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The Mediating Role of Teacher Self-Efficacy in the Relationship Between Transformational Leadership Style and Classroom Management

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This study explores the mediating role of teacher self-efficacy in the relationship between transformational leadership and classroom management in secondary schools. Using Multilevel Structural Equation Modeling, data were collected from 35 schools with 350 teachers. The findings reveal that transformational leadership significantly enhances teacher self-efficacy, which in turn improves classroom management practices. Specifically, transformational leadership was found to have a strong positive effect on teacher self-efficacy ($\beta = 0.53$, $p < 0.001$) and a direct positive effect on classroom management ($\beta = 0.21$, $p = 0.009$). Moreover, teacher self-efficacy significantly mediates the relationship between leadership style and classroom management ($\beta = 0.24$, 95% CI: [0.15, 0.34], $p < 0.001$). These results underscore the importance of transformational leadership in fostering teacher confidence and enhancing classroom practices. The study offers valuable insights into the role of leadership in shaping teacher beliefs and enhancing classroom management outcomes. The findings suggest that school leaders should focus on empowering teachers through transformational leadership behaviors, and professional development programs should emphasize building teacher self-efficacy to foster more effective classroom management. This result contributes to the broader understanding of how leadership practices influence teaching efficacy and student learning environments.

Keywords: classroom management, multilevel structural equation modelling (ML-SEM), teacher self-efficacy, transformational leadership

INTRODUCTION

Educational leadership has long been recognized as a critical factor in influencing teaching effectiveness and student outcomes (Mincu, 2022; Amatullah, et al., 2025; Zhang et al., 2025) As schools strive to improve their performance, effective leadership at the school level is vital in shaping the environment in which teachers work and, ultimately, how students learn (Sariakin et al., 2025). In particular, leadership styles have been shown to affect various aspects of the teaching and learning process, including teacher motivation, job satisfaction, and instructional quality (Leithwood & Jantzi, 2006). One key area where leadership style plays a significant role is in classroom management, a fundamental aspect of effective teaching (Maqbool et al., 2023). Classroom management influences how teachers structure learning environments, handle student behavior, and foster a positive classroom culture (AERO, 2023). However, the relationship between leadership and classroom

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management is complex and often indirect, with various mediating and moderating factors at play (Fang, 2025).

A growing body of research has suggested that teacher self-efficacy, defined as teachers' beliefs in their ability to manage classroom situations, influence student learning, and implement effective instructional strategies, may serve as a critical mediator in the relationship between leadership styles and classroom management (Rezaull Karim et al., 2021; Luo et al., 2024). According to Rezaull Karim et al. (2021) Teachers with higher self-efficacy are more likely to engage in proactive and positive classroom management practices. As such, understanding how leadership styles influence teacher self-efficacy and how self-efficacy, in turn, affects classroom management practices is crucial for both theory and practice in educational leadership (Wettstein et al., 2021).

The need for a more nuanced understanding of these relationships is particularly pressing given the increasing focus on teacher professional development and school improvement (Wang, 2023; Karakasidou et a., 2025). Policymakers and educational leaders must be equipped with a deeper understanding of how leadership practices influence teachers' perceptions of their abilities and how these perceptions impact their classroom behaviors (Berhanu, 2025).

Contributions to Theory

This study contributes to the theoretical understanding of educational leadership by exploring the mechanisms through which leadership styles influence classroom management. While leadership has been widely studied in education, there remains a limited understanding of how leadership directly impacts teachers' classroom management practices (Berhanu, 2025). By focusing on teacher self-efficacy as a mediating variable, this study offers a new theoretical perspective that connects leadership, teacher beliefs, and classroom behaviors (Yang & Du, 2024). This approach aligns with recent calls for more dynamic models of educational leadership that consider psychological and contextual factors (Pinheiro et a., 2025).

Additionally, by employing a multilevel approach, this study acknowledges that leadership operates not only at the individual teacher level but also at the broader school level, impacting teachers' perceptions and behaviors in different ways. This contribution is critical, as the majority of previous studies on leadership and classroom management have relied on single-level models, often overlooking the hierarchical nature of educational settings.

Contribution to Practice

From a practical standpoint, the study have significant implications for school leaders and policymakers. Studied by Zhang (2025) Understanding how leadership styles impact teacher self-efficacy and classroom management practices can inform the design of professional development programs that empower teachers to enhance their classroom management skills. For instance, principals and other school leaders can be trained to adopt leadership styles that enhance teacher self-efficacy, which, in turn, can improve classroom management and create more conducive learning environments (Luo et al., 2024).

Moreover, the study's can inform teacher education programs, particularly in the areas of classroom management and leadership development. By focusing on the psychological mechanisms that link leadership to classroom practices, this research will help teacher educators design more effective curricula that address both the technical and interpersonal aspects of teaching (Zhang et al., 2025).

Contribution of the Study

This study contributes to the broader field of educational leadership and classroom management by providing empirical insights into how leadership practices are associated with teachers' self-efficacy and, in turn, their classroom management practices. By examining teacher self-efficacy as a mediating

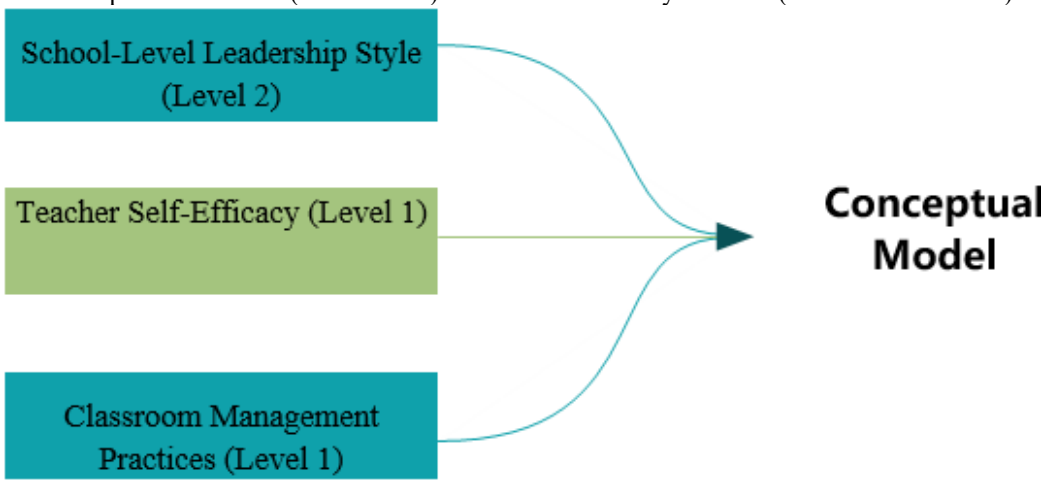
mechanism within a multilevel framework, the study extends existing research on leadership effects in educational settings. Furthermore, the findings offer practical implications for educational policymakers, school leaders, and teacher educators by highlighting the importance of fostering supportive leadership environments that enhance teacher self-efficacy and promote effective classroom management.

Conceptual Framework

This study is guided by a multilevel conceptual framework that examines the relationship between school-level leadership style and teacher-level outcomes. As illustrated in Figure 1, leadership style operates at the school level (Level 2) and is associated with teacher self-efficacy at the individual level (Level 1). Teacher self-efficacy, in turn, is associated with classroom management practices, also at the teacher level. In this framework, teacher self-efficacy functions as a mediating variable that helps explain how leadership style is linked to classroom management.

The model reflects the hierarchical nature of educational settings, where school-level leadership practices shape teachers' beliefs and behaviors. By adopting a multilevel perspective, the framework captures both direct and indirect relationships among variables, providing a more comprehensive understanding of how leadership is associated with classroom processes.

Figure1
Leadership is a contextual (school-level) variable Self-efficacy acts as a (cross-level mediator)



Purpose of the Study & Research Questions

The primary aim of this study is to examine the mediating role of teacher self-efficacy in the relationship between leadership style and classroom management. Specifically, the study investigates how school leadership style is associated with both teacher self-efficacy and classroom management practices, and whether teacher self-efficacy is related to teachers' ability to manage classroom environments effectively. In addition, the study explores whether teacher self-efficacy serves as a mediating mechanism through which leadership style is linked to classroom management within a multilevel context.

Accordingly, the study addresses the following questions:

RQ1: What is the relationship between school leadership style and teachers' classroom management practices?

RQ2: How does leadership style influence teacher self-efficacy?

RQ3: What is the relationship between teacher self-efficacy and classroom management?

RQ4: Does teacher self-efficacy mediate the relationship between leadership style and classroom management at the multilevel context?

LITERATURE REVIEW

Leadership in educational settings has been extensively studied over the past few decades, with researchers exploring various styles and their impact on school performance, teacher effectiveness, and student outcomes (Maqbool et al., 2024; Papadakis et al.,2024). Leadership is recognized as a crucial factor in shaping school climate, setting educational goals, and influencing teaching practices (Amatullah et a., 2025). Understanding the impact of leadership on classroom management requires first exploring the different leadership styles and their potential effects on teachers and students.

Transformational Leadership

Transformational leadership is one of the most widely studied leadership styles in educational research. This style emphasizes a vision for change, inspiring and motivating followers, and focusing on individual growth and development (Wilson et al., 2023; Jun & Lee, 2023; Perdana et al., 2025). In schools, transformational leaders empower teachers, foster collaboration, and cultivate a supportive environment that promotes professional growth (Assefa & Mujtaba, 2025). Transformational leadership is associated with higher teacher motivation, job satisfaction, and commitment (Leithwood & Jantzi, 2006; Setyaningsih & Sunaryo, 2021), which in turn may improve classroom management. Teachers who feel supported and valued by transformational leaders are more likely to develop positive attitudes toward their work and engage in effective classroom management (Roesminingsih & Windasari, 2025).

Research has shown that transformational leadership positively influences teacher self-efficacy (Zainal & Mohd Matore, 2021), a critical factor in effective classroom management. When teachers feel supported by transformational leaders, they are more likely to develop strong beliefs in their ability to manage classrooms and handle challenging student behaviors (Hoque & Raya, 2023).

Instructional Leadership

Instructional leadership focuses on improving teaching and learning by providing guidance, support, and resources to teachers (Akomodi, 2025). This style is often associated with principals who prioritize curriculum, instruction, and student achievement as central components of their leadership (Maqbool et al., 2023). Instructional leaders directly influence teaching practices by fostering professional development opportunities, offering feedback, and creating conditions that enhance teaching quality (Maqbool et al., 2024).

Instructional leadership has been shown to have a significant impact on classroom management by creating a clear sense of purpose and expectations for teachers (Robins et al., 2016). Research suggests that instructional leaders contribute to improving classroom environment and student outcomes by providing teachers with the tools and support they need to manage classrooms effectively (Blazar & Kraft, 2017; Jogi et al., 2023).

Distributed Leadership

In contrast to hierarchical models of leadership, distributed leadership emphasizes shared responsibility and collective decision-making among teachers and school staff (Fan & Chu, 2025). Distributed leadership fosters collaboration and empowers teachers to play an active role in shaping the learning environment (Li et al., 2024). This leadership approach encourages teachers to collaborate, share knowledge, and support one another, which can contribute to more effective classroom management by creating a sense of shared responsibility for student success (Wang & Tian, 2023).

Studies have suggested that distributed leadership fosters a positive school climate and increases teacher autonomy, both of which can enhance teacher self-efficacy and improve classroom management practices (Lin, 2022). Teachers who feel empowered and supported by their peers are more likely to take initiative in the classroom and use proactive management strategies (Xie et al., 2022).

Teacher Self-Efficacy

Teacher self-efficacy refers to a teacher's confidence in their ability to plan, organize, and execute effective instruction and manage classroom behaviors effectively (Boateng, 2024;Yang & Du, 2024). It is a critical factor influencing both teaching effectiveness and student outcomes. Teacher self-efficacy influences how teachers approach challenges in the classroom, including managing difficult behaviors, adapting instructional strategies, and promoting student engagement (Li, 2023; Hu, 2023).

Conceptualization of Teacher Self-Efficacy

Self-efficacy is based on Bandura's (2001) Social Cognitive Theory, which posits that people's beliefs in their abilities significantly influence their actions, motivations, and persistence. In educational settings, teachers with high self-efficacy are more likely to employ positive classroom management strategies, engage in student-centered teaching practices, and persist in challenging situations (Blazar & Kraft, 2017). On the other hand, teachers with low self-efficacy may struggle with classroom management, feel overwhelmed by student behavior, and be less likely to implement new instructional strategies (Li, 2023).

Teacher Self-Efficacy and Classroom Management

Research has consistently demonstrated that teacher self-efficacy is a strong predictor of effective classroom management (Wettstein et al., 2021). Teachers who believe in their ability to manage student behavior are more likely to use proactive management strategies, maintain positive relationships with students, and create a productive classroom environment (Wilkins et al., 2024). Self-efficacy is also linked to teachers' use of preventive management strategies, such as setting clear expectations and reinforcing positive behavior, which are critical for maintaining order and fostering student engagement (Rezaull Karim et al., 2021).

The Role of Leadership in Teacher Self-Efficacy

The role of leadership in shaping teacher self-efficacy has gained increasing attention in educational research. Transformational leaders, in particular, are believed to enhance teacher self-efficacy by providing emotional and intellectual support, fostering a sense of empowerment, and offering opportunities for professional growth (Yong & Zhang, 2025). Teachers who perceive their leaders as supportive and visionary are more likely to develop higher levels of self-efficacy, which in turn influences their ability to manage classrooms effectively (Liu et al., 2025).

Studies have shown that school leaders who provide clear communication, encourage collaboration, and promote a positive school climate contribute to higher teacher self-efficacy (Zhang et al., 2025).

This suggests that leadership not only affects teacher beliefs about their teaching abilities but also influences how teachers approach classroom management.

Classroom Management

Classroom management refers to the strategies, techniques, and practices used by teachers to create a conducive learning environment, maintain order, and engage students in meaningful learning activities (Yazdi et al., 2019: Wilkins et al., 2023; Sundaram et al., 2025). Effective classroom management is a cornerstone of successful teaching and learning, as it ensures that students can focus on their work and behave appropriately in the classroom (Gage & MacSuga-Gage, 2017).

Classroom Management and Teacher Efficacy

Classroom management is closely linked to teacher efficacy. Teachers with high self-efficacy tend to adopt more effective and proactive management strategies, resulting in improved student behavior and engagement (Dykstra Steinbrenner & Watson, 2015). In contrast, teachers with low self-efficacy may struggle with managing challenging student behaviors, leading to classroom disruptions and lower academic achievement (Ma et al., 2024).

Research has shown that effective classroom management is associated with the use of both preventive and corrective strategies, such as establishing clear rules and routines, and addressing misbehavior in a constructive manner (AITSL, 2021). Teachers who are confident in their abilities are more likely to implement these strategies consistently and effectively.

Leadership and Classroom Management

The influence of leadership on classroom management has been well documented in educational research. Leaders who adopt supportive and participative leadership styles, such as transformational and instructional leadership, are more likely to create conditions that support effective classroom management (Wilson Heenan et al., 2023). For example, transformational leaders who provide professional development opportunities and foster a collaborative school culture can help teachers develop the skills and confidence needed to manage classrooms effectively.

Instructional leadership, which emphasizes a focus on teaching and learning, also contributes to better classroom management (Zhang et al., 2025). Instructional leaders who set clear expectations, provide feedback, and offer resources for teachers contribute to the development of a positive classroom climate (Mendels, 2012). Leaders who are actively involved in the instructional process can influence teachers' classroom management practices by providing support and ensuring that teachers have the necessary tools to succeed (Brolund, 2016).

This literature review highlights the interconnections between leadership styles, teacher self-efficacy, and classroom management. The research suggests that leadership plays a significant role in shaping teacher self-efficacy, which in turn, influences classroom management practices. Transformational, instructional, and distributed leadership styles all have the potential to enhance teacher self-efficacy, which may lead to more effective classroom management. However, while the existing literature provides valuable insights into these relationships, there is a need for further research that explores the mediating role of teacher self-efficacy and utilizes advanced methodologies, such as multilevel structural equation modeling (ML-SEM), to analyze these complex relationships in educational settings.

This study aims to bridge these gaps by examining how leadership influences teacher self-efficacy and classroom management within a multilevel framework, offering both theoretical insights and practical implications for educational leaders and policymakers.

METHOD

Research Design

This study employs a quantitative research design, utilizing Multilevel Structural Equation Modeling (ML-SEM) to investigate the mediating role of teacher self-efficacy in the relationship between leadership style and classroom management. The research is cross-sectional, meaning data were collected at one point in time, and it is multilevel in nature, recognizing the hierarchical structure of educational data (teachers within schools).

The multilevel approach is appropriate because leadership style is considered a school-level variable (Level 2), whereas teacher self-efficacy and classroom management are teacher-level variables (Level 1). By using ML-SEM, this study examined both individual and group-level relationships simultaneously, providing a more comprehensive understanding of the interactions between these key constructs.

Rationale for Using ML-SEM

Multilevel Structural Equation Modeling (ML-SEM) is particularly suitable for this study because it allows for the examination of nested data (teachers within schools). In educational research, it is common to find that observations are not independent and that factors at the school level (such as leadership style) can influence individual teacher outcomes (such as self-efficacy and classroom management). ML-SEM is ideal for testing complex relationships and accounting for both within-group (Level 1) and between-group (Level 2) variations in the data. It enables the modeling of latent constructs (e.g., leadership style, self-efficacy, and classroom management) while simultaneously controlling for the hierarchical structure of the data.

Research Participants

The target population for this study consisted of teachers and school leaders in secondary schools in Bangladesh within an urban region. The study aimed to collect data from both school leaders such as principals & vice principals and teachers such as teachers of core subjects to examine the effects of leadership style on teacher self-efficacy and classroom management. The study was focused on public schools to ensure the sample is representative of typical educational environments.

A stratified random sampling method employed to select schools from a pool of eligible institutions in Cumilla City. This approach ensures that the sample includes schools of varying sizes and types, thereby increasing the generalizability of the findings. Within each selected school, teachers were randomly sampled to participate in the study.

To ensure sufficient statistical power and reliable results, the study aimed to include data from 35 schools and 350 teachers. With 10 teachers per school, this sample size was sufficient for conducting multilevel analysis, allowing for the examination of both school-level and teacher-level effects. A power analysis were conducted prior to data collection to confirm that the sample size was sufficient for detecting significant effects.

Instruments

Leadership Style

Leadership style was assessed using the Multifactor Leadership Questionnaire (MLQ) developed by Bass and Avolio (1995). The MLQ is a widely used instrument in educational leadership research and measures both transformational and transactional leadership dimensions (Batista-Foguet et al., 2021). In this study, transformational leadership refers to the leadership behaviors of school leaders (principals and vice principals) as perceived and reported by teachers.

The instrument consists of 45 items, encompassing key components of transformational leadership—Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration as well as Contingent Reward and Management-by-Exception (Active).

All items were rated on a 5-point Likert scale ranging from 1 ("Not at all") to 5 ("Frequently, if not always"). For each participant, mean scores were calculated for the overall leadership style and for each subscale. Higher mean scores indicate stronger demonstration of the respective leadership behaviors, whereas lower scores reflect weaker leadership practices.

Since the study adopts a multilevel framework, leadership scores reported by school leaders (principals and vice principals) were aggregated to the school level by calculating the average score within each school. These aggregated scores were used to represent school-level leadership style in subsequent analyses.

Teacher Self-Efficacy

Teacher self-efficacy were measured using the Teachers' Sense of Efficacy Scale (TSES) developed by Tschannen-Moran and Hoy (2001). This scale is widely used in educational research to assess teachers' beliefs in their ability to manage classrooms and influence student outcomes. The instrument consists of 12 items assessing teachers' beliefs in their ability to effectively manage classroom tasks, engage students, and implement instructional strategies. The TSES consists of three subscales:

- Efficacy for Classroom Management (Efficacy for managing student behavior)
- Efficacy for Instructional Strategies (Efficacy for engaging students and teaching effectively)
- Efficacy for Student Engagement (Efficacy for motivating and involving students)

The TSES is a Likert-type scale with responses ranging from 1 (Nothing) to 9 (A Great Deal), where higher scores indicate stronger self-efficacy beliefs. For each participant, a mean score was calculated across all items. Higher mean scores indicate greater levels of teacher self-efficacy, reflecting stronger confidence in teaching capabilities, whereas lower scores indicate lower perceived efficacy. These scores were used as a teacher-level (Level 1) variable in the multilevel analysis.

Classroom Management

Classroom management were assessed using the Classroom Management Scale (CMS), developed by Emmer and Sabornie (2015). The instrument consists of 25 items scale assesses various aspects of classroom management, including preventive strategies such as setting clear rules and providing structure, and corrective strategies such as addressing misbehavior and implementing student discipline. The CMS includes items such as "I maintain clear rules for student behavior" and "I handle disruptive behavior in the classroom effectively."

Items were measured on a 5-point Likert scale ranging from 1 ("Never") to 5 ("Always"). Mean scores were computed for each participant, with higher scores indicating more effective classroom management practices and lower scores reflecting less consistent use of management strategies.

The overall mean score was used as the primary indicator of classroom management in subsequent analyses.

Data Collection & Analysis Procedures

Data were collected through online surveys administered to both teachers and school leaders. Teachers completed the Teacher Self-Efficacy Scale (TSES) and the Classroom Management Scale (CMS), while school leaders completed the Multifactor Leadership Questionnaire (MLQ). Schools were initially contacted to obtain institutional consent, and participating teachers were subsequently

invited via email to complete the survey. Participation was voluntary, and informed consent was obtained from all respondents. Ethical guidelines were strictly followed to ensure confidentiality and anonymity throughout the data collection process.

Prior to the main analysis, several preliminary data checks were conducted to ensure the quality and suitability of the dataset. Descriptive statistics, including means, standard deviations, skewness, and kurtosis, were computed for all study variables. Missing data were examined and handled using appropriate techniques, such as Multiple Imputation or Maximum Likelihood Estimation (MLE), depending on the extent and pattern of missingness.

The internal consistency of all measurement instruments (MLQ, TSES, and CMS) was assessed using Cronbach's alpha coefficients. In addition, Intraclass Correlation Coefficients (ICC) were calculated to determine the proportion of variance attributable to school-level (Level 2) and teacher-level (Level 1) differences. The ICC values provided justification for the use of multilevel modeling, given the nested structure of the data (teachers within schools).

Modeling with Multilevel Structural Equation Modeling (ML-SEM)

The main data analysis were conducted using Multilevel Structural Equation Modeling (ML-SEM). This technique allows for the simultaneous examination of both within-group (Level 1) and between-group (Level 2) relationships. The analysis were conducted using Mplus software, which is well-suited for complex multilevel models and latent variables.

Model Specification

The model specified a set of multilevel relationships among the study variables. At the teacher level (Level 1), teacher self-efficacy was modeled as a predictor of classroom management practices, indicating that teachers' beliefs in their capabilities are associated with their effectiveness in managing classroom environments. At the school level (Level 2), leadership style, particularly transformational leadership, was specified as a predictor of teacher self-efficacy, reflecting the role of school leadership in shaping teachers' professional beliefs. Furthermore, teacher self-efficacy was modeled as a mediating variable linking leadership style to classroom management, suggesting that leadership is associated with classroom management both directly and indirectly through its relationship with teacher self-efficacy. These relationships were tested using multilevel structural equation modeling (ML-SEM) to account for the nested structure of the data.

Fit Indices

Model fit was assessed using multiple commonly recommended indices to evaluate how well the proposed model represented the observed data. These included the chi-square (χ^2) test, which examines the discrepancy between the observed and model-implied covariance matrices, as well as incremental fit indices such as the Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI), which assess the relative improvement of the specified model over a baseline model. In addition, absolute fit indices, including the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR), were used to evaluate the extent to which the model adequately reproduced the data. Together, these indices provided a comprehensive assessment of overall model fit.

Bootstrapping for Mediation

Bootstrapping were used to test the significance of indirect effects (mediation) by generating confidence intervals for the indirect paths. This procedure were implemented in Mplus using the bootstrap method with 5,000 resamples. Mediation was evaluated based on the significance of both direct and indirect effects, allowing for the identification of partial or full mediation.

Interpretation of Results

The results were interpreted based on the significance of the paths (direct and indirect), model fit indices, and the magnitude of the effect sizes. while the mediation effect was significant, it were suggest that teacher self-efficacy plays a crucial role in translating leadership style into classroom management outcomes. The multilevel nature of the analysis were provided insights into both school-level and teacher-level factors influencing classroom management practices.

FINDINGS

Descriptive Statistics

Sample Characteristics

The data for this study were collected from 35 schools, with 350 teachers completing the survey. Table 1. below summarizes the demographic characteristics of the participants.

Table 1
The demographic characteristics of the participants

Variable	Category	Frequency (n)	Percentage
Gender	Male	120	34.3%
	Female	230	65.7%
	25-34 years	150	42.9%
Age Group	35-44 years	100	28.6%
	45-54 years	70	20%
	55+ years	30	8.6%
	1-5 years	50	14.3%
	6-10 years	100	28.6%
Teaching Experiences	11-15 years	120	34.6%
	16+ years	80	22.9%

Descriptive Statistics for Key Variables

Descriptive statistics for the key variables—leadership style, teacher self-efficacy, and classroom management were provided in Table 2. All variables were measured using Likert-type scales, with higher scores indicating stronger leadership qualities, higher self-efficacy, and more effective classroom management.

Table 2

Descriptive statistics

Variable	Mean	SD	Scale Range	Cronbach's α
Transformational Leadership	3.85	0.67	1-5	0.94
Teacher Self-Efficacy	7.80	1.15	1-9	0.91
Classroom Management	4.20	0.88	1-5	0.89

Transformational Leadership: Teachers reported relatively high levels of transformational leadership from their principals (M = 3.85, SD = 0.67).

Teacher Self-Efficacy: Teachers' self-efficacy was also quite high (M = 7.80, SD = 1.15), indicating a strong belief in their ability to manage classrooms effectively.

Classroom Management: Teachers reported moderately high levels of classroom management practices (M = 4.20, SD = 0.88).

Intraclass Correlation Coefficients (ICC)

Before proceeding with the multilevel structural equation modeling (ML-SEM), it was important to assess the intraclass correlation coefficients (ICCs) for the key variables. The ICC values indicate the proportion of variance in the outcome variables that is attributed to between-school differences.

Teacher Self-Efficacy	0.20	0.80
Classroom Management	0.15	0.85

The ICC values indicate that a substantial proportion of the variance in teacher self-efficacy (80%) and classroom management (85%) is due to between-school differences. These results justify the use of multilevel analysis, as there is significant school-level variation that needs to be taken into account.

Model Fit Indices

The first step in the analysis was to assess the overall fit of the multilevel structural equation model (ML-SEM). The model included school-level leadership style as the predictor for teacher self-efficacy, and teacher self-efficacy as the mediator between leadership style and classroom management.

Model Fit

The fit indices for the multilevel model are summarized in Table 3. The model exhibited acceptable fit according to the commonly recommended thresholds.

Table 3
The fit indices for the multilevel model

Chi-Square (χ^2)	192.42	$p > 0.05$
CFI	0.92	≥ 0.90
TLI	0.91	≥ 0.90
RMSEA	0.06	≤ 0.08
SRMR (Within)	0.05	≤ 0.08
SRMR (Between)	0.08	≤ 0.08

The model fit indices indicate that the multilevel SEM model provides a good fit to the data. The CFI (0.92) and TLI (0.91) exceed the recommended threshold of 0.90, and the RMSEA (0.06) is below the acceptable limit of 0.08, indicating a good model fit.

Direct and Indirect Effects

Direct Effects

Table 4
The standardized direct effects of the variables included in the model.

Transformational Leadership → Self-Efficacy	0.53	0.09	5.89	< 0.001
Transformational Leadership → Classroom Management	0.21	0.08	2.63	0.009
Teacher Self-Efficacy → Classroom Management	0.45	0.07	6.42	< 0.001

Transformational Leadership and Teacher Self-Efficacy

Transformational leadership, referring to teachers' perceptions of school leaders' leadership style (e.g., principals and vice principals), had a significant positive effect on teacher self-efficacy ($\beta = 0.53$, $p < 0.001$). This result is consistent with previous research that has shown that transformational leaders, who inspire, support, and empower teachers, can enhance teachers' belief in their abilities (Tschannen-Moran & Hoy, 2001). Transformational leaders provide a vision for the future, create a sense of shared purpose, and encourage professional growth, all of which contribute to teachers' confidence in managing classrooms and engaging with students effectively.

This finding supports the Social Cognitive Theory (Bandura, 2001), which posits that self-efficacy is influenced by social and environmental factors, including leadership. When school leaders demonstrate behaviors associated with transformational leadership, such as individualized consideration and intellectual stimulation, teachers are more likely to feel supported and capable in their roles, which boosts their self-efficacy..

Transformational Leadership and Classroom Management

The direct effect of transformational leadership on classroom management ($\beta = 0.21$, $p = 0.009$) was significant, though smaller than the effects of teacher self-efficacy. This finding suggests that leadership style does have a direct impact on classroom management, but the effect is partly mediated through teacher self-efficacy. In other words, while transformational leaders set the tone for effective classroom management, their impact is significantly enhanced when teachers believe in their ability to manage classroom dynamics effectively. This underscores the indirect nature of the relationship between leadership and classroom management.

Teacher Self-Efficacy and Classroom Management

The positive relationship between teacher self-efficacy and classroom management ($\beta = 0.45$, $p < 0.001$) is well-established in educational research. Teachers with higher self-efficacy tend to employ proactive management strategies, foster stronger student-teacher relationships, and respond more effectively to classroom challenges (Goddard et al., 2004). This study's results corroborate these findings, suggesting that when teachers believe in their ability to manage classroom situations, they are more likely to employ strategies that foster a positive learning environment.

The effect size ($\beta = 0.45$) also suggests that teacher self-efficacy plays a significant role in shaping classroom management. This reinforces the importance of fostering teacher confidence through professional development and leadership support, as teachers with high self-efficacy are more likely to engage in effective classroom management practices.

Mediation Effects

The next step was to test the indirect (mediation) effect of teacher self-efficacy in the relationship between transformational leadership and classroom management. The bootstrapping method was used to estimate the indirect effects.

Indirect Effects via Teacher Self-Efficacy

Transformational Leadership → Classroom Management (via Self-Efficacy)	0.24	0.05	[0.15, 0.34]	< 0.001

Mediating Role of Teacher Self-Efficacy

The indirect effect of transformational leadership on classroom management, mediated by teacher self-efficacy, was found to be significant ($\beta = 0.24$, 95% CI: [0.15, 0.34], $p < 0.001$). This suggests

that teacher self-efficacy fully mediates the relationship between transformational leadership and classroom management.

The mediation analysis revealed that teacher self-efficacy partially mediated the relationship between transformational leadership and classroom management. Although transformational leadership had a significant indirect effect on classroom management through teacher self-efficacy, the direct effect remained statistically significant after including the mediator. This indicates that transformational leadership influences classroom management both directly and indirectly via teacher self-efficacy.

The findings indicate a partial mediation effect, suggesting that while teacher self-efficacy serves as an important mechanism linking transformational leadership to classroom management, leadership also exerts a direct influence on classroom practices. This implies that leadership behaviors not only shape teachers' beliefs but may also directly impact instructional practices and classroom environments.

This mediation effect is consistent with Bandura's (2001) Social Cognitive Theory, which emphasizes the role of personal agency (e.g., self-efficacy) in translating external influences such as leadership style into behavior such as, classroom management. The findings suggest that leadership styles that foster teacher self-efficacy may be more effective in improving classroom management than leadership styles that do not engage teachers' beliefs about their capabilities.

Additional Multilevel Analysis

To explore potential school-level variation, the model also examined the influence of school climate (measured at the school level) on teacher self-efficacy and classroom management. School climate was found to significantly moderate the relationship between leadership style and teacher self-efficacy, with stronger effects in schools with more positive climates.

DISCUSSION

The results of this study confirm that transformational leadership has a significant direct and indirect impact on classroom management, with teacher self-efficacy playing a critical mediating role. Teachers who perceive their leaders as transformational tend to have higher self-efficacy, which in turn leads to more effective classroom management. These findings are consistent with previous research (Tschannen-Moran & Hoy, 2001; Bass & Avolio, 1995) and support the idea that leadership styles influence not only teacher beliefs but also their classroom practices. The significant mediation effect underscores the importance of teacher self-efficacy.

The purpose of this study was to examine the mediating role of teacher self-efficacy in the relationship between leadership style (specifically, transformational leadership) and classroom management. Using a multilevel structural equation modeling (ML-SEM) approach, the study found significant direct and indirect effects of leadership style on classroom management, mediated by teacher self-efficacy (Rabe-Hesketh, et al., 2012). These findings provide valuable insights into the dynamics of leadership, teacher beliefs, and classroom practices. This chapter discusses the implications of the study's findings, offers theoretical contributions, and provides practical recommendations for educators, school leaders, and policymakers.

IMPLICATIONS

The findings of this study offer important implications for both educational leadership theory and practice by clarifying the mechanisms through which leadership style is associated with classroom management. While previous research has emphasized the importance of leadership in shaping educational outcomes, this study extends the literature by demonstrating that the influence of leadership operates indirectly through teacher self-efficacy. Specifically, transformational leadership, as enacted by school leaders, appears to strengthen teachers' beliefs in their professional capabilities,

which in turn is associated with more effective classroom management practices. This highlights the critical role of psychological factors in translating leadership behaviors into classroom outcomes.

These findings are consistent with Social Cognitive Theory (Bandura, 2001), which emphasizes the interaction between environmental influences, personal beliefs, and behavioral outcomes. In this context, leadership style represents an environmental factor, teacher self-efficacy reflects a key personal factor, and classroom management represents a behavioral outcome. The results support the view that self-efficacy functions as a central mechanism linking leadership practices to teaching behaviors, thereby reinforcing its importance in educational settings.

In addition, the application of multilevel structural equation modeling (ML-SEM) strengthens the contribution of this study by accounting for the nested structure of educational data. By simultaneously examining school-level leadership and teacher-level outcomes, the study provides a more comprehensive understanding of how leadership is associated with classroom processes. Overall, these findings underscore the importance of fostering leadership practices that support and enhance teacher self-efficacy as a pathway to improving classroom management and teaching effectiveness.

Implications for School Leaders

The findings of this study offer important practical implications for school leaders by highlighting the role of transformational leadership in enhancing teacher self-efficacy and, consequently, improving classroom management practices. School leaders are encouraged to foster supportive and empowering environments that promote teachers' professional growth, autonomy, and confidence in their instructional abilities. This can be achieved by providing individualized support through coaching and mentoring, as well as by encouraging collaboration among teachers to facilitate the exchange of effective classroom management strategies. Additionally, cultivating a school culture that emphasizes continuous learning and professional development can strengthen teachers' belief in their capacity to improve their practice. By adopting and sustaining transformational leadership practices, school leaders can enhance teacher self-efficacy, which in turn contributes to more effective classroom management and a more positive overall school environment.

Implications for Teacher Training and Professional Development

The findings of this study highlight the importance of prioritizing teacher self-efficacy within teacher training and professional development initiatives, given its strong association with effective classroom management. Professional development programs should be designed to strengthen teachers' confidence in their instructional abilities by integrating practical classroom management strategies with approaches that promote teacher empowerment. In addition, leadership training for principals and other school leaders should emphasize transformational leadership practices that support and enhance teacher self-efficacy. Structured mentoring programs can further contribute to this goal by providing targeted support to less experienced teachers, enabling them to build confidence, refine their classroom management skills, and adapt more effectively to classroom challenges. Collectively, these efforts can contribute to more effective teaching practices and improved learning environments.

Implications for Policymakers

For policymakers, the findings underscore the importance of promoting leadership development programs that emphasize transformational leadership as a key strategy for improving teaching quality and classroom management. Investment in leadership training and teacher empowerment initiatives can have a long-term positive impact on the educational system.

LIMITATIONS

While this study provides valuable insights, it has several limitations:

Cross-Sectional Design: The study uses a cross-sectional design, which limits the ability to infer causality. Future research could use longitudinal or experimental designs to more definitively establish causal relationships between leadership style, self-efficacy, and classroom management.

Regional Focus: The study focused on secondary schools in a specific region, which may limit the generalizability of the findings. Future research should aim to replicate these findings in other contexts and across diverse educational settings.

Self-Report Measures: The study relied on self-report questionnaires to assess leadership style, teacher self-efficacy, and classroom management. This could introduce response bias. Future research may benefit from incorporating multiple data sources, such as observational data or student feedback, to provide a more comprehensive picture of classroom management practices.

RECOMMENDATIONS

Based on the findings and limitations of this study, several directions for future research are recommended to extend understanding of the relationships among leadership, teacher self-efficacy, and classroom management. Future studies should employ longitudinal designs to examine causal relationships and track how changes in leadership style are associated with developments in teacher self-efficacy and classroom practices over time. In addition, researchers are encouraged to investigate a broader range of leadership styles, such as instructional, distributed, and authoritarian leadership, to compare their relative effectiveness in enhancing teacher confidence and classroom management. Further research should also examine the impact of teacher self-efficacy and classroom management on student outcomes, including academic achievement, behavior, and engagement, in order to provide a more comprehensive view of educational effectiveness. Finally, exploring these relationships across different cultural contexts would offer valuable insights into how leadership practices and teacher beliefs operate within diverse educational systems, thereby strengthening the generalizability of findings.

CONCLUSION

In conclusion, this study provides strong evidence of the mediating role of teacher self-efficacy in the relationship between transformational leadership and classroom management. Transformational leadership was found to enhance teacher self-efficacy, which in turn improved classroom management practices. These findings have significant implications for educational theory, practice, and policy, highlighting the importance of supportive leadership, teacher empowerment, and professional development in creating positive educational environments. Future research can build on these findings to further explore the complex dynamics between leadership, teacher self-efficacy, and classroom management, ultimately contributing to improved educational outcomes.

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