill that enables individuals to succeed in fulfilling their responsibilities. The effective application of self-regulation strategies not only increases job performance but also positively influences emotional and motivational responses (Tosun & Tangülü, 2019).

The School Context

Schools—comprising teachers, students, parents, and administrators—form a social structure in which interactions, values, attitudes, and behaviors directly influence teachers' emotions, motivation, and actions. The school environment is therefore a significant factor shaping teachers' professional experiences. Numerous variables influencing the school environment have been identified in the literature. For example, Rubie-Davies et al. (2012) highlighted factors such as class level, time pressure, and the school's economic status. Brault et al. (2014) added expectations of teachers, the value placed on education, the school's economic situation, and student numbers. Yılmaz and Demir (2016) emphasized administrator support, colleague support, student behavior, and communication with parents. Similarly, Kıran and Sungur (2018) noted communication with parents, discipline problems, administrator support, and relationships with colleagues as important elements of the school environment. Based on this literature, the present study considers the following variables to define the school context.

Value Consonance

Values can be defined as abstract criteria that determine the importance of something, as well as beliefs developed by a society or school that guide behavior (Turan & Aktan, 2008). The values teachers hold directly influence their understanding of teaching and their approach to educational processes (Chang, 2009). Value alignment refers to the extent to which a teacher's personal values correspond with those of the school. This alignment significantly affects teachers' job satisfaction and motivation, while misalignment can lead to discomfort and contextual dissonance (Skaalvik & Skaalvik, 2015).

Research indicates that when schools and teachers share similar core values, teachers demonstrate greater commitment to both their schools and their profession (Klassen & Chiu, 2011; Kristof-Brown & Billsberry, 2013). Sahlberg (2010) notes that teaching is often driven by ethical motives and intrinsic motivations, emphasizing that teachers reflect their values in their instruction and classroom management. Thus, teachers feel more comfortable in educational environments that align with their personal values; in the absence of such alignment, their motivation and commitment may decline. Skaalvik and Skaalvik (2011) found that teachers' perceived alignment with prevailing school norms and values is a key determinant of job satisfaction and commitment. Conversely, misalignment is associated with higher attrition and lower job satisfaction (Skaalvik & Skaalvik, 2016).

Belonging

The sense of belonging is a fundamental psychological need characterized by feelings of being accepted, respected, and supported within one's social environment (Baumeister & Leary, 2007). Schools provide an important setting for fostering teachers' professional identity, of which belonging is a crucial component (Skott, 2019). This feeling is closely tied to individuals' perceptions of being included and supported within their social circles (Goodenow & Grady, 1993).

Research has shown that belonging positively influences both motivation and self-perception (McMahon et al., 2008). Skaalvik and Skaalvik (2021) found that belonging is related to the collective culture of schools, encompassing shared goals, values, and self-efficacy. In another study, Skaalvik

and Skaalvik (2019) demonstrated that belonging is associated with teacher work engagement. In conclusion, belonging is a critical factor that helps individuals feel valued in their school life, directly shaping both their work engagement and emotional well-being. A supportive school environment strengthens the sense of belonging and contributes positively to teachers' personal and professional development.

Time Pressure

Time pressure is defined as the perception of insufficient time due to excessive workload, accompanied by the feeling of having to act hastily (Szollos, 2009). Teachers frequently experience significant time pressure alongside heavy workloads. The teaching profession is not limited to delivering lessons but also includes responsibilities such as lesson preparation, departmental meetings, project work, administrative duties, and assessments (Çakıcı et al., 2013; Kanbur, 2018). Such demands often result in physical, mental, and psychological exhaustion, and a direct link has been established between workload and burnout (Skaalvik & Skaalvik, 2010).

Research indicates that time pressure contributes to emotional exhaustion and reduced job satisfaction among teachers (Kokkinos, 2007; Maas et al., 2021). Persistent high workload and time pressure can also lead to energy depletion, fatigue, and health problems (Bakker & Demerouti, 2007). In particular, the absence of social support within the school environment—combined with time pressure and the need to manage numerous tasks—negatively affects teachers' job satisfaction and commitment to the profession (Skaalvik & Skaalvik, 2011).

Relations with Colleagues

Relations with colleagues are an important resource in collaborative environments and have a positive impact on performance in both learning and work groups. Colleague support is defined as taking on work tasks, showing understanding of issues, and offering assistance to a fellow employee (Mesmer-Magnus et al., 2010). While teachers transfer knowledge and experience to their students every day, they also expect mutual assistance, resource exchange, and effective management support from their colleagues and administrators (Johnson & Johnson, 2005). Such support enhances both the tangible and socio-emotional resources of individuals (Xanthopoulou et al., 2009) and strengthens their sense of belonging among coworkers (Anitha, 2014).

Research indicates that colleague support and collaboration among teachers are effective in meeting teachers' resource needs and improving their performance (Klusmann et al., 2008; Lossen et al., 2013; Roeser et al., 2013). Colleague support improves employees' job attitudes and positively influences job performance (Chiaburu & Harrison, 2008). Skaalvik and Skaalvik (2019) further showed that colleague support positively predicts belonging, collective teacher efficacy, and work engagement. In sum, positive collaborations

among teachers can help them regulate and monitor their teaching practices more effectively.

Supervisory Support

Supervisory support has a significant impact on teachers' well-being and job satisfaction. It is a key factor in both school development and teacher morale (Siron et al., 2017). Teachers' sense of belonging is shaped by the support they receive from supervisors and colleagues, and further reinforced by positive relationships with parents (Skaalvik & Skaalvik, 2011). The positive relationship between value alignment and belonging also strengthens teachers' ties to their schools. By providing tangible and intangible resources, visibility, and constructive feedback, supervisory support increases teachers' commitment to their work (Ho et al., 2016; Lei et al., 2021).

Research indicates that in environments where colleague support is high, managerial support produces stronger and more positive outcomes (Uslukaya & Demirtaş, 2024). In particular, perceived supervisory support is often regarded as more important than colleague support and is strongly associated with positive job outcomes (Monnot & Beehr, 2014). Teachers who perceive both colleague and supervisory support are more motivated and demonstrate improved performance (Geiger & Pivovarova, 2018; Skaalvik & Skaalvik, 2018).

Therefore, supervisory support plays a crucial role in teachers' well-being and motivation in educational settings (Collie et al., 2017). When school principals view teachers as valuable resources and actively support their professional growth, the overall quality of education improves (Can, 2004). Supervisory support also enhances teachers' emotional and behavioral development, thereby increasing their job satisfaction and commitment to their schools (Argon, 2014). Additionally, workload is significantly related to both supervisory and colleague support (Kaiyom et al., 2021).

Relations among Variables and Study Hypothesis

Only a limited number of studies in the literature have examined teacher self-regulation. Some of these studies explored the relationship between self-regulation and teachers' self-efficacy, job satisfaction, and emotional exhaustion. For example, Mattern and Bauer (2014) found a negative relationship between mathematics teachers' self-regulation and emotional burnout, and a positive relationship with job satisfaction. Similarly, Ghanizadeh and Ghonsooly (2014) reported a negative relationship between teachers' self-regulation and burnout ($\beta = -.20$). Furthermore, research indicates that perceived social support can buffer the negative health effects of stress, such as time pressure. Perceived social support has also been shown to directly reduce perceived time pressure and emotional exhaustion. In particular, social support from school principals has been identified as a central job resource, beneficially associated with teachers' experi-

ences of time pressure and emotional exhaustion (Maas et al., 2021).

To date, no study has examined the relationship between teachers' self-regulation and school environment variables. Since self-regulation encompasses motivation, goals, cognitive processes, and behaviors, teacher self-regulation is likely to be influenced by school environment factors. Examining this relationship is important for identifying, improving, and developing the conditions that foster teachers' self-regulation skills. The findings of this study will provide important recommendations for enhancing teachers' professional development, improving the quality of educational practices, and increasing job satisfaction and motivation.

In this study, we hypothesized that school contextual variables contribute to teacher self-regulation. Based on previous research, we expected that relationships with supervisors and colleagues would positively predict belonging, value consonance, and perceptions of time pressure (e.g., Uslukaya & Demirtaş, 2024). Furthermore, we hypothesized that belonging, value consonance, and time pressure would in turn contribute to teacher self-regulation (e.g., Skaalvik & Skaalvik, 2019). Finally, we proposed that relationships with supervisors and colleagues would indirectly predict teacher self-regulation (see Figure 1).

Figure 1
The hypothesized model. Note: Solid lines stands out the direct relations whereas the dashed lines refers to the indirect relations. Self-regulation, ValueC: Value Consonance, Belong: Belonging, TimeP: Time Pressure, SuperS: Supervisory Support, R_Colle: Relationship with Colleague.
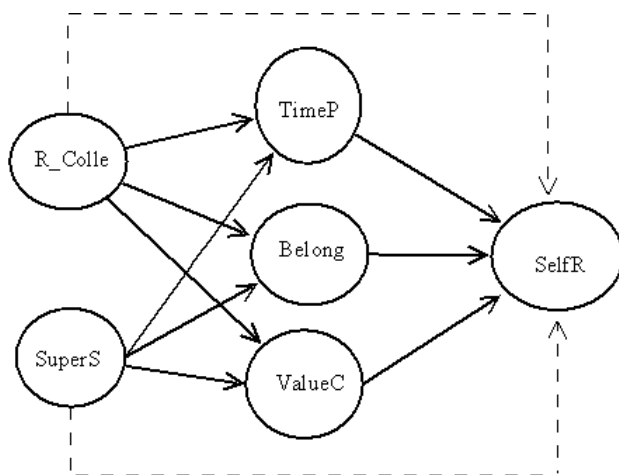
Considering these hypothesizes, the following research questions were sought to address:

Research Question 1: What proportion of variance of teacher self-regulation can be accounted for by school contextual variables?

Research Question 2: Do relations with colleagues and supervisory support statistically significantly predict time pressure, belonging and value consonance?

Research Question 3: Do relations with colleagues and supervisory support indirectly contribute to teacher self-regulation through time pressure, belonging and value consonance?

Methods

This study employed a relational research design with a quantitative approach, allowing the researcher to explore relationships between variables without manipulating them. To address the research questions, structural equation modeling (SEM) was applied to assess these relationships. Compared to regression analysis, SEM offers several advantages, including the ability to examine both direct and indirect effects and to evaluate the overall fit of the model to the data. Therefore, SEM was selected to investigate the causal connections among the variables.

Participants

Turkey's education system is centralized and overseen by the Ministry of Turkish National Education (MTNE), which appoints all state school teachers. Muğla Province, located in southwestern Turkey, was selected as the target population to represent middle school teachers across the country. A cluster sampling method was employed in the sampling process. At the time of data collection, there were 198 state middle schools across thirteen school districts in Muğla Province. From these, forty-five middle schools were randomly selected.

A total of 314 middle school teachers voluntarily participated in the study. Descriptive characteristics of the participants were presented in Table 1. Of the participants, 62.7% were female. Most were working in urban schools at the time of data collection. The majority of participants had 11–20 years of teaching experience and taught 21–25 hours per week.

Table 1
Descriptive Characteristics of the sample.

Groups	Sub-group	*n*	%
Gender			
	Female	197	62.7
	Male	117	37.3
Location of the school			
	Urban	245	78.1
	Rural	69	21.9
Experience			
	1-10 years	85	27.1
	11-20 years	117	37.3
	21 and above	112	35.6
Hours they taught a week			
	15 and under	33	10.5
	16-20 hours	65	20.7
	21-25 hours	103	32.8
	26-30 hours	95	30.3
	31 and above	18	5.7

Instruments

For data collection, the Turkish versions of the Teacher Self-Regulation Scale (TSRS-TR) and the School Contextual Scale (SCS-TR)—including subscales for relationships with colleagues and supervisors, value consonance, time pressure, and belonging—were used, as these instruments have been validated in the Turkish context.

Teacher Self-regulation Scale (TSRS-TR)

The TSRS-TR was developed by Çapa-Aydın et al. (2009) to assess teachers' self-regulation. It is a 6-point Likert-type scale (1 = strongly disagree, 6 = strongly agree) consisting of 39 items across nine subscales. In the present study, a short version of the TSRS-TR was used, including the subscales self-instruction, self-evaluation, self-reaction, emotional control, and help-seeking, to assess how middle school teachers monitor and control their teaching practices. Self-instruction (four items) involves evaluating one's own teaching performance and making necessary adjustments. Self-evaluation (four items) refers to comparing current teaching performance with previously set goals and past achievements. Self-reaction (four items) pertains to the emotional responses a teacher experiences following a lesson or class. Emotional control (five items) involves strategies for regulating and managing emotions. Help-seeking (three items) refers to seeking assistance from others to address challenges encountered during the teaching process.

Çapa-Aydın et al. (2009) validated the TSRS-TR using data from 320 pre-service teachers in Turkey, reporting good fit indices: χ^2 (666) = 1499.3, RMSEA = .06, and CFI = .98. Cronbach's alpha coefficients ranged from .62 to .78, indicating acceptable internal consistency. The TSRS-TR has also been adapted in other cultures. For instance, Ng et al. (2023) used it to assess self-regulated behaviors of 269 high school and college teachers in the United States, reporting high internal consistency (Cronbach's α = .85). In the present study, the 20-item version of the TSRS-TR demonstrated high reliability (Cronbach's α = .94). Confirmatory factor analysis (CFA) was conducted to test its structural validity, revealing a good fit with the data: χ^2 (165) = 1652.1, RMSEA = .06, CFI = .96, TLI = .95, and SRMR = .05.

School Contextual Scale (SCS-TR)

The SCS-TR consists of the following subscales:
Value Consonance Scale. The Value Consonance Scale was developed by Skaalvik and Skaalvik (2011) based on Kristof's (1996) definition of person-organization fit. It is a 6-point Likert-type scale (1 = strongly disagree, 6 = strongly agree) consisting of three items asking participants to rate how well their personal values, teaching practices, and opinions align with those of their school. Skaalvik and Skaalvik (2011) reported an internal consistency coefficient of .85, whereas Damlı (2020) reported .84 for the Turkish version

with 151 science teachers. In the present study, the internal consistency coefficient was .89.
Belonging Scale. Developed by Skaalvik and Skaalvik (2011), the Belonging Scale measures teachers' general feelings of being accepted by others in their schools. It consists of three items rated on a 6-point Likert-type scale (1 = false, 6 = true). Internal consistency coefficients reported were .79 (Skaalvik & Skaalvik, 2011) and .84 for the Turkish adaptation (Damlı, 2020). In this study, the scale demonstrated an internal consistency of .86.
Time Pressure Scale. The Time Pressure Scale was developed by Skaalvik and Skaalvik (2010) to assess teachers' perceptions of heavy workload. It comprises three items on a 6-point Likert-type scale (1 = false, 6 = true). Skaalvik and Skaalvik (2010) reported an internal consistency of .71, while the Turkish adaptation (Damlı, 2020) showed .54. To better capture workload in the present study, participants were additionally asked to report the number of courses they taught per week. The internal consistency coefficient for these four items was .73.
Supervisory Support Scale. Developed by Skaalvik and Skaalvik (2010), this scale assesses the extent to which teachers feel supported by their supervisors. It consists of three items on a 6-point Likert-type scale (1 = false, 6 = true). Reported internal consistency coefficients were .83 (original) and .72 for the Turkish adaptation (Kıran & Sungur, 2018). In this study, the internal consistency coefficient was .88.
Relations with Colleagues Scale. Also developed by Skaalvik and Skaalvik (2010), this scale measures teachers' perceptions of support from colleagues. It includes three items on a 6-point Likert-type scale (1 = false, 6 = true). Reported internal consistency coefficients were .86 (original) and .79 for the Turkish adaptation (Kıran & Sungur, 2018). In the present study, the internal consistency coefficient was .86.

Data Collection and Analysis

After obtaining the necessary permissions (IRB approval, site authorizations, etc.), data were collected from forty-five middle schools during the Fall 2021 and Spring 2022 semesters. Once permission from school principals was granted, potential participants were contacted to explain the study's purpose and were invited to participate voluntarily. To minimize physical contact due to COVID-19, informed consent was obtained verbally. Additionally, it was ensured that the questionnaire and study procedures did not collect any identifiable information from participants. The Google Form link for the data collection instruments was shared with participants who agreed to take part in the study. In addition to verbal consent, online consent was obtained before participants submitted the completed instruments. All procedures were conducted in accordance with IRB approval.

After collecting a satisfactory number of responses, the data were first reviewed for missing values and outliers. Then, confirmatory factor analyses (CFA) were conducted to

assess the structural validity of the instruments. Results of the CFAs are presented in Table 2. Recommended criteria for acceptable model fit include χ^2/df < 3.0, RMSEA < .08, and CFI and TLI > .90 (Hu & Bentler, 1999). Subsequently, internal consistency coefficients were computed for each scale.

To address the research questions, SEM approach was employed to test causal relationships between multiple variables. Observed variables were treated as latent variables to reduce measurement unreliability (Hoyle, 2012). Prior to selecting the estimation method, the normality of the data was assessed. Skewness and kurtosis values indicated a non-normal distribution (outside the range of –2.00 to +2.00; see Table 3). Therefore, the weighted least squares – mean and variance adjusted (WLSMV) estimator was used (DiStefano & Morgan, 2014). All SEM analyses were conducted using Mplus 8.4 statistical software.

Table 2
Results of CFA for validity of the instruments.

Instrument	χ^2 (df)	RMSEA	CFI	SMRM
TSRS-TR	655 (160)	.075	.951	.055
SCS-TR	231.89 (80)	.066	.948	.937

Results

Descriptive statistics, including means, standard deviations, and Pearson correlation coefficients, are presented in Table 3. The mean values of the TSRS-TR indicated that teachers in the sample reported a high level of self-regulation (on a six-point Likert scale: 1.00–2.66 = low, 2.67–4.33 = moderate, 4.34–6.00 = high). Regarding relations with supervisors and colleagues, the data showed that teachers perceived a high level of support from both sources. Teachers also reported high levels of belonging and value consonance, while the mean score for time pressure indicated a moderate perception of a heavy workload.

Pearson correlation coefficients revealed that all variables were significantly related to self-regulation except for time pressure. Among the variables, value consonance had the strongest correlation with self-regulation (r = .48, p < .01). Although time pressure was not significantly correlated with self-regulation (p > .05), it was negatively correlated with relations with colleagues (r = –.17, p < .01) and belonging (r = –.15, p < .01).

Structural Equation Modelling

The initial SEM produced χ^2 (1367) = 3469.48, p < .05. Although the chi-square test indicated a significant difference between the hypothesized model and the data, this result may be misleading, as the chi-square test is sensitive to sample size (Kline, 2015). Some researchers suggest that a chi-square to degrees of freedom ratio below 2.5 indicates a good fit. Other absolute fit indices were within acceptable ranges: RMSEA = .070 [.067, .073] and SRMR = .069. The

CFI and TLI values were both .93, slightly below the .95 threshold for a good fit but considered acceptable (Hu & Bentler, 1999).

Table 3
Descriptive statistics for variables.

|		1	2	3	4	5	6
1	Teacher self-regulation	-					
2	Time pressure	.06	-				
3	Belonging	.37**	-.15	-			
4	Value	.48**	-.09	.57**	-		
5	Colleagues	.35**	-.17**	.74**	.61**	-	
6	Supervisor	.33**	-.09	.63**	.61**	.56**	-
	Mean	5.24	3.71	5.10	4.94	5.05	5.19
	SD	0.76	1.10	1.06	1.10	1.08	1.04
	Skewness	2.95	0.36	1.65	1.27	1.35	1.69
	Kurtosis	5.69	0.49	3.24	1.47	1.57	3.06

$* p$ < .05, $** p$ < .01

Figure 2 illustrates the path coefficients and the explained variance of each latent variable in the hypothesized model. The model accounted for 41.5% of the variance in teacher self-regulation, indicating that nearly half of the variability in self-regulation could be explained by the model. Additionally, the model explained 66.5% of the variance in value consonance, 75.2% in belonging, and 9.1% in time pressure. These explained variances suggest a large effect size for teacher self-regulation, belonging, and value consonance, according to Cohen's (1988) guidelines (.01 = small, .09 = medium, > .25 = large).

Path coefficients revealed that relations with colleagues positively predicted belonging (β = .590, p < .01) and value consonance (β = .396, p < .01), and negatively predicted time pressure (β = –.258, p < .01), indicating that teachers perceiving less support from colleagues experienced higher time pressure. Supervisory support positively contributed to value consonance (β = .486, p < .01) and belonging (β = .375, p < .01), while its path to time pressure was positive but not statistically significant (β = .065, p > .05). Among the predictors of teacher self-regulation, value consonance was the strongest (β = .552, p < .01), followed by belonging (β = .129, p < .01) and time pressure (β = .111, p < .05).

Table 4 presents the indirect effects of the exogenous variables (relations with colleagues and supervisory support) on teacher self-regulation through time pressure, belonging, and value consonance. Path coefficients indicated that both relations with colleagues and supervisory support had a statistically significant indirect effect on teacher self-regulation through value consonance (β = .218 and β = .268, p < .01, respectively). However, the indirect effects of relations with colleagues and supervisory support on teacher self-regulation through time pressure and belonging were not statistically significant (p > .05 for all).

Figure 2
The path coefficients and explained variances by the hypothesized model.
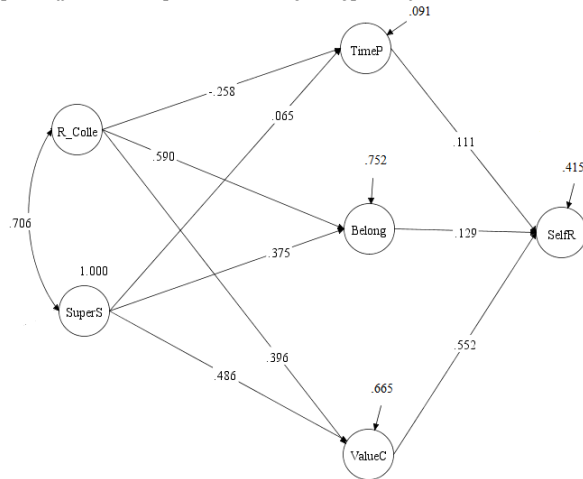
*p < .05, SelfR: Self-regulation, ValueC: Value consonance, Belong: Belonging, TimeP: Time pressure, SuperS: Supervisory support, R_Colle: Relationship with colleague

Table 4
Indirect effects of exogenous variables on self-regulation.

	Time Pressure	Belonging	Value Consonance
Relation with Colleague	-.029	.076	.218*
Supervisory Support	.007	.048	.268*

*p < .01

Discussion

Self-regulation refers to the ability to manage one's energy, emotions, behaviors, and attention in a socially acceptable manner that supports achieving positive outcomes, such as maintaining healthy relationships, fostering learning, and promoting overall well-being. The purpose of this study was to examine the causal relationships between school contextual variables and self-regulation among Turkish middle school teachers. A total of 314 middle school teachers participated in the study, and the SEM approach was employed to address the research questions.

Mean scores for the TSRS-TR indicated that teachers reported a high level of self-regulation on a six-point Likert scale, suggesting that Turkish middle school teachers frequently monitored their teaching performance, regulated their emotions, and evaluated their instructional practices. This finding aligns with Sáez-Delgado et al. (2022), who reported a high level of self-regulation among teachers in Chile. Two factors may explain these elevated levels: first, the teaching profession inherently requires continuous improvement of instructional skills; second, data were collected in 2022 during virtual learning due to the COVID-19 pandemic, which necessitated teachers' rapid adaptation to digital tools. Studies on the impact of COVID-19 on teacher competence suggest that the pandemic positively influenced teachers' digital skills (Myyry et al., 2022).

Pearson correlation analyses showed that school contextual variables were significantly associated with teacher self-regulation, except for time pressure. Belonging, relations with colleagues, and supervisory support demonstrated moderate positive correlations, while value consonance showed a strong positive correlation. These results indicate that teachers who experienced higher support, felt respected and accepted, and aligned with school norms and values were more likely to monitor and regulate their teaching practices. Social support functions as a critical resource for navigating career demands, providing guidance, encouragement, and emotional support, which enhances self-regulatory capacity (Prieto-Díez et al., 2022; Tentama & Riskiyana, 2020).

One notable SEM finding was that relations with colleagues negatively predicted time pressure, indicating that teachers who perceived less support from colleagues experienced greater workload and time-related stress. Previous studies demonstrate that time pressure negatively impacts teacher well-being and job satisfaction and can increase stress (Avanzi et al., 2018; Smith & Bourke, 1992; Wang, 2024). Thus, consistent with prior research, colleague support reduces teachers' perceptions of time pressure.

SEM results also indicated that relations with colleagues and supervisory support strongly predicted teachers' sense of belonging. Teachers who perceived support from colleagues and supervisors were more likely to feel connected to their school community. This finding aligns with Singh et al. (2018), who emphasized the role of organizational and coworker support in fostering employee fit and engagement. Skaalvik and Skaalvik (2011) further argue that relatedness is a fundamental human need, and support from colleagues and supervisors enables teachers to feel part of the organization. Notably, standardized path coefficients indicated that colleague support had a stronger influence on belonging than supervisory support (β = .574 vs. β = .386), suggesting that colleagues play a more prominent role than supervisors in fostering teachers' sense of belonging.

Although Pearson correlation between time pressure and teacher self-regulation was not significant, SEM results showed a positive path coefficient, suggesting a complex relationship. This discrepancy may indicate the presence of suppressor variables in the model. On one hand, heavier workloads may prompt teachers to regulate and plan their schedules more effectively (Gul et al., 2021). On the other hand, excessive workload can lead to emotional exhaustion, limiting opportunities to improve teaching practices (Van Droogenbroeck et al., 2014; Sellen, 2016). Future studies should investigate these complex interplays and potential suppressor variables.

Another key SEM finding was that time pressure, belonging, and value consonance positively predicted teacher self-regulation, with value consonance emerging as the strongest predictor. Value consonance refers to the alignment between teachers' personal values and the dominant norms and values of their school (Skaalvik & Skaalvik, 2011). Teachers whose values align with their schools are more will-

ing to monitor, control, and regulate their teaching practices. This relationship can be interpreted through the Identity-Value Model (IVM), which posits that individuals' sense of identity influences motivation, behavior, and emotional responses within a group or organization (Berkman et al., 2017). When personal and organizational values align, individuals experience enhanced belonging and motivation, which in turn supports self-regulation (Werner & Milyavskaya, 2019).

Implication

The findings suggest that school contextual variables are critical predictors of teacher self-regulation in Turkish middle schools. Prior research indicates that creative drama is an effective method for developing social skills, including empathy, communication, collaboration, and adherence to social norms, which are essential for both personal and professional development (Akalın & Boz, 2024; Ceylan et al., 2019; Namdar & Camadan, 2016; Dowd & Teirney, 2005; Kjøbli & Ogden, 2014). Creative drama provides a multifaceted learning environment that strengthens expression, cooperation, and effective group participation (Ong, 2020; Batdı & Elaldı, 2020). Studies by Ulubey and Gözütok (2016) and Ulubey (2018) demonstrate that creative drama enhances empathy, interaction, and teamwork skills.

Based on these findings, it is recommended that creative drama-based in-service training programs be implemented to strengthen teachers' social skills, including support from colleagues and supervisors, and to foster a sense of belonging. Such programs can help teachers regulate their emotions more effectively and apply critical skills like empathy and collaboration in their interactions with colleagues. Consequently, creative drama can serve as a holistic professional development tool, enhancing self-regulatory capacities while promoting social harmony among teachers.

Conclusion

The findings of this study suggest that school contextual variables are important predictors of self-regulation among Turkish middle school teachers. The hypothesized model accounted for 41.4% of the variance in teacher self-regulation, indicating that value consonance, a sense of belonging, and

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support from the school environment can foster teachers' ability to monitor and regulate their teaching practices. It can be concluded that relations with colleagues and supervisory support contribute to teachers' self-regulation in Turkey, primarily through the mediating role of value consonance.

Limitation

Several limitations should be considered when generalizing the results of this study. First, regarding the sample, although care was taken to select a representative group of teachers from both urban and rural schools and different disciplines, the study was conducted solely in Muğla Province, located in southwestern Turkey, which differs economically and culturally from eastern regions. Therefore, further research in other regions of Turkey is needed to enhance generalizability. Second, although the model explained 41.4% of the variance in self-regulation, more than half of the variance remains unexplained. Future studies could incorporate additional variables, such as job satisfaction, career motivation, and emotional exhaustion, to gain a more comprehensive understanding of teacher self-regulation in schools.

Complementary information

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