

Classroom Management Practices in Secondary Schools: A Metacognitive Self-Regulation

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Abstract

This paper focuses on the relationship between classroom management of secondary school teachers and students' metacognitive self-regulation and attitudes towards studying in public secondary schools in South Punjab, Pakistan. The author used a quantitative, cross-sectional research design to gather data from secondary school students through standardized questionnaires on classroom management, metacognitive self-regulation, and attitude towards study. The data were analysed using SPSS and AMOS to obtain descriptive statistics, conduct correlation analyses, and perform structural equation modelling (SEM). The findings further show that the classroom management practices adopted by teachers are moderately implemented, with students showing moderately high levels of metacognitive self-regulation and attitude towards study. The direct effect of classroom management on both metacognitive self-regulation and attitude towards study is statistically significant but weak, and is likely to be mediated by contextual and instructional factors. The demographic variables, including gender and locality, did not provide significant differences. The results indicate that classroom management is a prerequisite for effective learning environments, but it should be combined with metacognitive and motivational instructional methods to achieve high student outcomes. The paper has implications for teachers, school leaders, and policymakers, and offers suggestions for further research directions.

Keywords: Classroom Management, Metacognitive Self-Regulation, Attitude Towards Study.

Introduction

Classroom management is a fundamental component of effective teaching and learning, particularly at the secondary school level, where students experience significant cognitive, emotional, and social development. An effectively managed classroom creates a structured, supportive, and engaging learning environment that facilitates students' academic growth, self-regulation, and positive attitudes toward learning. Conversely, poor classroom management often results in instructional disruptions, reduced learning time, diminished student motivation, and negative learning behaviours (Emmer & Sabornie, 2015; Evertson & Weinstein, 2006). At the secondary level, classroom management extends beyond maintaining discipline; it encompasses

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the systematic organization of classroom space, time, instructional strategies, teacher–student relationships, classroom norms, and feedback mechanisms that collectively support meaningful learning experiences. Teachers are required not only to deliver subject content but also to foster an environment that promotes students’ independent thinking, self-monitoring, and engagement with learning tasks (Marzano et al., 2003). Research has consistently shown that well-managed classrooms are associated with higher student achievement, improved behavioural outcomes, and enhanced learner engagement (Wang et al., 1993). One of the most critical learner attributes influenced by classroom practices is metacognitive self-regulation ability. Metacognitive self-regulation refers to learners’ capacity to plan, monitor, and evaluate their own cognitive processes during learning activities (Zimmerman, 2002). Students with strong metacognitive self-regulation are aware of their learning strategies, can assess their understanding, and adjust their approaches when encountering difficulties. Such learners tend to demonstrate higher academic achievement, stronger problem-solving skills, and greater independence in learning (Pintrich, 2004; Schraw & Dennison, 1994). The development of metacognitive self-regulation is not an automatic process; rather, it is shaped significantly by instructional practices and classroom environments. Teachers play a vital role in nurturing students’ metacognitive skills by modelling strategic thinking, providing structured learning opportunities, offering timely feedback, and encouraging reflection (Dignath & Büttner, 2008). Classroom management practices—such as effective time management, clear expectations, supportive teacher–student relationships, and appropriate instructional techniques—can create conditions that enable students to actively engage in self-regulated learning processes (Ertmer & Newby, 1996). In addition to metacognitive self-regulation, students’ attitudes toward study represent a crucial determinant of academic success at the secondary level. Attitude toward study encompasses students’ beliefs, feelings, and behavioural tendencies related to learning tasks and academic activities (Ajzen, 2001). Positive study attitudes are associated with higher motivation, persistence, and academic engagement, whereas negative attitudes often manifest as apathy, avoidance, and anxiety to learning (Eccles & Wigfield, 2002). A classroom characterized by fairness, consistency, respect, and emotional support fosters positive student perceptions of learning and school life (Wentzel, 2012). Teachers who employ constructive feedback, encourage student participation, and maintain a conducive learning environment help students develop confidence and a sense of ownership over their learning. Conversely, authoritarian or poorly structured classroom management may contribute to negative attitudes, reduced motivation, and disengagement from academic tasks (Poulou & Norwich, 2002). In the context of secondary education in Pakistan, classroom management assumes even greater significance due to challenges such as large class sizes, limited resources, diverse student needs, and varying teacher preparation levels. Public secondary schools, particularly in regions such as South Punjab, often face systemic constraints that affect instructional quality and learning outcomes. Understanding how teachers’ classroom management practices influence students’ metacognitive self-regulation and attitudes toward study is therefore essential for improving educational quality and student performance in these settings. Although previous research has examined classroom management, metacognition, and student attitudes independently, there is limited empirical evidence integrating these variables within a single analytical framework, particularly at the secondary school level in Pakistan. Moreover, few studies have explored these relationships using advanced analytical techniques, such as structural equation modelling, to examine both direct and indirect effects among the constructs. Addressing this gap is crucial for generating evidence-based recommendations for teachers, school leaders, and policymakers. Therefore, the present study seeks to examine the effects of secondary school

teachers' classroom management practices on students' metacognitive self-regulation ability and attitudes toward study. By investigating these relationships, the study aims to contribute to the growing body of educational research that emphasizes the role of classroom processes in shaping students' cognitive and affective outcomes. The findings of this research are expected to inform teacher training programs, instructional practices, and policy initiatives aimed at enhancing classroom effectiveness and student learning at the secondary level.

Literature Review

Classroom Management in Secondary Education

Classroom management is widely recognized as a cornerstone of effective teaching and learning, particularly at the secondary school level, where students exhibit diverse cognitive, behavioural, and emotional characteristics. Traditionally, classroom management was equated with discipline and control; however, contemporary research conceptualizes it as a multidimensional construct that includes the organization of classroom space, instructional strategies, time management, behaviour regulation, and the establishment of positive interpersonal relationships (Evertson & Weinstein, 2006; Emmer & Sabornie, 2015). Effective classroom management enables teachers to create structured and supportive learning environments that maximize instructional time and minimize disruptive behaviours (Marzano et al., 2003). Studies have consistently demonstrated that well-managed classrooms are associated with higher academic achievement, improved student engagement, and positive behavioural outcomes (Wang et al., 1993; Oliver et al., 2011). At the secondary level, classroom management becomes more complex due to increased academic demands, adolescent behavioural changes, and the need to promote student autonomy (Flower et al., 2017). Researchers emphasize that effective classroom management is proactive rather than reactive. Preventive strategies such as establishing clear rules, maintaining consistent routines, and fostering respectful teacher–student relationships are more effective than punitive approaches (Brophy, 2006; Simonsen et al., 2008). Such practices are particularly important in secondary schools, where students' motivation and attitudes toward learning are highly sensitive to classroom climate.

Components of Effective Classroom Management

The literature identifies several key components of effective classroom management, including seating arrangement, time management, instructional techniques, classroom norms, feedback, and teacher–student relationships (Emmer & Stough, 2001; Martin & Sass, 2010). Proper seating arrangements and classroom organization facilitate student interaction and reduce off-task behaviour (Wannarka & Ruhl, 2008). Effective time management ensures optimal use of instructional periods and supports task completion (Abramovich et al., 2019). Teacher–student relationships play a central role in classroom management effectiveness. Positive relationships characterized by trust, respect, and emotional support are linked to improved student engagement, reduced behavioural problems, and stronger academic motivation (Wentzel, 2012; Roorda et al., 2011). Additionally, constructive feedback enhances student understanding, encourages self-reflection, and promotes deeper learning (Hattie & Timperley, 2007). Instructional strategies aligned with students' learning needs further strengthen classroom management. Student-centered and differentiated instructional approaches foster active engagement and reduce classroom

disruptions (Tomlinson, 2014; Schipper et al., 2020). Together, these components form an integrated system that supports both cognitive and affective student outcomes.

Metacognitive Self-Regulation Ability

Metacognitive self-regulation refers to learners' ability to plan, monitor, and evaluate their learning processes (Zimmerman, 2002). It is a critical component of self-regulated learning and has been shown to significantly influence academic achievement, problem-solving ability, and lifelong learning skills (Pintrich, 2004; Schraw & Dennison, 1994). Students with strong metacognitive self-regulation skills are better equipped to set learning goals, select appropriate strategies, monitor progress, and adjust their approaches when encountering difficulties (Zimmerman & Schunk, 2011). Research indicates that these skills are particularly important at the secondary level, where students are expected to engage in higher-order thinking and independent learning (Dignath & Büttner, 2008). Teachers play a pivotal role in fostering metacognitive self-regulation through instructional modelling, scaffolding, and reflective practices (Ertmer & Newby, 1996). Classroom environments that encourage questioning, self-assessment, and feedback significantly enhance students' metacognitive development (Veenman et al., 2006). Conversely, poorly managed classrooms may limit opportunities for reflection and strategic learning.

Students' Attitude Toward Study

Students' attitudes toward study encompass their beliefs, emotions, and behavioural intentions related to learning activities (Ajzen, 2001). Positive attitudes toward study are strongly associated with motivation, persistence, academic engagement, and achievement (Eccles & Wigfield, 2002). In contrast, negative attitudes may result in disengagement, anxiety, and low academic performance (Pekrun et al., 2017). Secondary school students are particularly susceptible to attitudinal changes due to developmental transitions and academic pressures. Research suggests that supportive classroom environments contribute to positive academic attitudes by enhancing students' sense of belonging and competence (Ryan & Deci, 2000; Wentzel, 2012). Teachers' classroom management practices, including fairness, consistency, and emotional support, play a significant role in shaping students' study attitudes (Poulou & Norwich, 2002).

Relationship Between Classroom Management, Metacognition, and Attitude

Empirical evidence suggests a strong interrelationship between classroom management practices, metacognitive self-regulation, and students' attitudes toward study. Well-structured classrooms promote student engagement and provide opportunities for self-regulated learning, thereby enhancing metacognitive skills (Doyle, 2006; Kunter et al., 2013). Similarly, positive classroom climates foster favourable academic attitudes and intrinsic motivation (Fraser, 2012). Several studies indicate that classroom management indirectly influences academic outcomes by affecting motivational and metacognitive variables (Opdenakker et al., 2012; Egeberg et al., 2020). However, limited research has examined these relationships simultaneously, particularly in the context of secondary education in developing countries. This gap highlights the need for integrated

models that explore how classroom management affects both cognitive and affective student outcomes.

Research Methodology

Population of the Study

This study's target population included all teachers and students from public secondary schools in South Punjab, Pakistan, regardless of gender or location. South Punjab is divided into three divisions: Bahawalpur, Multan, and Dera Ghazi Khan. Each division is subdivided further into districts and tehsils. Rahim Yar Khan is further subdivided into four tehsils: Liaqatpur, Sadiqabad, Rahim Yar Khan, and Khanpur. Similarly, Tehsils Khanewal, Jahanian, and Kabirwala are subdivisions of District Khanewal. Similarly, Tehsils Jatoi, Alipur, and Muzafar Garh are subdivided into District Muzafar Garh, as shown in Figure 1.

Figure 1. Population Chart

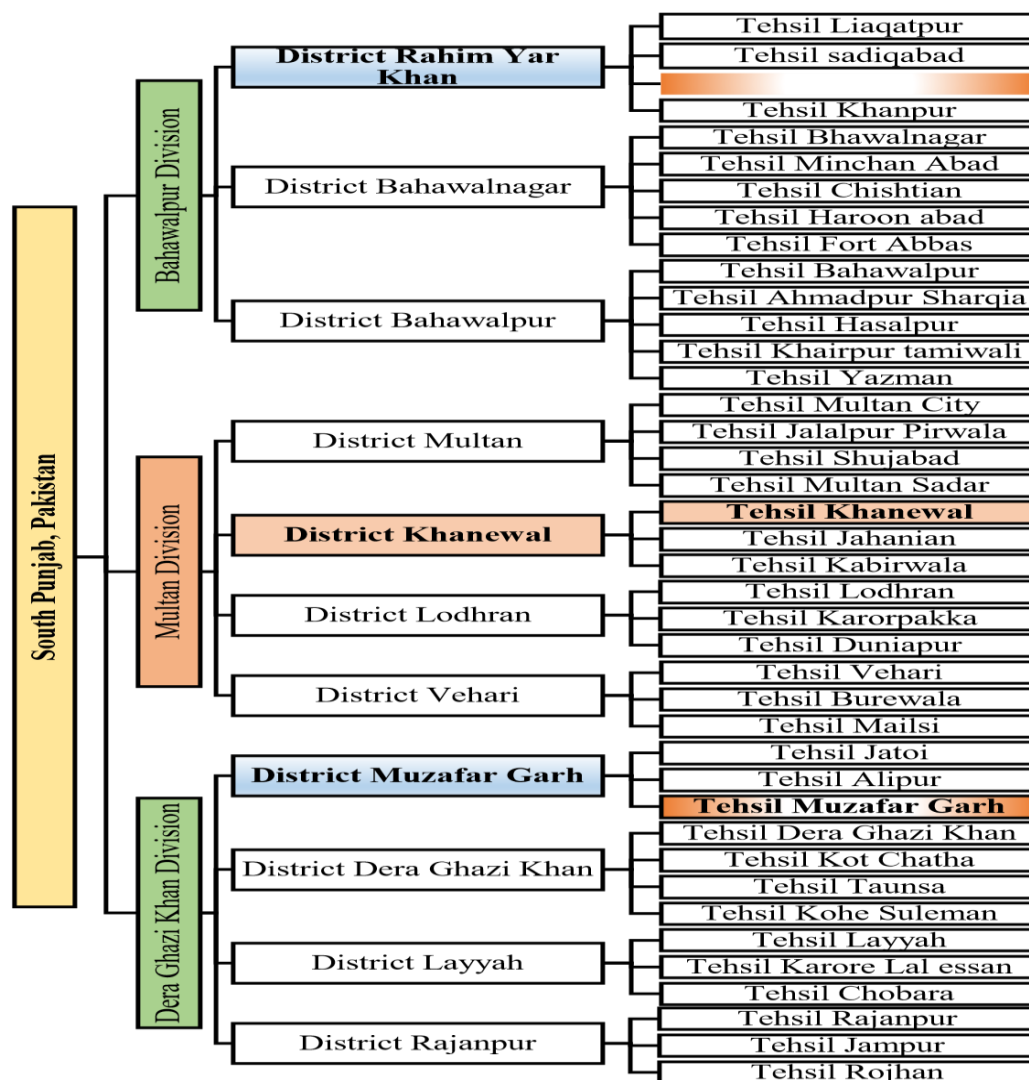
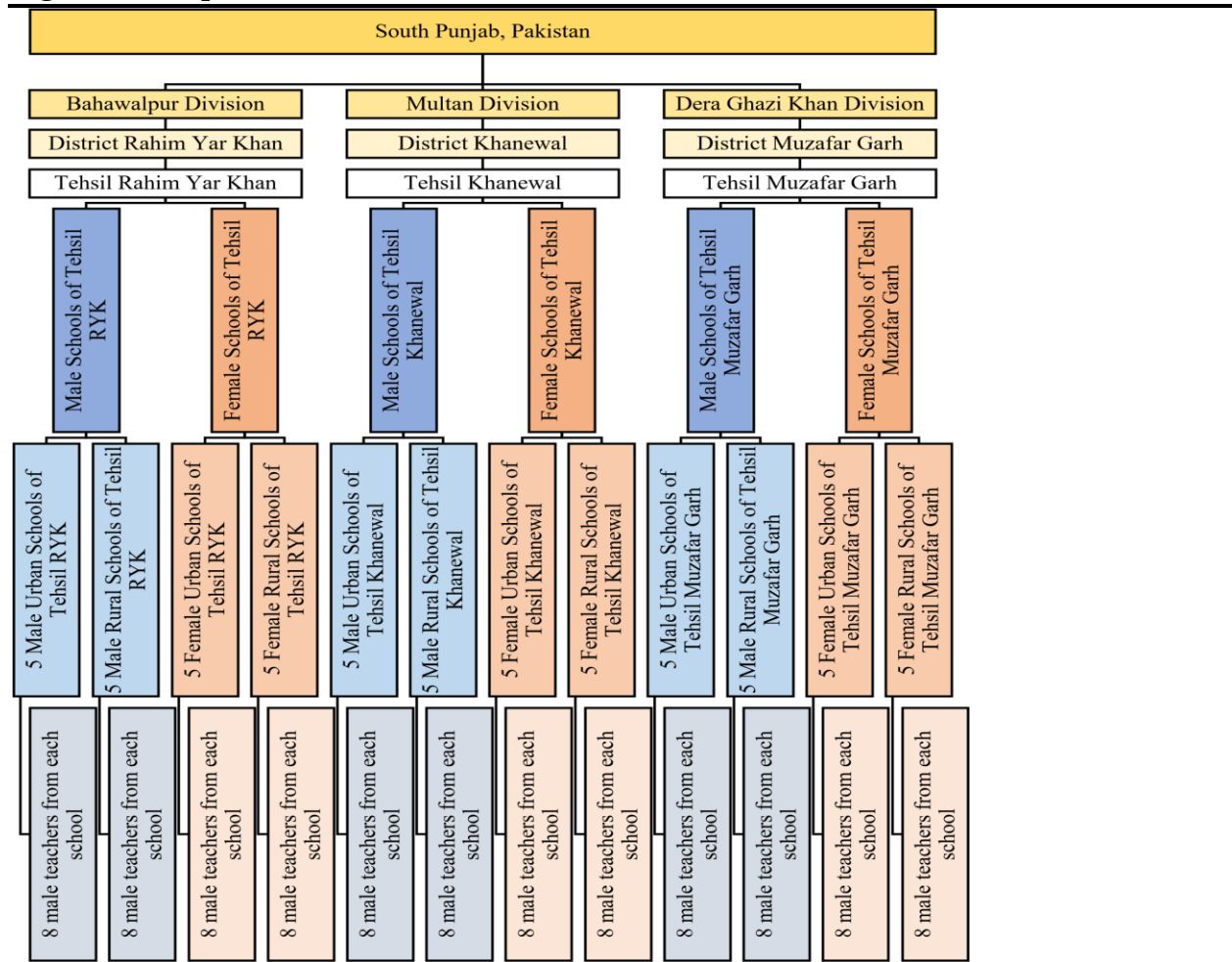


Figure 2: Sample Chart

Sample and Sampling

In the first stage, one cluster, South Punjab, was purposefully chosen, and then a multi stage randomized cluster sampling technique was used to achieve the following research objectives:

- In the second stage, South Punjab was further sub-divided into three clusters (respective divisions), namely, Bahawalpur Division, Multan Division and Dera Ghazi Khan Division.
- In the third stage, one district from each division was randomly selected. Therefore, District Rahim Yar Khan was selected from the Bahawalpur division, District Khanewal from Multan Division, and District Muzaffar Garh from Dera Ghazi Khan Division.
- In the fourth stage, one tehsil from each district was chosen at random. As a result, tehsil Rahim Yar Khan was chosen at random from district Rahim Yar Khan, tehsil Khanewal from district Khanewal, and tehsil Muzaffar Garh from district Muzaffar Garh.
- At fifth stage each tehsil was divided into secondary schools across the gender and locale. Therefore, the schools were divided into male urban secondary schools, female urban secondary schools, male rural secondary schools, and female rural secondary schools.
- At the sixth stage, five secondary schools across the genders and locale were chosen randomly. As a result, sixty (72) secondary schools from three randomly selected tehsils of south Punjab were chosen as a sample.

At the seventh stage, fourteen (14) secondary school teachers from each randomly selected school were chosen. The sample consisted of one thousand and eight (1008) secondary school teachers.

Research Tool

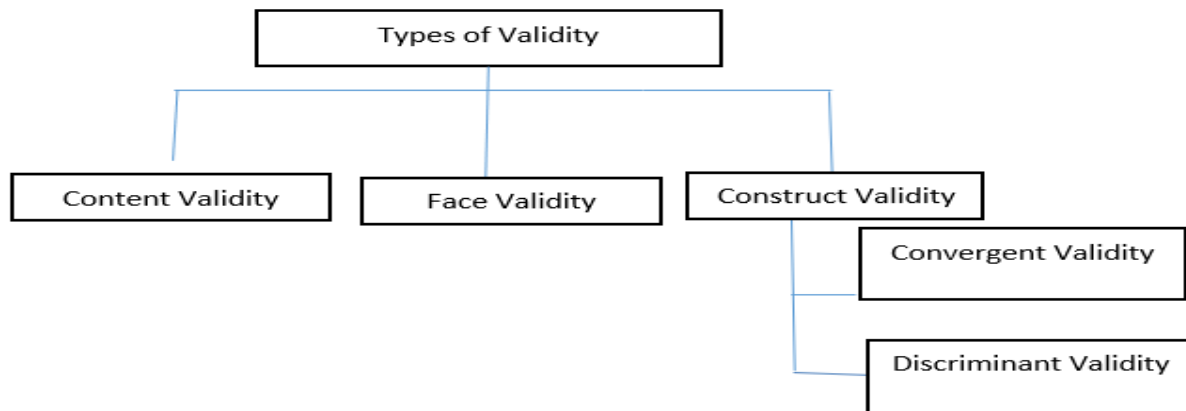
In this research study survey method was used to gather quantitative information from the sample. A questionnaire for the teachers was designed by the researcher after discussion with the supervisor and other experts in the department. The details of the questionnaire were as follows: First questionnaire was developed and validated to explore Teachers' Classroom Management questionnaire. The questionnaire was titled as Teachers Classroom Management Questionnaire (TCMF). This questionnaire was developed on a 5-points Likert scale to measure the students' metacognitive self-regulation ability (SMSA) and the students' attitude towards study (SAS).

Teachers Classroom Management Questionnaire (TCMF)

The first tool was developed and validated called as a Teachers Classroom Management Questionnaire (TCMF) in order to assess the classroom management. The questionnaire was developed by a thorough review of literature and focus group discussions, resulting in a preliminary tool with sixty four items rated on a five-point Likert scale. These items, adapted from classroom management practices 2021, work encompassed eight sub factors effect classroom management: seating arrangement, student-teacher relationship, time management, use of writing board, classroom norms, conducive environment, appropriate instructional techniques and feedback. Teachers' classroom management TCMF underwent robust validation processes, including expert reviews for content and face validity.

Validation of Teachers Classroom Management Questionnaire (TCMF)

The development and validation of a questionnaire is critical elements in survey research, providing reliable and accurate data collection. A well-constructed questionnaire begins with a clear understanding of its intended purpose and the targeted audience (Artino et al., 2014). Revilla et al. (2016) underscored the importance of clarity and comprehension in questionnaire items, recommending the avoidance of jargon, technical language, or ambiguous phrases. The process of developing and validating questionnaires requires meticulous attention to questionnaire design, validation, and potential issues. The validation of the questionnaire is crucial (Khalaf, 2019) and encompasses both content validity (Polit et al., 2016) and construct validity (Knekta et al., 2019).

Figure 3: Types of Validity

Content validity is essential for a questionnaire to accurately measure the intended concept or construct. It can be established through expert review, the Content Validity Ratio (CVR), and the Content Validity Index (CVI). Expert review involves consulting subject matter experts (SMEs) who can evaluate the questions critically, providing feedback on relevance, clarity, and comprehensiveness. They can also suggest improvements and additional items to enhance content validity (Khurram et al., 2020). Lawshe (1975) developed the CVR to quantify content validity by calculating the proportion of experts who agree that an item is essential. A higher CVR indicates better content validity, and items with negative or low CVRs should be considered for removal or modification. The CVI measures the overall content validity of a questionnaire, with a higher CVI indicating more valid content; an acceptable CVI should be 0.78 or higher (Khurram et al., 2020). Face validity refers to the extent to which a questionnaire appears to measure the intended construct at a surface level. It is a subjective evaluation of whether the questionnaire appears relevant, clear, and appropriate for the given research context (Oluwatayo, 2012). Face validity helps establish credibility and acceptance among participants and stakeholders. To enhance face validity, (Khurram et al. 2020) and (Kennedy et al. 2019) suggest incorporating expert review and pilot testing, contributing to overall research quality and increasing the likelihood of obtaining accurate and reliable data. Construct validity assesses the degree to which a measure accurately reflects the theoretical construct it aims to evaluate. Convergent validity and discriminant validity are two subtypes of construct validity. Examining both allows researchers to establish construct validity, ensuring instruments accurately measure intended constructs and providing confidence in the research results (Tentama & Nabilah, 2020; Ramzan et al., 2022). Convergent validity evaluates the degree to which a measure correlates with other measures theoretically related to the construct being assessed. High correlations between these measures indicate strong convergent validity, providing evidence that the questionnaire accurately measures the intended construct. Discriminant validity examines the degree to which a measure is not correlated or has weak correlations with unrelated construct measures. Low correlations between these measures indicate strong discriminant validity, providing evidence that the questionnaire measures the intended construct and not unrelated constructs. In the initial phase, an in-depth literature review was conducted, followed by focused group discussions involving peers, leading teachers, and faculty members of the Department of Education, and administration experts to determine the anticipated factors for the questionnaire. Consequently, questionnaire items were adapted from Introduction to classroom management practices: Commonly used by secondary school teachers (Hepburn et

al, 2021). Subsequently, a Google Sheet of the Teachers' Classroom Management Questionnaire (TCMF) was shared with several local and international experts to gather feedback on language clarity, appropriateness, usability, and alignment of items with the identified factors. A total of 35 experts, including two international classroom management experts, provided their valuable opinion. Based on the feedback received, the content validity ratio (CVR) and the content validity index (CVI) were calculated using MS Excel. The cut value was set by Lawshe (1975) at 0.33 for 30 experts and 0.31 for 35 experts. The calculated values for all the items exceeded the threshold, thus, no items were deleted as their CVR value remained above 0.31.

Research Variables

The study comprised three major categories of variables: independent, dependent, and control variables.

Independent Variable

Teachers' Classroom Management Practices (TCM)

Classroom management was treated as a multidimensional construct and operationalized through the following sub-dimensions:

- Seating arrangement
- Student–teacher relationship
- Time management
- Use of writing board
- Classroom norms
- Conducive classroom environment
- Appropriate instructional techniques
- Feedback

These dimensions reflect both physical and psychosocial aspects of classroom management that influence learning processes.

Dependent Variables

1. *Students' Metacognitive Self-Regulation Ability (MSRA)*

This variable refers to students' ability to plan, monitor, and evaluate their learning activities. It includes:

- Planning strategies
- Monitoring of comprehension
- Evaluation and reflection

2. *Students' Attitude Toward Study (ATS)*

This variable represents students' cognitive, emotional, and behavioral dispositions toward academic activities, including:

- Interest in learning
- Motivation toward study
- Persistence and effort
- Perceived value of learning

Control Variables

To minimize spurious relationships, the following demographic variables were treated as controls:

- Gender (male/female)

- Locale (urban/rural)
- Teaching experience
- Academic qualification

Research Instruments

Data were collected using self-developed structured questionnaires based on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

1. Teachers' Classroom Management Questionnaire (TCMQ), measured teachers' classroom management practices across eight dimensions.
2. Students' Metacognitive Self-Regulation Ability Scale (MSRAS), assessed students' planning, monitoring, and evaluation skills.
3. Students' Attitude Toward Study Scale (SATS), measured students' motivation, interest, and engagement toward learning.

The instruments were validated through expert review and pilot testing. Reliability was established using Cronbach alpha, which exceeded the acceptable threshold of 0.70 for all scales.

Data Collection Procedure

The data collection process followed ethical and administrative protocols:

1. Formal permission was obtained from relevant education authorities and school heads.
2. Respondents were briefed about the purpose of the study and assured of confidentiality.
3. Informed consent was obtained prior to data collection.
4. Questionnaires were administered personally by the researcher to ensure clarity and maximum response rate.
5. Completed questionnaires were screened for missing values and inconsistencies before analysis.
6. Calculated using MS Excel. The cut value was set by Lawshe (1975) at 0.33 for 30 experts and 0.31 for 35 experts. The calculated values for all the items exceeded the threshold, thus, no items were deleted as their CVR value remained above 0.31.

Data Analysis and Interpretations

This chapter presents the analysis and interpretation of data collected for the present study. The chapter is organized into two major sections. The first section reports the results of descriptive and inferential statistical analyses, including demographic characteristics of the respondents, statement-wise mean performance analysis of teachers' classroom management practices, students' metacognitive self-regulation ability, and students' attitude towards study. This section further examines the relationships among the study variables using correlation analysis and investigates differences across demographic groups—qualification, age, and experience—using one-way ANOVA. MS-Excel & SPSS software were used for data analysis. The second section of the chapter focuses on Structural Equation Modeling (SEM) using the Partial Least Squares (PLS-SEM) approach through SmartPLS software. This section evaluates the measurement model in terms of reliability and validity and subsequently assesses the structural model to test the hypothesized relationships among teachers' classroom management factors, students' metacognitive self-regulation ability, and students' attitude towards study. Together, these analyses provide a comprehensive empirical foundation for addressing the research questions and hypotheses of the study.

Descriptive and Inferential Statistical Analyses

Descriptive Statistics of Demographics

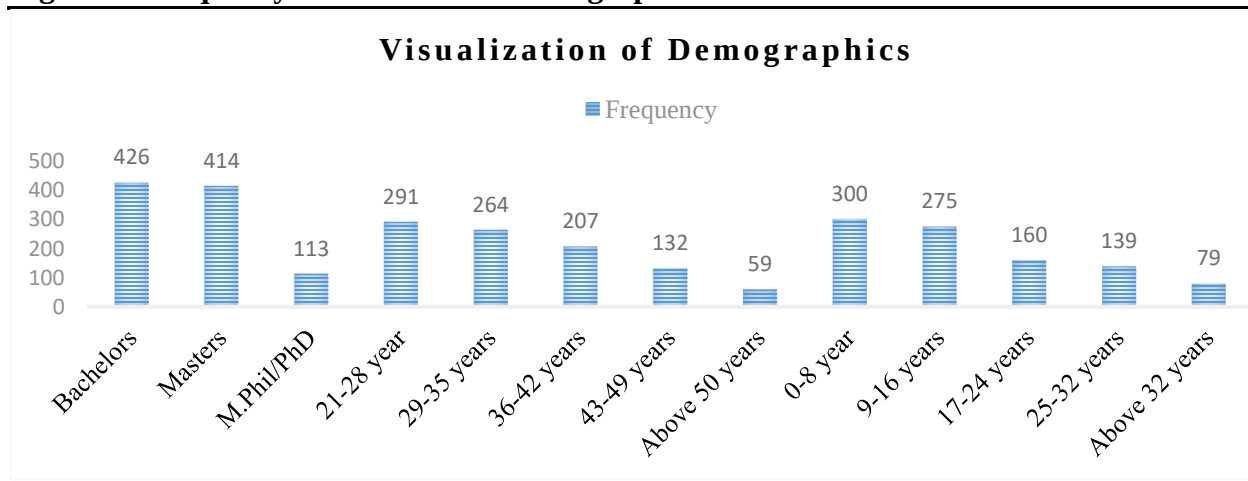
This section presents the descriptive summary of the demographics of the sampled students based on their gender, school types and area. The data is presented into tabular form, containing frequency distribution and the percentages.

Table 1: Frequency Distribution of Demographics of Respondents

Variables	Groups	<i>F</i>	%
Qualifications	Bachelors	426	44.7
	Masters	414	43.4
	M.Phil./PhD	113	11.9
Age Group	21-28 year	291	30.5
	29-35 years	264	27.7
	36-42 years	207	21.7
	43-49 years	132	13.9
	Above 50 years	59	6.2
Experience in Years	0-8 year	300	31.5
	9-16 years	275	28.9
	17-24 years	160	16.8
	25-32 years	139	14.6
	Above 32 years	79	8.3
N		953	100%

A large sample of 953 secondary school teachers was studied. The qualification distribution shows well-educated instructors. Bachelor's degrees (44.7%) and Master's degrees (43.4%) make up 88.1% of the sample. Note that 11.9% of secondary school teachers have M.Phil/PhDs, which is high. The age profile of instructors is youthful to mid-career.

Figure 1: Frequency Distribution of Demographics



The largest group is 21–28 years old (30.5%), followed by 29–35 years old (27.7%). Teachers under 36 make up 58.2% of the sample. The dispersion declines with age. 21.7% are 36–42, 13.9% 43–49, and 6.2% above 50. Nearly one-third (31.5%) have 0–8 years of experience, while 28.9% have 9–16. The proportion drops progressively for experienced teachers: 16.8% with 17–24 years, 14.6% with 25–32, and 8.3% with beyond 32.

Statement-wise Mean Performance Analysis Teachers' Classroom Management Factors Scale

Table 2 Mean Performance Analysis of the TCMF Scale

Item #	Factor (Construct)	Item/Statement	N	Min	Max	Mean	Std. Dev	Factor wise Mean	Factor wise Std. Dev.
1	Seating Arrangement	I change seating arrangement of my classroom when need.	953	1	5	2.98	1.39	3.17	1.37
2		I keep atmosphere live by proper classroom arrangement.	953	1	5	2.96	1.46		
3		I arrange classroom seating to promote interactive learning and student engagement.	953	1	5	3.44	1.38		
4		I adjust seating arrangements to minimize distractions and enhance classroom discipline.	953	1	5	3.43	1.18		
5		I consider student feedback when making changes to the classroom seating arrangement.	953	1	5	3.03	1.42		
6	Student Teacher Relationship	My sympathetic attitude in classroom results in better atmosphere for learning.	953	1	5	3.78	1.16	3.78	1.17
7		My caring attitude towards students makes classroom management more effective.	953	1	5	3.82	1.17		
8		My approach ability and willingness to listen help students feel more comfortable in expressing their concerns and ideas.	953	1	5	3.75	1.17		
9		By showing respect and understanding towards students, I foster a positive and inclusive classroom environment.	953	1	5	3.77	1.18		
10		My ability to provide constructive feedback in a respectful manner strengthens my relationship with students and promotes their learning growth.	953	1	5	3.78	1.16		

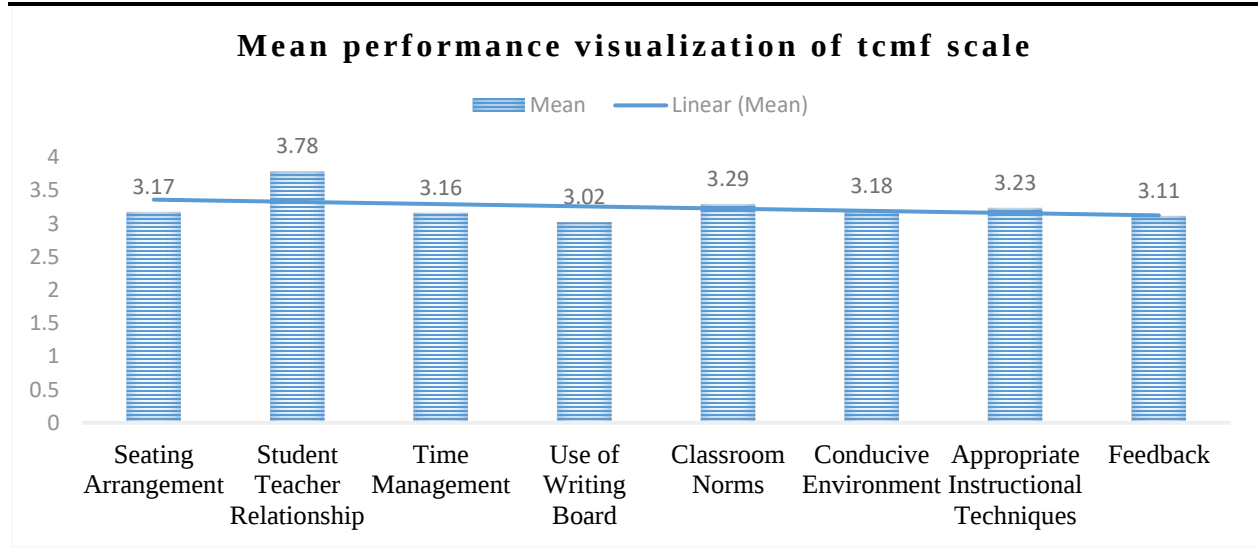
11	Time Management	Being a punctual teacher, I feel myself a good class manager.	953	1	5	3.06	1.43	3.16	1.38
12		Time management by teacher results good learning outcomes.	953	1	5	3.03	1.44		
13		Starting and ending the class in time is a key to success of teaching learning process.	953	1	5	2.97	1.42		
14		Effective lesson planning helps me utilize class time efficiently and achieve learning objectives.	953	1	5	3.74	1.21		
15		Proper time management helps in maintaining discipline and minimizing disruptions in the classroom.	953	1	5	3.01	1.41		
16	Use of Writing Board	I make teaching and management effective with the proper use of writing board.	953	1	5	2.99	1.41	3.02	1.41
17		Proper use of writing board always keeps students focused to the class lecture.	953	1	5	3.05	1.38		
18		I enhance students' understanding by organizing key concepts clearly on the writing board.	953	1	5	3.07	1.40		
19		Frequent interaction with the writing board keeps students actively engaged and attentive during the lesson.	953	1	5	3.00	1.42		
20		Combining verbal explanations with board illustrations strengthens students' comprehension and learning outcomes.	953	1	5	3.00	1.42		
21	Classroom Norms	I make classroom management better by setting practicable norms.	953	1	5	2.89	1.38	3.29	1.30
22		I manage that all students reach class in time.	953	1	5	3.01	1.40		
23		Set norms are result in classroom discipline.	953	1	5	3.03	1.39		
24		Establishing clear classroom norms helps create a respectful and productive learning environment.	953	1	5	3.69	1.17		
25		Involving students in setting classroom norms increases	953	1	5	3.82	1.16		

		their sense of responsibility and cooperation.							
26	Conducive Environment	I keep my voice at a reasonable pitch for better communication in the class.	953	1	5	3.03	1.41	3.18	1.37
27		I keep myself in touch with students` problems to establish rapport.	953	1	5	3.06	1.42		
28		I create a positive classroom atmosphere by encouraging student participation and collaboration.	953	1	5	3.80	1.17		
29		Maintaining a friendly and respectful attitude helps me foster a stress-free learning environment.	953	1	5	3.00	1.41		
30		Providing timely support and guidance helps students feel more confident and comfortable in class.	953	1	5	3.00	1.41		
31	Appropriate Instructional Techniques	Written planning of lesson beforehand gives me confidence in teaching and management.	953	1	5	3.00	1.41	3.23	1.25
32		I enter the classroom, fully equipped with the needed resources.	953	1	5	3.00	1.39		
33		I adapt my teaching methods to match the learning needs and styles of my students.	953	1	5	2.99	1.39		
34		I incorporate real-life examples and practical applications to enhance students` understanding of concepts.	953	1	5	3.58	1.05		
35		Effective questioning strategies encourage critical thinking and active participation in my class.	953	1	5	3.59	1.02		
36	Feedback	Positive feedback results in positive outcomes.	953	1	5	3.05	1.46	3.11	1.36
37		I encourage participation from students in the classroom through proper feedback.	953	1	5	2.89	1.50		
38		Time to time feedback from students, results in better management of the classroom.	953	1	5	2.96	1.41		

39	Through feedback, a teacher can make students focused in the class.	953	1	5	3.02	1.39
40	Constructive feedback helps students improve their learning and performance.	953	1	5	3.62	1.02
Overall Mean Score & Standard Deviation of the TCMF Scale					3.24	1.33

The survey of teachers reveals a moderate overall level of classroom management practices (M=3.24), with significant variation and room for growth, where the quality of student-teacher relationships is the strongest area. while time management, feedback practices, and the use of the writing board are the weakest dimensions, indicating that although teachers excel in relational aspects and certain instructional strategies, they struggle with consistent implementation, adaptive planning, and bidirectional feedback, which are critical for creating the structured, reflective environment necessary to foster students' metacognitive development.

Figure 2: Mean Performance Visualization of TCMF Scale



Students' Meta Cognitive Self-Regulation Ability Scale

Table 3: Mean Performance Analysis of the SMCSRA Scale

Item #	Factor (Construct)	Item/Statement	N	Min	Max	Mean	Std. Dev	Scale Mean Score	Scale Std. Dev.
41	SMCSRA_1	Students often miss important points in class because they are thinking of other things	953	1	5	2.48	1.07	3.05	1.37
42	SMCSRA_2	Students ask questions to help focus their reading and understanding.	953	1	5	3.00	1.41		
43	SMCSRA_3	When students become confused about something in class, they go back and try to figure it out.	953	1	5	3.73	1.21		
44	SMCSRA_4	If study materials are difficult to understand, students change the way they approach the material.	953	1	5	3.10	1.43		
45	SMCSRA_5	Students skim new material before studying it thoroughly to see how it is organized.	953	1	5	3.05	1.39		
46	SMCSRA_6	Student ask themselves questions to check their understanding of the material.	953	1	5	3.11	1.39		
47	SMCSRA_7	Students adjust their study methods based on what they need to learn.	953	1	5	3.09	1.42		
48	SMCSRA_8	Students appear to read without understanding what the content is about.	953	1	5	2.96	1.44		
49	SMCSRA_9	Student think about what they need to learn from a topic rather than just reading through it.	953	1	5	2.95	1.41		
50	SMCSRA_10	Students identify concepts they don't understand well when studying	953	1	5	3.02	1.42		
51	SMCSRA_11	Students set goals for themselves to direct their study activities.	953	1	5	3.08	1.42		
52	SMCSRA_12	If students get confused while taking notes in class, they make sure to sort it out afterwards.	953	1	5	3.00	1.42		

The strongest metacognitive behavior observed is students' response to confusion, (with item 43) achieving the highest mean score of 3.73 (SD = 1.21). This finding suggests that when students recognize they are confused during class, they demonstrate a relatively strong tendency to go back and attempt to figure things out. This "cognitive repair" strategy represents a fundamental metacognitive skill and is encouraging because it indicates students possess at least some capacity for recognizing comprehension breakdowns and taking corrective action. The comparatively lower standard deviation on this item further suggests this behavior is more consistently practiced across the student population than other metacognitive strategies.

Despite some strengths, metacognitive functioning is primarily moderate to weak, with key areas showing limited development around the scale midpoint. Students report only moderate engagement in self-questioning to check understanding ($M = 3.11$), strategic adaptation when material becomes difficult ($M = 3.10$), adjusting study methods based on learning demands ($M = 3.09$), and setting goals to direct study activities ($M = 3.08$). These moderate scores suggest students possess awareness of these strategies but implement them inconsistently or superficially. Similarly, previewing material to understand its organization ($M = 3.05$), identifying concepts they don't understand ($M = 3.02$), asking questions during reading ($M = 3.00$), and sorting out confusion after class ($M = 3.00$) all cluster tightly around the midpoint, indicating tepid engagement with proactive metacognitive planning and monitoring.

More concerning are the items revealing significant metacognitive deficits (least agreement). Students report they frequently read without understanding what the content is about ($M = 2.96$, $SD = 1.44$), indicating a problematic tendency toward mindless, surface-level processing. This is compounded by their admission that they often fail to think about what they need to learn from a topic, instead simply reading through material passively ($M = 2.95$, $SD = 1.41$). Most alarmingly, item 1 produced the lowest score in the entire scale, with students acknowledging they often miss important points in class because they are thinking of other things ($M = 2.48$, $SD = 1.07$). This severe attentional deficit suggests widespread problems with executive control and inability to maintain metacognitive vigilance during instruction. The relatively lower standard deviation on this item indicates this is not merely a problem for struggling students but rather a pervasive issue across the entire student population.

The mean score of 3.05 ($SD = 1.37$) on the SMCSRA scale indicates that secondary school students exhibit moderate levels of metacognitive self-regulation. This average performance raises educational concerns, revealing that students have limited awareness and control over their learning processes. The significant standard deviation suggests variability, with some students showing advanced self-regulatory strategies while others face challenges in managing their learning. This variability poses challenges for educators and presents an opportunity for research into classroom management practices that could address these disparities.

Students' Attitude towards Study Scale (AtS)

Table 4: Mean Performance Analysis of the SAS Scale

Item #	Factor (Construct)	Item/Statement	N	Min	Max	Mean	Std. Dev	Scale Mean Score	Scale Std. Dev.
53	ATS_1	Students create a study schedule to manage their time effectively.	953	1	5	2.98	1.45	3.05	1.43
54	ATS_2	Students set aside specific times for studying each day or week.	953	1	5	3.05	1.44		
55	ATS_3	Students find it difficult to stick to a study schedule. (R)	953	1	5	3.02	1.39		
56	ATS_4	Students keep their study materials and notes well-organized.	953	1	5	2.99	1.45		
57	ATS_5	Students organize their study tasks based on their importance and deadlines.	953	1	5	2.97	1.40		
58	ATS_6	Student pays close attention during my class lectures and discussions.	953	1	5	3.03	1.41		

59	ATS_7	Students stay focused throughout the entire class period.	953	1	5	3.20	1.34
60	ATS_8	I observe that students' mind often wanders during class lectures.	953	1	5	3.00	1.40
61	ATS_9	Students ask questions when they don't understand something in class.	953	1	5	2.94	1.46
62	ATS_10	Students seek help from me or peers when having difficulty with their studies.	953	1	5	3.41	1.60
63	ATS_11	Students study with friends or classmates to better understand the material.	953	1	5	3.01	1.42
64	ATS_12	Students participate actively in group study activities.	953	1	5	3.00	1.39

Table 4 presents the mean performance of students' attitude towards study (AtS) based on responses from 953 students using a five-point Likert scale. Overall, the scale mean score ($M = 3.05$, $SD = 1.43$) indicates that students demonstrate a moderate level of academic time management and study skills, suggesting neither strong mastery nor serious deficiency in this domain.

Item-wise results show that students' time management and organizational practices are generally average. Mean scores for creating a study schedule, setting specific study times, organizing study materials, and prioritizing tasks range from 2.97 to 3.05, indicating that while students are aware of effective study strategies, they do not consistently apply them.

Students' attention and focus during classroom activities also fall within a moderate range. Paying attention during lectures, staying focused throughout the class period, and mind wandering during lectures all show mean values around 3.00. Although staying focused throughout the class period recorded a slightly higher mean ($M = 3.20$), the overall pattern suggests that maintaining sustained attention remains a challenge for many students.

With regard to help-seeking and collaborative learning behaviors, students appear comparatively stronger. Seeking help from teachers or peers when facing academic difficulties recorded the highest mean score ($M = 3.41$), indicating a positive tendency toward academic support-seeking. Participation in group study and studying with peers showed moderate mean values, suggesting that collaborative learning is practiced, but not extensively.

The standard deviation values across items (approximately 1.34–1.60) indicate notable variability in students' responses, implying differences in study skills across the student population. Taken together, the findings suggest that students possess average academic time and study skills, with particular strengths in help-seeking behaviors and relative weaknesses in consistent scheduling, organization, and sustained attention. These results highlight the need for targeted interventions focusing on improving students' time management, self-discipline, and classroom engagement skills.

Summary of the Scales

Table 5: Mean Summary of the Scales

Scale	Mean Score	Standard Deviation
Teachers' Classroom Management Factors Scale	3.24	1.33
Students' Meta Cognitive Self-Regulation Ability Scale	3.05	1.37
Students' Attitude towards Study	3.05	1.43

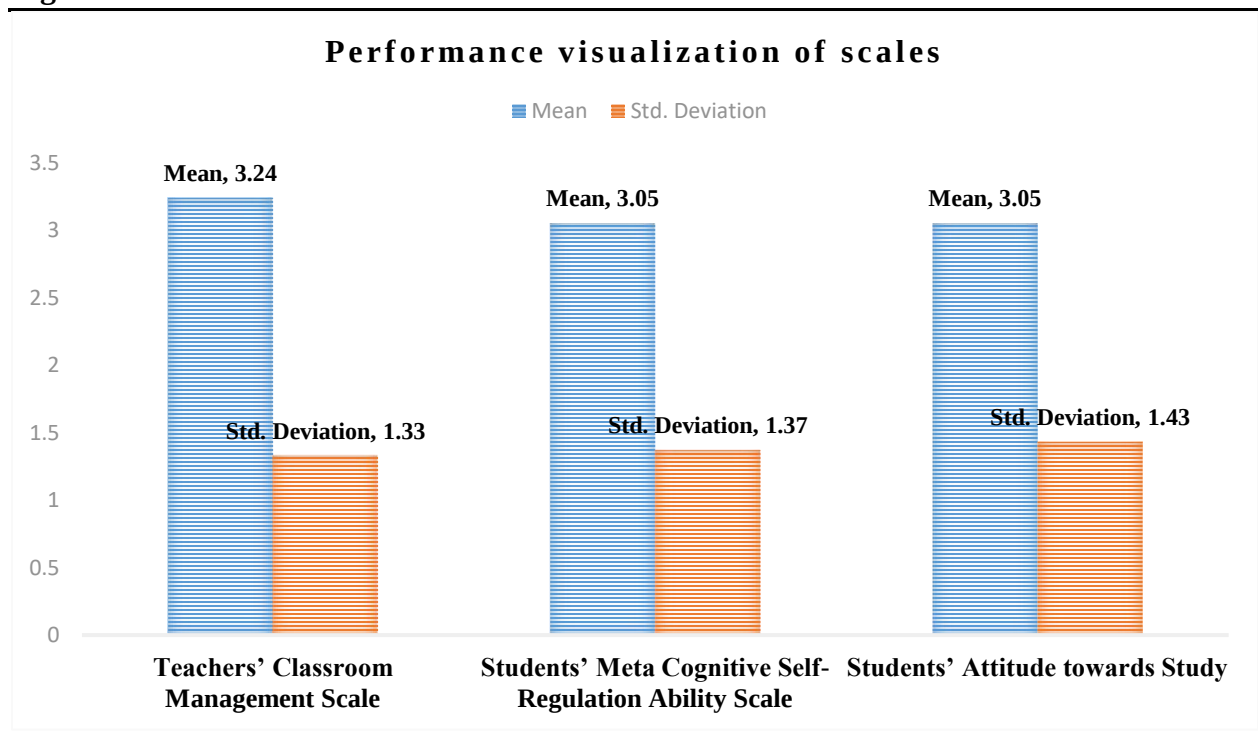
Table 5 presents the mean summary of all three major scales used in the study, providing an overall picture of teachers' classroom management, students' metacognitive self-regulation ability, and students' attitude towards study; indicating moderate levels across the constructs.

The teachers' classroom management scale recorded the highest mean score ($M = 3.24$, $SD = 1.33$), suggesting that teachers generally demonstrate an adequate to moderately effective level of classroom management.

The students' metacognitive self-regulation ability scale yielded a mean score of 3.05 ($SD = 1.37$), indicating a moderate level of metacognitive regulation among students. This suggests that students possess some awareness and control over their learning processes, such as planning, monitoring, and evaluating their understanding, but these skills are not yet well-developed or consistently practiced.

Similarly, the Students' Attitude towards Study Scale also recorded a mean score of 3.05 ($SD = 1.43$), reflecting a neutral to moderately positive attitude toward academic studies. While students do not exhibit a negative tendency toward learning, the findings indicate that stronger motivation, interest, and commitment to study could be fostered.

Figure 3: Performance Visualization of Overall Scales



Inferential Analysis

Factor Matrix using Coefficient Correlations among Scales

Table 6: Factor Matrix using Correlations among Scales

		TCMF	SMSRA	ATS
TCMF	Pearson Correlation	1	.027	.070*
	Sig. (2-tailed)		.402	.030
	N	953	953	953
SMSRA	Pearson Correlation	.027	1	.008
	Sig. (2-tailed)	.402		.808
	N	953	953	953
ATS	Pearson Correlation	.070*	.008	1
	Sig. (2-tailed)	.030	.808	
	N	953	953	953

*. Correlation is significant at the 0.05 level (2-tailed).

The factor matrix presents the Pearson correlation coefficients among these scales. The results indicate generally weak relationships among the constructs, with limited statistical significance.

The correlation between teachers' classroom management (TCMF) and students' attitude towards study (ATS) is positive and statistically significant ($r = .070$, $p = .030$). Although the strength of this relationship is weak, it suggests that better classroom management by teachers is associated with a slightly more positive attitude toward study among students. This finding implies that an orderly, supportive, and well-managed classroom environment may contribute, even modestly, to improving students' academic attitudes.

In contrast, the relationship between teachers' classroom management (TCMF) and students' metacognitive self-regulation ability (SMSRA) is positive but not statistically significant ($r = .027$, $p = .402$). This indicates that, within the present sample, classroom management practices do not have a meaningful direct association with students' metacognitive self-regulatory skills such as planning, monitoring, and evaluating their learning.

Similarly, the correlation between students' metacognitive self-regulation ability (SMSRA) and students' attitude towards study (ATS) is negligible and non-significant ($r = .008$, $p = .808$), suggesting that students' self-regulatory capacities are largely independent of their general attitude toward study in this dataset.

Overall, the correlation matrix reveals that while the constructs are conceptually related, they function as largely independent dimensions. The only statistically significant association—between teachers' classroom management and students' attitude towards study—highlights the potential role of effective classroom management in shaping students' academic attitudes, though the small effect size indicates that other factors may play a more substantial role.

Analysis of Demographic Variables using ANOVA

Table 7: Qualifications wise Analysis using ANOVA

Scales	Groups	N	Mean	SD	Df	F	P. value (sig. 2-tailed)
TCMF	Bachelors	426	129.52	8.382	2	2.548	.079
	Masters	414	130.25	8.671			
	M.Phil/PhD	113	128.27	8.359			
	Total	953	129.69	8.520			
SMSRA	Bachelors	426	36.60	4.708	2	.104	.901
	Masters	414	36.61	5.042			
	M.Phil/PhD	113	36.38	5.079			
	Total	953	36.58	4.895			
ATS	Bachelors	426	36.72	5.010	2	.531	.588
	Masters	414	36.40	5.214			
	M.Phil/PhD	113	36.81	5.051			
	Total	953	36.59	5.102			

The qualifications-wise analysis using one-way ANOVA was conducted to examine whether students' educational qualifications (Bachelor's, Master's, and M.Phil/PhD) differ significantly across the study scales.

For the Teachers' Classroom Management Factor (TCMF), the mean scores across qualification groups were relatively similar, with Master's students reporting the highest mean ($M = 130.25$, $SD = 8.67$), followed by Bachelor's students ($M = 129.52$, $SD = 8.38$), and M.Phil/PhD students ($M = 128.27$, $SD = 8.36$). The ANOVA results revealed no statistically significant difference among the three groups, $F(2, 950) = 2.548$, $p = .079$. Although the mean differences suggest a slight variation, these differences are not sufficient to conclude that perceptions of classroom management differ by qualification level.

In the case of Students' Metacognitive Self-Regulation Ability (SMSRA), the mean scores were nearly identical across all qualification groups. Bachelor's students ($M = 36.60$, $SD = 4.71$), Master's students ($M = 36.61$, $SD = 5.04$), and M.Phil/PhD students ($M = 36.38$, $SD = 5.08$) showed minimal variation. The ANOVA results further confirmed the absence of any significant differences, $F(2, 950) = 0.104$, $p = .901$, indicating that students' metacognitive self-regulation abilities do not vary with qualification level.

Similarly, for Students' Attitude towards Study (ATS), the mean scores across Bachelor's ($M = 36.72$, $SD = 5.01$), Master's ($M = 36.40$, $SD = 5.21$), and M.Phil/PhD students ($M = 36.81$, $SD = 5.05$) were very close. The ANOVA results showed no statistically significant differences among the groups, $F(2, 950) = 0.531$, $p = .588$. This suggests that students' attitudes toward study remain largely consistent regardless of their level of qualification.

Overall, the ANOVA findings indicate that educational qualification does not have a significant effect on perceptions of teachers' classroom management, students' metacognitive self-regulation ability, or students' attitude toward study. The similarity in mean scores across qualification levels suggests that these constructs are relatively stable across different stages of higher education.

Table 8: Age wise Analysis using ANOVA

Scales	Groups	N	Mean	SD	Df	F	P. value (sig. 2-tailed)
TCMF	21-28 year	291	128.92	8.375	4	1.637	.163
	29-35 years	264	129.87	8.738			
	36-42 years	207	129.46	8.404			
	43-49 years	132	131.06	8.891			
	Above 50 years	59	130.44	7.548			
	Total	953	129.69	8.520			
SMSRA	21-28 year	291	36.58	4.778	4	.487	.746
	29-35 years	264	36.46	5.052			
	36-42 years	207	36.57	4.736			
	43-49 years	132	37.05	5.262			
	Above 50 years	59	36.08	4.519			
	Total	953	36.58	4.895			
ATS	21-28 year	291	36.15	4.887	4	1.968	.097
	29-35 years	264	36.40	5.226			
	36-42 years	207	36.78	5.187			
	43-49 years	132	37.05	4.638			
	Above 50 years	59	37.92	6.027			
	Total	953	36.59	5.102			

Table 8 presents the age-wise comparison of respondents across the study scales—using one-way ANOVA to examine whether significant differences exist among different age groups.

For the TCMF, the mean scores show a slight increasing trend with age, ranging from 128.92 for the 21–28 years group to 131.06 for the 43–49 years group. However, despite these minor variations, the ANOVA results indicate that the differences among age groups are statistically insignificant, $F(4, 948) = 1.637$, $p = .163$. This suggests that perceptions of teachers' classroom management are generally consistent across different age categories.

Similarly, the SMSRA scale shows very little variation across age groups, with mean scores ranging narrowly between 36.08 and 37.05. The ANOVA findings confirm that these differences are non-significant, $F(4, 948) = 0.487$, $p = .746$, indicating that metacognitive self-regulation abilities do not differ meaningfully by age.

In contrast, the ATS Scale shows a gradual increase in mean scores with advancing age, from 36.15 in the youngest age group (21–28 years) to 37.92 in the above 50 years group. Although this pattern suggests a more positive attitude toward study among older respondents, the ANOVA results reveal that the differences do not reach statistical significance, $F(4, 948) = 1.968$, $p = .097$. The p-value, however, is close to the conventional significance threshold, indicating a trend-level effect that may warrant further investigation.

Overall, the age-wise ANOVA results indicate that age does not have a statistically significant impact on teachers' classroom management perceptions, students' metacognitive self-regulation abilities, or students' attitudes toward study. Nevertheless, the observed gradual improvement in attitudes toward study with increasing age suggests a potential developmental or experiential influence that could be explored in future research using larger samples or longitudinal designs.

Table 9: Experience wise Analysis using ANOVA

Scales	Groups	N	Mean	SD	Df	F	P. value (sig. 2-tailed)
TCMF	0-8 year	300	130.02	8.936	4	.369	.831
	9-16 years	275	129.53	8.337			
	17-24 years	160	129.09	7.965			
	25-32 years	139	129.94	8.522			
	Above 32 years	79	129.81	8.749			
	Total	953	129.69	8.520			
SMSRA	0-8 year	300	36.66	4.872	4	.207	.934
	9-16 years	275	36.61	4.900			
	17-24 years	160	36.71	5.065			
	25-32 years	139	36.27	5.233			
	Above 32 years	79	36.42	4.018			
	Total	953	36.58	4.895			
ATS	0-8 year	300	36.85	5.015	4	.647	.629
	9-16 years	275	36.66	4.882			
	17-24 years	160	36.35	5.387			
	25-32 years	139	36.55	5.481			
	Above 32 years	79	35.91	4.939			
	Total	953	36.59	5.102			

The experience-wise analysis using one-way ANOVA was also conducted to determine whether respondents' years of experience significantly influence teachers' classroom management factor, students' metacognitive self-regulation ability, and students' attitude towards study.

For teachers' classroom management factor, the mean scores across experience groups are highly similar, ranging from 129.09 to 130.02. Respondents with 0–8 years of experience reported the highest mean score ($M = 130.02$, $SD = 8.94$), while those with 17–24 years of experience reported the lowest mean ($M = 129.09$, $SD = 7.97$). The ANOVA results show no statistically significant differences among experience groups, $F(4, 948) = 0.369$, $p = .831$, indicating that years of experience do not meaningfully affect perceptions of classroom management.

Similarly, for Students' Metacognitive Self-Regulation Ability (SMSRA), the mean scores across experience categories show minimal variation, ranging from 36.27 to 36.71. The ANOVA results confirm that these differences are non-significant, $F(4, 948) = 0.207$, $p = .934$, suggesting that students' metacognitive self-regulation abilities remain consistent regardless of experience level.

In the case of Students' Attitude towards Study (ATS), the mean scores also show only slight variation across experience groups, with values ranging from 35.91 to 36.85. Although respondents with 0–8 years of experience reported a marginally higher mean attitude score, the ANOVA results indicate no statistically significant differences, $F(4, 948) = 0.647$, $p = .629$. This suggests that experience does not have a significant influence on students' attitudes toward study.

Overall, the findings demonstrate that years of experience do not significantly affect teachers' classroom management perceptions, students' metacognitive self-regulation abilities, or students' attitudes toward study. The consistency of mean scores across experience categories indicates that these constructs are relatively stable across different levels of professional experience.

Structure Equation Modeling (PLS-SEM)

Evaluation of Measurement Model

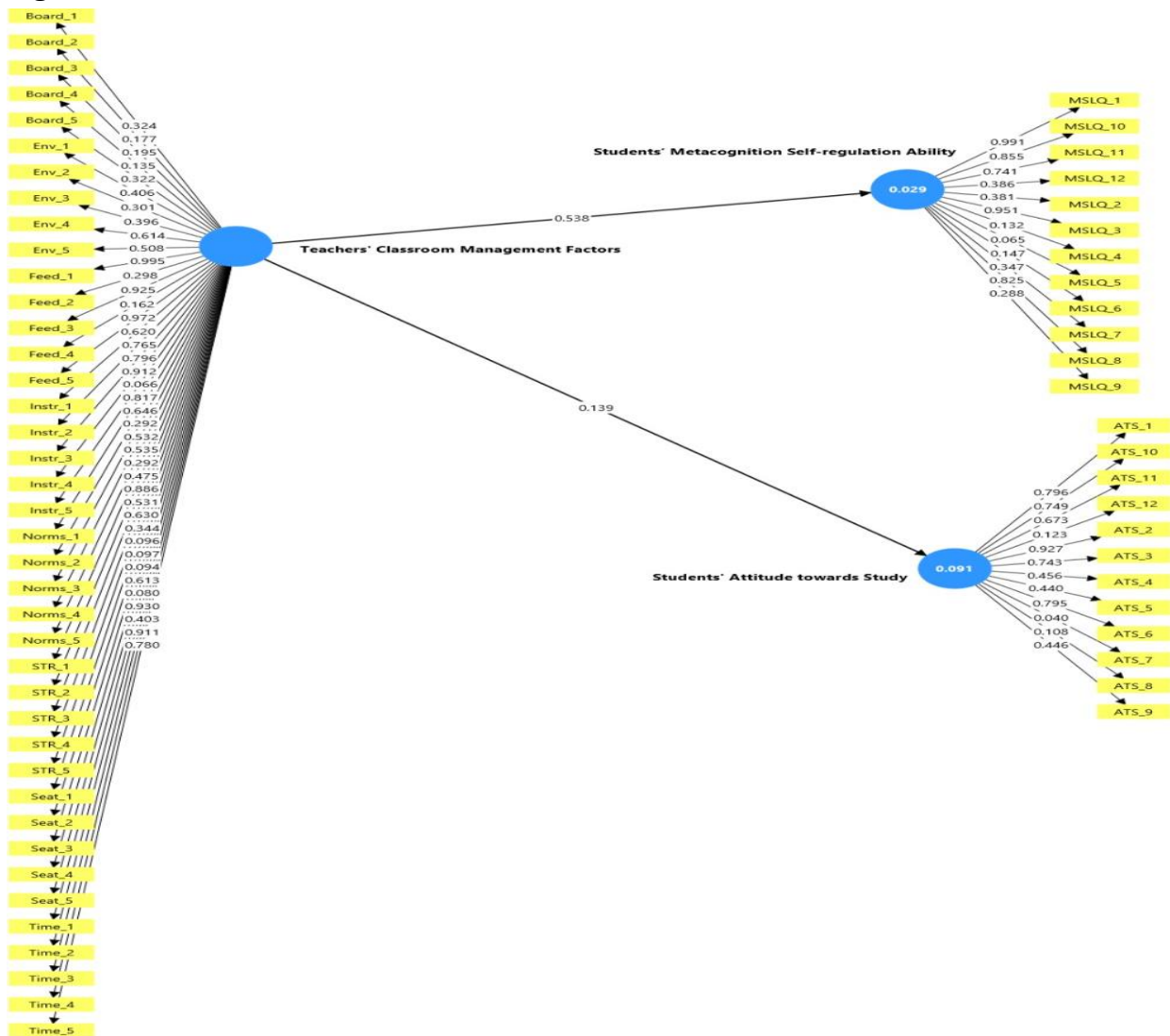
In line with the PLS-SEM procedure recommended by Hair et al. (2021), the measurement model was evaluated by examining indicator reliability, internal consistency reliability, convergent validity, and discriminant validity for all latent constructs included in the study. The constructs assessed in the measurement model were teachers' classroom management factors, students' metacognitive self-regulation ability, and students' attitude towards study. All constructs were modeled as reflective measurement models.

Indicator Reliability: Indicator reliability was assessed through outer loadings of the observed variables on their respective latent constructs. As shown in the measurement model, the majority of indicators exhibited acceptable to strong loadings exceeding the recommended threshold of 0.50, indicating that the indicators adequately represent their respective constructs. Indicators with lower loadings were retained based on theoretical justification and their contribution to content validity, which is acceptable in PLS-SEM when overall construct reliability and validity criteria are satisfied (Hair et al., 2021).

Internal Consistency Reliability: Internal consistency reliability was examined using Composite Reliability (CR) rather than Cronbach's alpha, as CR is considered more appropriate for PLS-SEM. The CR values for all constructs exceeded the minimum recommended threshold of 0.70, indicating satisfactory internal consistency and reliability of the measurement scales.

Convergent Validity: Convergent validity was evaluated using the Average Variance Extracted (AVE) criterion. The AVE values for all constructs were above the recommended threshold of 0.50, demonstrating that the constructs explain more than half of the variance of their respective indicators. These results confirm that the indicators converge well in measuring their underlying latent constructs.

Figure 4: Measurement Model



Discriminant Validity: Discriminant validity was assessed using the Heterotrait–Monotrait Ratio (HTMT). The HTMT values for all construct pairs were below the conservative threshold of 0.85, indicating adequate discriminant validity and confirming that each construct is empirically distinct from the others.

Higher-Order Construct Assessment: Teachers' Classroom Management Factors were modeled as a higher-order construct, comprising multiple dimensions such as White-Board Management, Classroom Environment, Feedback, Instructional Strategies, Classroom Norms, Student–Teacher Relationship, Seating Arrangement, and Time Management. The results indicate that the lower-order constructs significantly contribute to the higher-order construct, supporting the multidimensional nature of classroom management in educational settings.

Summary of Measurement Model Results: Overall, the measurement model demonstrates adequate reliability and validity, confirming that the instruments used in this study are appropriate for measuring the latent constructs. The satisfactory results of indicator reliability, internal consistency reliability, convergent validity, and discriminant validity provide strong empirical support for

proceeding with the structural model analysis to test the hypothesized relationships among the constructs.

To conclude, the assessment of the measurement model confirms that all reflective constructs exhibit satisfactory reliability and validity, supporting the strength of the model and justifying further structural model evaluation using PLS-SEM.

Evaluation of Structural Model

Table 10: Path Coefficients (Structural Model)

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Teachers' Classroom Management Factors -> Students' Attitude towards Study	0.302	0.270	0.204	1.479	0.139
Teachers' Classroom Management Factors -> Students' Metacognition Self-regulation Ability	0.171	0.098	0.279	0.616	0.538

The structural model was evaluated by examining the path coefficients, along with their corresponding t-values and p-values, obtained through the bootstrapping procedure in SmartPLS. The path from teachers' classroom management factors to students' attitude towards study shows a positive coefficient ($\beta = 0.302$), indicating a positive directional relationship between the two constructs. However, the effect is not statistically significant ($t = 1.479$, $p = 0.139$), as the p-value exceeds the conventional significance threshold of 0.05. This suggests that teachers' classroom management factors do not have a statistically significant direct effect on students' attitude towards study.

Similarly, the path from teachers' classroom management factors to students' metacognitive self-regulation ability also indicates a positive but weak relationship ($\beta = 0.171$). The relationship is statistically non-significant ($t = 0.616$, $p = 0.538$), indicating that classroom management factors do not significantly predict students' metacognitive self-regulation ability in the present model.

Conclusion

The present study was conducted to examine the effects of secondary school teachers' classroom management practices on students' metacognitive self-regulation ability and attitudes toward study. The study was grounded in established theoretical perspectives of classroom management and self-regulated learning and employed a quantitative research design to generate empirical evidence from public secondary schools. The findings provide meaningful insights into how classroom processes influence both cognitive and affective student outcomes at the secondary level.

The results of the study revealed that secondary school teachers generally demonstrated a moderate level of classroom management practices across various dimensions, including classroom organization, time management, instructional techniques, feedback, and teacher–student relationships. This indicates that while basic management strategies are being implemented, there remains considerable scope for strengthening classroom practices to better support student learning. Effective classroom management was not limited to discipline control; rather, it encompassed the creation of an organized, supportive, and engaging learning environment.

With regard to students' metacognitive self-regulation ability, the findings indicated a moderate level of planning, monitoring, and evaluation skills among secondary school students. This

suggests that students possess some awareness of their learning processes; however, these skills are not fully developed to the level required for independent and strategic learning. The results further demonstrated that teachers' classroom management practices significantly influenced students' metacognitive self-regulation ability. Well-managed classrooms provided students with structured learning experiences, opportunities for reflection, and supportive feedback, which facilitated the development of self-regulated learning behaviors.

Similarly, the study found that students' attitudes toward study were generally moderate, reflecting neither strong enthusiasm nor extreme disengagement. Importantly, classroom management practices were found to have a significant and positive effect on students' attitudes toward study. Classrooms characterized by fairness, consistency, and supportive teacher behavior were more likely to foster positive learning attitudes, motivation, and persistence among students. These findings underscore the role of teachers not only as content deliverers but also as facilitators of positive learning environments.

The structural equation modeling results further confirmed that classroom management is a key predictor of both metacognitive self-regulation and attitudes toward study. The validated research framework demonstrated that classroom management practices exert a direct influence on cognitive and affective learning outcomes, reinforcing the theoretical assumption that classroom environments play a central role in shaping students' learning behaviors and dispositions.

Overall, the study concludes that effective classroom management is a critical determinant of students' metacognitive development and academic attitudes at the secondary level. Improving classroom management practices can lead to enhanced self-regulation skills and more positive study attitudes, which are essential for academic success and lifelong learning. The findings highlight the need for systematic professional development programs focused on classroom management strategies, particularly in public secondary schools.

In conclusion, this research contributes to the existing body of knowledge by empirically establishing the link between classroom management practices and student outcomes within the context of secondary education. By addressing both cognitive and affective dimensions of learning, the study provides valuable insights for teachers, school administrators, and policymakers aiming to improve instructional quality and student learning experiences. The conclusions drawn from this study serve as a foundation for practical recommendations and future research directions in the field of educational management and pedagogy.

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