Pre-Service Teachers' Beliefs About Classroom Management: The Mediating Role in the Relationship Between Perceptions of Teacher Education and Self-Efficacy in Inclusive Classroom Management

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ABSTRACT
Children with special educational needs often experience discrimination in inclusive classrooms when their academic needs are not adequately met, restricting their opportunities to benefit fully from inclusive education. Poor inclusive classroom management (CM) has frequently been identified in the literature as a key factor contributing to this issue, closely linked to teachers' self-efficacy in CM—beliefs about their ability to manage inclusive classrooms effectively. While several studies show that teacher education courses incorporating CM training can strengthen these beliefs, the mechanisms through which such training shapes teachers' perceived competence remain underexplored. To fill this gap, this study proposes a mediation model based on the integrated model of Tschannen-Moran et al. (1998) to examine whether pre-service teachers' beliefs about CM mediate the relationship between their perceptions of teacher education courses and their self-efficacy in CM. Data were collected online from a convenience sample of 480 pre-service teachers from a state university and National Colleges of Education in Sri Lanka, using standardized scales to measure teacher perceptions, self-efficacy in CM and CM beliefs. The data were analyzed using covariance-based structural equation modelling with AMOS to test the hypothesized relationships. The findings, grounded in both statistical and theoretical bases, revealed the mediating role of CM beliefs—both fully and partially—in the connection between perceptions of CM courses and self-efficacy for CM, underscoring the importance of CM beliefs in enhancing CM self-efficacy rather than the direct influence of course perceptions. The study advocates targeted interventions focusing on inclusive practices, including structured classroom observations to evaluate pre-service teachers' CM skills. These are essential for fostering CM beliefs and creating more equitable and supportive learning environments for all students.
Keywords: Classroom Management Beliefs, Classroom Management Self-efficacy, Inclusive Education, Mediation, Pre-service Teachers.

INTRODUCTION

Among many teaching responsibilities, classroom management (CM) remains crucial in predicting students' overall performance in the classroom (Brophy, 1987; Emmer & Stough, 2001; New South Wales Department of Education, 2020). However, CM has become a significant concern for pre-service teachers (PSTs) because student disruptions have risen significantly in modern classrooms, due to the presence of diverse students with various needs (Main & Hammond, 2008; New South Wales Department of Education, 2020; Patterson & Seabrooks-Blackmore, 2017; Woodcock et al., 2012; Yogaranee, 2024). This situation often leads to exhaustion and a desire to leave the teaching profession early (Aloe et al., 2014; Brouwers & Tomic, 1999; Dicke et al., 2014; Friedman, 1995; Tsouloupas et al., 2010).

To retain prospective teachers in the teaching profession, initial teacher education (ITE) institutions must equip them with the skills necessary for successfully implementing CM, ensuring there is no significant gap between what they learn and the demands of real classrooms (Greenberg et al., 2014; O'Neill & Stephenson, 2012). To accomplish this, the curriculum should include relevant CM coursework that critically shapes how these teachers are prepared to handle future classroom challenges by emphasizing effective strategies to address students' behavioral issues and prevent misbehavior through careful planning, appropriate pacing, and instruction that keeps students engaged in academic activities (Brophy, 1982; Emmer & Stough, 2001; Giallo & Little, 2003; O'Neill & Stephenson, 2011, 2012, 2014; Parsonson, 2012; Stough, 2006).

Although ITE institutions provide adequate training to develop key teacher attributes like teachers' sense of efficacy (TSE) and classroom management self-efficacy (CMSE), many PSTs still consider their preparation insufficient (Aloe et al., 2014; Espelage et al., 2013; Greenberg et al., 2014; Livers et al., 2021; Oliver & Reschly, 2007; Stevenson et al., 2020). This perceived inadequacy, even among those with high CMSE, may be influenced

by other important factors, especially classroom management beliefs (CMBs). CMBs might explain how PSTs' perceptions of CM courses affect their CMSE. This study introduces a model where PSTs' perceptions of CM training predict CMSE, with CMBs mediating this relationship. Specifically, it examines whether CMBs contribute to explaining why PSTs may lack confidence in applying CM strategies, even when they report strong CMSE, particularly in inclusive classrooms.

LITERATURE REVIEW

Conceptualizing Classroom Management

Previous CM literature often focuses on teachers' actions related to managing student misbehavior as a criterion for defining managerial effectiveness, such as Canter's (1989) Assertive Discipline, which emphasizes the importance of clear expectations, strong teacher authority, and consistent consequences to maintain classroom order, treating CM in a narrow sense (Pianta et al., 2012). Ideally, such theories and practices align with behaviorist schools of thought, advocating desist strategies in response to inappropriate behaviors in promoting CM practices, relying heavily on authoritarian approaches driven by teacher-centered pedagogy.

The criteria for judging CM effectiveness and related foci of the CM interventions have been broadened in recent studies to reflect the complexities of classroom environments and student diversity (Korpershoek et al., 2022). Brophy's (1982) conceptualization emphasizes teachers' proactive strategies to prevent misbehavior by actively engaging students in learning through strategic and respectful practices, thereby reducing or eliminating disruptions and fostering a productive learning environment. Similarly, Doyle (1986) describes CM as the actions teachers take and strategies to maintain order through organization, engagement, and instructional management, rather than solely relying on strict rules or punishments. Brophy (1987) suggests that teachers who view CM as a means to establish and maintain an effective learning environment are more likely to succeed than those who view their roles primarily as authority figures or disciplinarians.

Martin and Baldwin (1994) argue that "while no one would negate the importance of instructional planning, perhaps educators should now begin to recognize both effective instruction and effective classroom management as two vital and intertwined components of the instructional process" (pp. 4–5). In line with this, they define CM as "all teacher efforts to oversee the activities of the classroom, including learning, social interaction, and student behavior" (p. 4), which expands upon Brophy's (1982) concept by incorporating instructional management within CM approaches. This comprehensive definition is relevant to modern classrooms as it encompasses all teachers' actions, including both instruction and behavioral management. When CM involves learner-centered teacher actions rather than controlling behavior, it helps create and establish an optimal instructional climate, ensuring students' active engagement in academic success. This approach can prepare learners for life by intrinsically motivating them to take responsibility for their behavior (Albayrak & Ateskan, 2022).

Different Facets of Classroom Management

CM literature generally agrees that CM is a multifaceted concept. Early research viewed it as a single, unified construct, but more recent studies emphasize its complexity, involving various teacher actions related to pedagogy. Martin and Baldwin (1994) identified three key dimensions of CM: person, instruction, and discipline. The person dimension highlights teachers' beliefs about individual students and how they can support their development, focusing on abilities in general. Conversely, the instructional dimension concentrates on classroom structure, including establishing and maintaining rules and routines, physical arrangements, and efficient use of time. The discipline dimension centers on setting behavioral standards and enforcing them.

Recent research generally frames CM within a broader perspective, encompassing both proactive and reactive components, which are now widely recognized as key aspects of CM (Karasova & Nehyba, 2023; Sullivan et al., 2014). The proactive component involves strategies to prevent misbehavior, while the reactive component includes responses, such as issuing warnings or applying consequences. Together, these elements highlight the dual focus of effective CM: combining punitive and positive strategies (Clark et al., 2023; Hepburn & Beamish, 2019; Korpershoek et al., 2014, 2016, 2022; Oliver et al., 2011; O'Neill & Stephenson, 2011). Although these perspectives offer a helpful framework, some studies have expanded CM to include social and emotional aspects of students, emphasizing their socialization (O'Neill & Stephenson, 2011; Sakthivel, 2025).

Classroom Management Courses and Teacher Preparation

CM is widely recognized as a key element of effective teaching; however, questions remain about how well ITE programs prepare PSTs for its successful practice. Research highlights both the benefits of specific CM coursework and ongoing gaps in program design and delivery. For example, O'Neill and Stephenson (2012) showed that PSTs who completed dedicated CM units felt more prepared and confident than those who did not. Similarly, Patterson and Seabrooks-Blackmore (2017) found that structured CM coursework, especially when

combined with opportunities for reflection, strengthened teachers' confidence and skills in CM. These studies emphasize that CM courses contribute positively not just through content delivery but also by shaping teachers' beliefs and confidence in applying strategies in practice.

However, evidence also indicates that many ITE programs still fall short in this area. Freeman et al. (2014) revealed, in their review of accreditation policies and program requirements, that a significant number of programs offer limited or no dedicated coursework on CM. This lack contributes to a persistent feeling of underpreparedness among PSTs, who often enter classrooms without the necessary CM skill sets to implement CM practices effectively.

Taken together, these findings suggest a dual reality. On the one hand, well-designed CM courses—particularly those that focus on building proactive beliefs and self-efficacy—can play a pivotal role in preparing teachers for successful classroom practice. On the other hand, when such courses are absent, embedded superficially within other units, or delivered without attention to beliefs and reflective practice, PSTs may leave their training programs lacking the confidence and skills needed to manage classrooms effectively. Such tensions highlight that the mere inclusion of the CM course units in ITE curricula will not be effective; instead, the curricula should ensure depth and alignment to foster both knowledge and belief structures that enable teachers to view such courses as effective.

The Impact of Effective Classroom Management

According to Landau (2001), "effective classroom management strategies that address individual needs while protecting the interests of the learning community comprise, without a doubt, the most valuable skill set a teacher can have" (p. 4). As effective classroom managers, PSTs would be better equipped to accommodate diversity in their classrooms and be more open to inclusion (Meijer & Foster, 1988; Soodak, 2003). Previous research has shown that, among various factors—including teachers' cognitive ability and teacher and school demographics—CM is a potential predictor of student achievement (Marzano et al., 2003; New South Wales Department of Education, 2020).

Poor CM can disrupt instructional activities even when it is implemented effectively, as both are interconnected and each strongly influences the other, impacting student achievement and engagement (Brophy, 1982; Hattie, 2009; Marzano et al., 2003; O'Neill & Stephenson, 2011). According to Brouwers and Tomic (2000, p. 242), "If teachers do not react adequately to students when their behavior is disruptive, instructional time is lost for all students. To reach instructional goals, teachers must adequately address disruptive behavior in the classroom".

Teachers lacking skills in classroom and behavior management can negatively impact students' well-being and academic success (Simonsen et al., 2008; Marzano & Marzano, 2003). PSTs are often criticized for not being adequately prepared in CM (Greenberg et al., 2014; Livers et al., 2021; Oliver & Reschly, 2007; Stevenson et al., 2020). Additionally, PSTs frequently believe that CM mainly involves punishing students after misbehavior to regain classroom control, a misconception that concerns teacher educators (O'Neill & Stephenson, 2012; Goss & Hunter, 2015). These existing beliefs can lead PSTs to overlook students' diverse needs, which some may see as unrelated to effective CM practices (Kaya & Selvitopu, 2019; Main & Hammond, 2008).

Effective CM continues to challenge many pre-service and current regular classroom teachers (Greenberg et al., 2014; Karasova & Nehyba, 2023; New South Wales Department of Education, 2020). As novices, PSTs especially feel overwhelmed by adapting instructional activities to address the diverse needs of an increasingly heterogeneous student population in regular classrooms (Main & Hammond, 2008; Yogaranee, 2024). This issue becomes even more serious in the context of students' challenging behaviors, which can lead to teacher stress and burnout, ultimately resulting in teacher attrition (Brouwers & Tomics, 2000). Studies show a strong link between students' disruptive and challenging behaviors (actual or perceived) and teacher burnout (Bottiani et al., 2019; Dicke et al., 2014; Lambert et al., 2009).

It is essential to evaluate the unmet needs of children with special educational needs (SEN), as these needs might lead to their isolation and exclusion in inclusive classrooms. This exclusion can ultimately lead to withdrawal from inclusive education (IE). Such issues are more prevalent in lower-middle-income countries, including Sri Lanka (Abeywickrama et al., 2013). The violation of students' right to education and the lack of opportunities to benefit from IE remain major concerns, emphasizing the need for teacher preparation programs to focus on how and to what extent prospective teachers are trained and equipped with appropriate behavior management skills and strategies.

Classroom Management Self-Efficacy

TSE has been a well-documented concept in ITE for IE since the 1970s. It is connected to several key teacher

behaviors, such as instructional and CM practices, to improve student achievement (Tschannen-Moran & Woolfolk Hoy, 2001). CMSE was developed as a variation of TSE and was initially included as one of its dimensions in assessment tools measuring TSE. Over time, CMSE has gained recognition as a separate concept within TSE research. Based on Bandura's (1977, 1997) social cognitive theory, it is defined as teachers' beliefs in their future ability to organize classroom resources, routines, and time, and to manage students' attention, socialization, and behavior. Brouwers and Tomic (2000) describe CMSE as "teachers' beliefs in their capabilities to organize and execute the courses of action required to maintain classroom order" (p. 242).

Development of Classroom Management Self-Efficacy

The development of CMSE can be built upon four sources of information (Bandura, 1977, 1997): mastery experiences (personal accomplishment), vicarious (observational) experiences, verbal (social) persuasion, and physiological and emotional states. Given the significant importance of mastery experiences or performance achievements, Bandura (1977, 1997) contended that efficacy information is most effective when it originates from mastery experiences or is based on past performance, demonstrating whether an individual can succeed. Once robust efficacy beliefs are established through repeated successes, the negative impact of frequent failures is likely to decrease.

The second source of information is vicarious experiences, where practicing teachers observe other teachers' performances through live or symbolic modeling to develop their own CM capabilities. Teachers conclude their abilities through social comparisons. However, this type of experience is less reliable than direct evidence of personal accomplishments. As a result, self-efficacy expectations built solely on modeling tend to be weaker and more susceptible to change. Conversely, encouragement, positive feedback, and verbal support from mentors, teachers, and colleagues help strengthen CMSE, while negative or unconstructive support can weaken it. Teachers' emotional states are physiological; emotional situations can negatively impact CMSE by affecting their perceptions of competence. Teachers often rely on their arousal levels when assessing their anxiety and vulnerability.

Developing CMSE among PSTs, ITE programs incorporate all four sources of information, which are embedded in course structures and practicum experiences, aligning with Bandura's (1997) social cognitive theory. Mastery experiences are facilitated through microteaching, simulations, and practicum activities that enable PSTs to apply inclusive strategies with immediate feedback. PSTs acquire vicarious experiences through real or simulated classroom settings, often via model lessons or video-based cases, observing expert teachers or peers successfully managing inclusive classrooms. Teacher educators and mentors provide encouragement and constructive feedback (verbal persuasion) on PSTs' efforts to implement inclusive practices. Lastly, physiological and affective states are addressed by creating supportive learning environments that minimize anxiety and foster confidence in managing diverse classrooms (Bandura, 1997). These practices within ITE collectively enhance PSTs' CMSE by systematically engaging the multiple sources of efficacy information.

However, the literature has often criticized the extent to which these sources of efficacy contribute to the development of TSE and its variation, CMSE, as other intervening factors can also influence how efficacy information is processed. Teachers' beliefs about teaching and classroom management influence how they interpret experiences as building their competence (Poulou, 2007). Contextual factors, including school culture, mentor guidance, and institutional support, can either enhance or diminish the impact of efficacy-building opportunities (Sharma & Loreman, 2014). Cultural expectations surrounding authority and discipline also play a role, as they shape which management strategies teachers view as effective or appropriate (Baier-Mosch & Kunter, 2024).

The Role of Classroom Management Self-Efficacy: A Potential Predictor or an Outcome

Just as TSE assesses teachers' beliefs in their teaching abilities—crucial for their success and motivating classroom actions—a strong sense of CMSE encourages teachers to carry out CM actions effectively. CMSE is a vital part of teaching that can be thoroughly studied, as it predicts overall CM decisions (Brouwers & Tomic, 2000; Woolfolk Hoy, 2000). Several studies have shown a direct link between CMSE and teacher stress and burnout. According to Parker et al. (2012), teachers who doubt their CM abilities are more likely to develop burnout symptoms. Conversely, teachers with positive self-efficacy are better equipped to manage stressors, enabling them to use effective strategies to handle challenges.

CMSE influences how teachers perceive stressful situations, based on their confidence in CM skills when managing students' challenging behaviors. Bandura (1977, 1997) suggests that it is not the actual level of CMSE, such as TSE, that determines teachers' reactions, but rather their perception of their ability to handle future situations. This perception influences the amount of effort they invest and the duration of their persistence despite

obstacles and negative experiences. Teachers with high CMSE tend to recover quickly from setbacks, while those with low CMSE are less likely to believe they can effectively manage classroom disruptions. “The probability of a teacher acting to resolve the situation is low if he or she lacks belief in his or her capability to manage classroom disturbances effectively” (Dicke et al., 2014, p. 3).

An early study by Brouwers and Tomic (1999) examined how student disruptive behavior impacts teacher burnout, with CMSE serving as a mediator. The study found that CMSE is a significant predictor of teacher depersonalization and emotional exhaustion (EE), two main aspects of burnout. Specifically, student disruptive behavior had a negative impact on CMSE. In turn, lower levels of CMSE led to increased depersonalization and EE. However, CMSE did not show a significant indirect effect on personal accomplishment.

Dicke et al. (2014) developed a process model to examine whether classroom disruptions mediate the relationship between CMSE and EE, with CMSE acting as a moderator. The study found statistically significant path coefficients, indicating that CMSE can predict EE through classroom disturbances, particularly for individuals with low CMSE scores, when it functions as a moderator. The results indicated that teachers who believe they can effectively manage CM experience fewer disruptions than those with low CMSE.

These results can be interpreted in two ways. First, teachers with low CMSE seem more susceptible to classroom disturbances due to increased disruptions and feelings of incapability, which lead to higher EE. Second, low CMSE levels may lead to more classroom disruptions because teachers lack confidence in their CM skills and are unable to manage the situations effectively. Conversely, teachers with higher CMSE levels report fewer disruptions, which makes the environment less stressful and results in lower stress and EE.

Numerous empirical studies have regarded CMSE as a predictor, demonstrating its impact on various aspects of teachers’ professional functioning, such as instructional quality, CM practices, stress levels, and burnout. However, relatively few studies have examined CMSE as an outcome of intervention or training effectiveness (Main & Hammond, 2008; O’Neill, 2015; Patterson & Farmer, 2018; Patterson & Seabrooks-Blackmore, 2017; Purniningtyas et al., 2023; Sciuchetti & Yssel, 2019; Sokal et al., 2013; Yılmaz & Çavaş, 2008; Yuksel, 2014). Main and Hammond (2008) investigated the self-efficacy of PSTs in behavior management before and after the practicum. They observed a significant increase in the average scores for CMSE. However, participants generally preferred familiar behavior management strategies often seen in practice, such as time-out, proximity, and extrinsic rewards, while giving less attention to evidence-based approaches. The authors recommended that ITE programs should enhance prospective teachers' exposure to research-supported strategies and promote reflective CM practices.

O'Neill's (2015) study investigated the impact of a semester-long course on managing challenging behaviors in inclusive classrooms on the CMSE of Australian PSTs. The study assessed CMSE at four consecutive time points: pre-coursework, pre-professional experience, post-professional experience, and post-coursework. The study found a significant gain in the mean score for CMSE from pre- to post-coursework, suggesting that targeted coursework can enhance PSTs' CMSE. The study also explored sources of efficacy information and learning activities contributing to these changes. The author emphasized the importance of integrating such coursework into ITE programs to better prepare PSTs for IE settings.

Similarly, Bosch and Ellis (2021) investigated the impact of avatar-based interventions integrated into specific PST education courses on CMSE, instructional strategies, and student engagement. They found significant gains, especially in Foundations in Education and CM courses, where controlled, low-risk settings allowed safe practice of classroom scenarios. Given that ITE with CM courses contributed significantly to the improvement of CMSE, however, the focus on the CM courses in ITE remains a concern for PSTs and policymakers, since “the absence of classroom management or the reduced attention paid to it is really not a new phenomenon, the trend has been discussed and documented for over 20 years” (Landau, 2001, p. 4).

While many studies have documented the positive impact of ITE and teaching practicum on the development of PSTs’ CMSE, Yılmaz and Çavaş (2008) present a somewhat contradictory finding. Their study found that although teaching practicum influenced PSTs’ CMBs, it did not significantly affect their beliefs about science teaching competence. The divergence in findings suggests that practicum elements across different educational contexts or subject areas may not have a direct or consistent influence on CMSE development. It raises important considerations about the nature and quality of teaching practicum, the support provided during practicum, and possible pre-existing beliefs that PSTs bring into their training. Given the significant contribution of ITE and the practicum component in shaping CMSE, the findings by Yılmaz and Çavaş emphasize the need for further investigation into the specific factors influencing CMSE, beyond ITE.

The literature debates whether CMSE should be primarily viewed as a predictor or an outcome. Treating CMSE as an outcome is especially valuable for understanding the factors that shape and develop it. This perspective is crucial for guiding ITE programs and designing effective interventions, as it helps identify how experiences and contextual factors contribute to strengthening CMSE (O'Neill & Stephenson, 2011). This study explores this topic by examining the factors that influence CMSE, particularly in inclusive classroom settings.

Teacher Beliefs about Classroom Management

In this study, the concept of belief is based on Richardson (1996), who describes beliefs as psychologically held propositions about the world that individuals consider to be true. Teacher beliefs refer to the mental tendencies toward assumptions, views, opinions, or ideas that teachers hold, rooted in their personal principles, which guide their attitudes, judgments, and behaviors (Pajares, 1992). The "why" and "how" of teacher behavior originate from these underlying beliefs, which serve as interpretive lenses through which teachers interpret and internalize instructional activities (Buehl & Beck, 2015). Such beliefs are influenced by family and personal values, past educational experiences, and the socio-cultural contexts of schools (Nespor, 1985).

There is a growing consensus that the successful inclusion of children with SEN in regular education classrooms requires PSTs to embrace the philosophy and practice of CM, which is mainly influenced by their positive beliefs (Ben-Yehuda et al., 2010; Ritter et al., 2019). Much has been written about the relationships between teachers' beliefs about learner diversity, their knowledge of IE, and their decisions regarding inclusive pedagogy, goal setting, and task definition (Nespor, 1985). These beliefs are generally formed early in teachers' careers and are not easily changed (Pajares, 1992).

Negative beliefs and unwelcoming attitudes toward including students with SEN in regular classrooms have been identified as significant barriers to implementing IE (Dignath et al., 2022; Woodcock et al., 2023). Teacher beliefs relate to how CM should be used and how PSTs form expectations for student behavior. The first refers to their understanding of CM, while the second concerns their belief in whether CM practices can facilitate meaningful learning experiences in inclusive settings. Therefore, PSTs' beliefs about CM greatly influence how they handle student misbehavior in inclusive classrooms (Henson, 2001; Yılmaz & Çavaş, 2008).

Different Facets of Teacher Beliefs about Classroom Management

In line with the broad dimensions of CM, CMBs can be categorized into proactive and reactive. Proactive beliefs reflect teachers' inclination to implement preventative strategies to stop misbehavior before it occurs, while reactive beliefs emphasize punitive, control-oriented practices to correct inappropriate behavior. These belief systems typically function in opposition; stronger reactive beliefs often reduce the likelihood of using proactive strategies.

Individual belief systems, psychological theories, and societal and educational changes shape CMBs. Traditionally, CMBs aligned with behaviorist principles, focusing on discipline, obedience, and teacher authority through rewards and punishments (see Martin & Baldwin, 1994; Martin et al., 1998, 2016 for interventionist beliefs). By the mid-20th century, student-centered approaches emerged, influenced by humanistic psychology, which promoted positive and inclusive learning environments and non-interventionist beliefs (see Martin & Baldwin, 1994). Later, constructivist perspectives, such as those of Vygotsky, adopted a collaboration-focused approach to management. In the 21st century, CMBs have continued to evolve, emphasizing inclusivity and advocating for diverse and equitable management strategies that support all students, regardless of their background or abilities.

Woolley et al. (2004) developed the Teacher Beliefs Survey, which focuses on teachers' general beliefs about teaching and learning approaches, especially the difference between constructivist and traditional paradigms. Although the authors briefly discussed traditional management as a sub-dimension—highlighting teacher beliefs about strict control, rule enforcement, and authority in managing student behavior—this concept closely aligns with the reactive beliefs dimension in this study. This orientation emphasizes maintaining order through explicit rules and directive interventions when behavioral issues occur. Such interventionist beliefs aim to respond to misbehavior to restore classroom order rather than prevent it proactively. However, the present study created a scale to measure CMBs of PSTs, distinguishing between proactive and reactive strategies. This makes the current scale more targeted and directly useful for studies examining teachers' preferred management approaches rather than their broader instructional philosophies.

The literature consistently shows that PSTs are often criticized for their heavy reliance on naive, reactive beliefs about CM, which are teacher-controlled and interventional-oriented (Baier-Mosch & Kunter, 2024; Berger et al.,

2018; File & Gullo, 2002; Huang et al., 2019; Pajares, 1992; Parsonson, 2012; Soodak, 2003). Such beliefs are thought to be shaped by their schooling, where management was primarily punitive and focused on addressing misbehavior after it occurred. This reliance can lead to continued use of ineffective punitive strategies that escalate rather than prevent disruptions. ITE programs often fail to challenge these beliefs and reinforce traditional, control-based approaches (Stough & Emmer, 1998). Without proper exposure to proactive strategies, PSTs often rely on discipline-focused management, which yields limited success (Poulou, 2007). In contrast, proactive practices, such as promoting engagement, building positive relationships, and preventing misbehavior, are more effective in creating supportive classroom environments (Oliver et al., 2011; Reupert & Woodcock, 2010).

Classroom Management Beliefs as a Potential Mediator

The literature consistently shows the potential mediating role of CMSE in influencing the effects of contextual and teacher factors, as well as CM performances. However, only a few studies identify CMBs as a mediator, highlighting the need for further research. For example, Berger et al. (2023) surveyed 154 vocational teachers to examine the impact of teaching experience on self-reported CM practices, as reflected in teacher beliefs about student motivation, self-efficacy beliefs (CMSE), and general pedagogical beliefs. They found that teachers' beliefs about student motivation and CM are closely linked to their CMSE, which in turn influences how they report managing their classrooms. Such beliefs may serve as a bridge connecting teachers' experiences with their actual CM behaviors.

Identified Research Problem

The literature consistently highlights numerous studies on TSE and its derivative, CMSE, as standalone constructs or dimensions within the TSE framework. These studies typically treat TSE and CMSE as predictors of teacher performance, including CM practices. However, there is limited research on how ITE and contextual factors shape these constructs. Notably, few studies have examined CMSE as an outcome. Investigating CMSE as an outcome is crucial for designing targeted interventions that strengthen this domain-specific attribute, which may be more actionable than general TSE.

Furthermore, although extant research emphasizes the direct impact of PSTs' perceptions of CM courses on CMSE, it rarely explores the underlying mechanisms of this relationship. Among various mediating factors, CMBs may act as a potential mediator influencing this connection. Understanding this mediation process is crucial for guiding teacher preparation programs and better supporting PSTs in developing inclusive, proactive CM practices. A common assumption is that teachers with high ICMSE are more inclined to adopt effective CM strategies in inclusive classrooms. However, this causal link does not fully address a key question: why do some highly self-efficacious PSTs struggle to implement effective inclusive CM strategies, despite their confidence? Investigating such causal mechanisms is vital.

The Theoretical Framework

The study draws on the integrated model of TSE by Tschannen-Moran et al. (1998), grounded in Bandura's (1977, 1997) social cognitive theory. This model highlights that efficacy beliefs develop through the cognitive processing of professional learning experiences. This model supports the role of CMBs as a mediator, linking PSTs' perceptions of CM courses to their ICMSE. Beliefs formed through the interpretation of training experiences directly influence management self-efficacy. By applying this model as a theoretical framework, this study positions CMBs as a key pathway through which ITE shapes PSTs' confidence in managing inclusive classrooms.

This theoretical model suggests that many PSTs might view their ITE courses positively but still lack confidence in managing inclusive classrooms effectively. Although more positive perceptions of knowledge, skills, and attitudes gained from CM courses should improve ICMSE, this is not always guaranteed. If ITE courses do not promote constructive CMBs, a well-designed program may not increase ICMSE. Some teachers might develop unfavorable CMBs, which, in turn, negatively impact their ICMSE. On the other hand, when PSTs develop strong, well-formed beliefs about effective CM practices, they are more likely to feel confident in their ability to manage students. Therefore, the mediating role of CMBs helps clarify when perceptions of CM courses lead to higher ICMSE.

The Conceptual Framework

The conceptual framework (Figure 1) shows the proposed mediation model, where PSTs' perceptions (TP) of CM courses offered by ITE programs act as the predictor. The two dimensions of CMBs, teachers' beliefs about proactive actions (TBPA) and reactive actions (TBRA), serve as mediators. The outcome variables are the four dimensions of ICMSE: Self-Efficacy for Reactive Actions (SERA), Self-Efficacy for Proactive Actions (SEPA), Self-Efficacy for Implementing Strategies to Promote Students' Prosocial Behaviour (SEPB), and Self-Efficacy for Enforcing Classroom Rules and Procedures (SECRP) (Sakthivel, 2025).

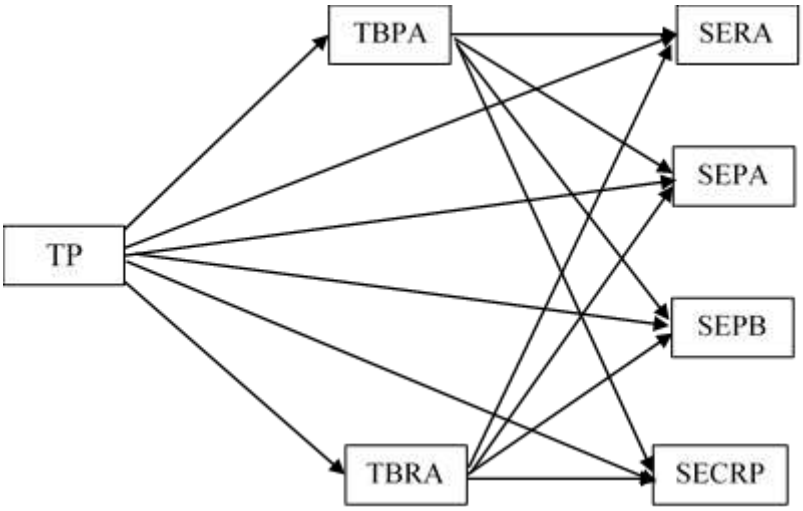


Figure 1: *The Proposed Parallel Multiple Mediation Model*

This study explores the following research questions: How do PSTs perceive the effectiveness of CM courses in their ITE programs? What are the main proactive and reactive CMBs held by PSTs? What is the level of ICMSE among PSTs? Is there a significant relationship between PSTs' perceptions of CM courses and their ICMSE? Does the relationship between PSTs' perceptions of CM courses and their ICMSE operate through their CMBs, implying a mediating effect?

THE STUDY

Research Design

This study used a cross-sectional survey design with a quantitative approach to examine the mediating effects of CMBs (TBPA and TBRA) on the relationship between TP of CM courses and ICMSE, employing a parallel multiple mediation analysis. This statistical method enabled the evaluation of each mediator's unique contribution while controlling for the influence of others. The data were analyzed with IBM SPSS AMOS (v. 23), which is suitable for testing direct and indirect effects in mediation models with multiple parallel mediators.

Procedure

This study has two complementary phases. Phase 1 uses a data-driven approach, focusing on quantitative analysis and findings based on a strict statistical framework. It employs inferential statistical techniques to explore the relationships among variables and to examine how predictors contribute to outcome variables through multiple mediations. Phase 2 is based on a theoretical analysis guided by existing CM theories. It emphasizes conceptual reasoning to explain how and why the observed patterns among the latent constructs appeared. Special attention is given to the role of TP of ITE courses as a predictor affecting the mediation pathways between mediators and outcome variables. By analyzing data from both statistical and theoretical perspectives, this two-part approach enhances the overall validity and reliability of the study, providing a balanced view that combines empirical evidence with conceptual understanding to support the findings, conclusions, and recommendations.

Participants

This study used a convenience sample of 480 Tamil-speaking PSTs who participated in an online survey from May to July 2024. The participants were selected from two ITE programs: the Bachelor of Education degree offered by the state university and the Diploma in Teaching offered by the National Colleges of Education. Data were collected in accordance with ethical guidelines, including obtaining informed consent after participants were informed about the study's purpose and nature. Participants were told their participation was voluntary, they could withdraw at any time during data collection, and their information would be kept confidential and private.

Measures

Three author-developed scales were used to collect quantitative data. ICMSE was measured using the 25-item, four-factor Inclusive Classroom Management Self-Efficacy Scale, which covers SERA (n = 6), SEPA (n = 7), SEPB (n = 6), and SECRP (n = 6). All items were positively worded and rated on a six-point Likert scale, ranging from "strongly disagree" to "strongly agree," with a maximum score of 150 indicating a high ICMSE. In a previous study, the 23-item version showed strong internal consistency, with Cronbach’s alpha values of .905, .902, .913, and .855, and McDonald's omega values of .907, .905, .916, and .856 for SECRP, SEPA, SERA, and SEPB,

respectively. Convergent validity was supported by AVE values of .62, .56, .63, and .50, and discriminant validity confirmed the distinctiveness of the factors (Sakthivel, 2025).

The TP of ITE courses that included CM components, whether standalone or integrated into the curricula, was assessed using the 12-item TP scale. The scale features positively worded items with six response options, ranging from 'strongly disagree' to 'strongly agree'. A maximum score of 72 reflects positive perceptions of PSTs regarding ITE courses, especially concerning CM components. The scale demonstrated good content validity and internal consistency, with a Cronbach's alpha value of .914 (Yogaranee, 2025).

CMBs were assessed using an 18-item, two-factor Teacher Beliefs (TB) about CM scale, a newly developed scale designed for this study in Tamil, one of Sri Lanka's native languages. Response options ranged from 'strongly disagree' (1) to 'strongly agree' (6). All items were positively phrased to reduce participants' confusion and help researchers interpret the results more accurately. The total score could range from 18 to 108, with higher scores indicating stronger beliefs in effective CM practices among PSTs.

The development procedures of the TB about the CM scale followed the principles and steps recommended by Boateng et al. (2018) and DeVellis (2016) to ensure its psychometric properties. Based on relevant theoretical frameworks and empirical literature, a clear conceptual definition of the TB construct related to CM was established in the initial phase. This was followed by item generation, creating an item pool to reflect the two targeted dimensions: TBPA and TBRA. The items for the initial two-factor structure of the TB about the CM scale were drafted with 26 items, with 13 items representing each factor.

Two colleagues initially conducted a subjective evaluation of an a priori two-factor TB scale to establish its face validity, leading to the removal of two redundant items from the TBRA subscale. Two subject experts in educational psychology and inclusive classroom management independently assessed the relevance of items for objective content validation. Two low I-CVI items from the TBPA subscale were removed based on their ratings. The modified Kappa (k*) exceeded .74, indicating excellent inter-rater agreement and strong content validity (Polit & Beck, 2006). Pretesting of the 22-item scale identified four items with floor or ceiling effects, which were removed, resulting in a refined 18-item scale with nine items per factor suitable for factor analysis.

Determining the Factor Structure of the Constructs TP, CMB, and ICMSE

Since TP, CMB, and ICMSE are conceptually interconnected, Principal Axis Factoring (PAF) with Direct Oblimin (DO) was used as the extraction method in Exploratory Factor Analysis (EFA) (IBM-SPSS, v.25). This approach helps identify common latent factors while excluding unique and error variance, which is crucial for accurately interpreting psychological constructs. Before conducting EFA, potential multivariate outliers among the predictor variable (TP) and the mediator (CMB) were detected using Mahalanobis Distance (MD) as part of the linear regression diagnostics. The critical χ^2 probabilities, with three degrees of freedom (for TP, TBRA, and TBPA), were checked for each MD value at a significance level of $p < .001$. None of the MD values exceeded the critical value ($\chi^2(3) = 16.27$, $p > .001$), indicating that multivariate outliers did not pose a significant problem for either the predictor or the mediator.

A subjective review of the correlation matrix revealed no inter-factor correlations among the predictors and mediators (TP, TBPA, and TBRA) exceeding the .80 cutoff, indicating no multicollinearity. This was confirmed through the variance inflation factor (VIF) and tolerance values from linear regression. According to Hair et al. (2019), tolerance values of ≤ .10 and VIF values of ≥ 10 suggest serious multicollinearity. However, in this study, tolerance ranged from .802 to .874, and VIF from 1.144 to 1.247, confirming that multicollinearity was not a concern. Since bootstrapping was used in the mediation analysis, normality and homoscedasticity assumptions were not problematic. EFA supported linearity, with all factor loadings exceeding .30 on their respective latent factors (Hair et al., 2019).

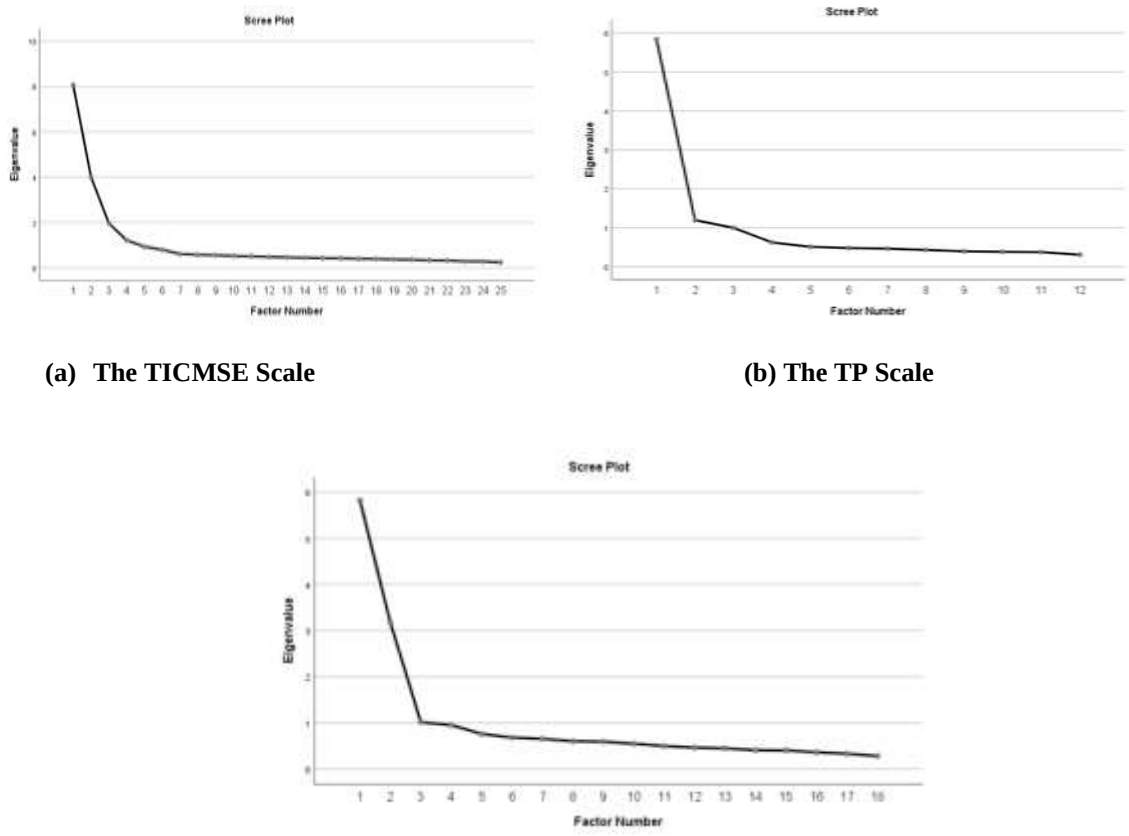
The factorability of the correlation matrices for the data obtained from the TP, TB about CM, and ICMSE scales was assessed using the initial subjective assessment of inter-item correlations in the respective correlation matrices. This analysis showed an adequate range of correlations between .30 and .80, suggesting that the matrices are factorable. This was followed by supplementary objective measures of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA), Bartlett's Test of Sphericity, and Determinants. Results presented in Table 1 shows that all observed data were factorable, with the KMO-MSA of .934 for the ICMSE, .935 for TP, and .913 for TB, exceeding the threshold of .90 for 'marvellous', with a statistically significant Bartlett's Test of Sphericity of $\chi^2_{(253)} = 5875.095$ ($p < .001$) for the ICMSE, $\chi^2_{(55)} = 2638.629$ ($p < .001$) for the TP and $\chi^2_{(120)} = 3233.369$ ($p < .001$) for the TB (Kaiser, 1974).

Table 1: *The Criteria to Determine the Factorability of the TICMSE, TP, and TB Scales*

Const-ructs	KMO-MSA	Thre-sholds	Decision	Bartlett's Test χ^2	*p*	Decision	Determi-nants	Thre-sholds	Decision
ICMSE	.934	≥ .70	Marvelous	5875.095 (253, $p < .000$)	Sig.	Factorable	4.281E-6	< .00001	Not factorable
TP	.935	≥ .70	Marvelous	2638.629 (55, $p < .000$)	Sig.	Factorable	.004	> .00001	Factorable
CMB	.913	≥ .70	Marvelous	3233.369 (120, $p < .000$)	Sig.	Factorable	.001	> .00001	Factorable

The determinant values further supported the factorability of the data, with the minimum values exceeding .00001 for the TP and TB, indicating that multicollinearity was not a concern. This suggests that the data were factorable, except for the ICMSE, where the value was close to zero. This may be due to multicollinearity issues. However, some studies suggest that violations of this determinant threshold may not always preclude factor analysis, especially if other measures, such as high KMO-MSA and a significant Bartlett's Test of Sphericity result, indicate suitability.

Using PAF and DO rotation methods, an initial EFA was conducted on data obtained from the 25-item ICMSE, 12-item TP, and 18-item TB scales to extract the final solutions. The number of factors to extract was determined based on the eigenvalue criterion of ≥ 1, scree plots, and parallel analysis. The results indicated a four-factor structure for the ICMSE, a two-factor structure for the TP, and a two-factor structure for the TB scales (Figures 2a, 2b, and 2c). These factor solutions were further validated through parallel analysis with 1,000 iterations to confirm the final factor structure (Table 2).



(a) The TICMSE Scale **(b) The TP Scale**

(c) The TB Scale

Figure 2: *The Scree Plots Showing the Number of Factors to Retain in the Final Scales*

Table 2: *Comparison of observed data's eigenvalues with the 95th percentile of random eigenvalues.*

		Latent Constructs								
		ICMSE				TP		TB		
		F1	F2	F3	F4	F1	F2	F1	F2	F3
Eigen-values	Observed data	7.719	3.930	1.944	1.258	5.825	1.190	5.823	3.173	1.015
	95th percentile	1.479	1.395	1.336	1.288	1.309	1.222	1.412	1.331	1.273

Note. F – Factor; ICMSE – Inclusive Classroom Management Self-Efficacy; TP – Teacher Perception; TB – Teacher Belief

The parallel analysis supported a two-factor solution for the TB construct, as the eigenvalue of the third factor (1.015) was below the 95th percentile of random eigenvalues (1.273). For ICMSE, although parallel analysis indicated a three-factor solution (the fourth eigenvalue, 1.258, was below the 95th percentile, 1.288), a four-factor structure—SERA (n = 6), SEPA (n = 7), SEPB (n = 6), and SECRP (n = 6)—was theoretically essential, as merging SERA and SEPA was not meaningful (Fabrigar et al., 1999). Similarly, a two-factor model was theoretically expected despite parallel analysis suggesting a one-factor solution for TP. Given this discrepancy, two separate analyses were conducted: Data Analysis I followed the statistically supported one-factor TP structure for initial validation and mediation paths, while Data Analysis II adopted the theoretically grounded two-factor TP structure to explore its effect on ICMSE, particularly regarding the mediating role of teachers' beliefs. (O'Connor, 2000; Velicer & Fava, 1998).

Labelling the TB Sub-Scales

Following the confirmation of a two-factor structure of the TB through EFA and parallel analysis, the potential labels for these two subscales were assigned as TBPA (n = 9), with items coded from TBPA1 to TBPA9, and TBRA (n = 9), with items coded from TBRA1 to TBRA9. Although TBPA and TBRA are newly introduced constructs, their conceptual foundations align with established research that differentiates between proactive and reactive strategies (Clark et al., 2023; Gaias et al., 2019; Hepburn & Beamish, 2019; Karasova & Nehyba, 2023; O'Neill & Stephenson, 2011).

The TBPA dimension of the CMB emphasizes teachers' beliefs in using positive strategies to prevent misbehavior and promote good student behavior through structured routines, student engagement, and self-regulation. These beliefs often align with Martin et al.'s non-interventionist typology, where teachers trust students to manage their behavior within a supportive environment. Proactive teachers focus on setting clear expectations, building positive relationships, and employing preventive strategies to foster a constructive classroom climate (Garwood et al., 2017; Alter & Haydon, 2017). TBRA reflects teachers' beliefs that center on addressing misbehavior through corrective and punitive actions, rule enforcement, and disciplinary measures. These beliefs align with the interventionist approach in Martin et al.'s (1998) typology, where teachers see themselves as the primary agents of behavioral control. Teachers with reactive beliefs prioritize immediate responses to misbehavior to maintain order and ensure compliance (Clark et al., 2023; Gaias et al., 2019).

Assessing Factor Loadings and Item Retention

The next EFA run aimed to identify which items to keep in the final scale, using a minimum factor loading threshold of .60, as recommended by Field (2013), Hair et al. (2010), and Tabachnick and Fidell (2013). Three separate EFAs were performed for the constructs: TP, CMBs, and ICMSE. For the ICMSE, two items, SEPA4 (.590) and SEPB3 (.538), were dropped due to their relatively low factor loadings. The rotated factor solution for the remaining 23 items showed strong loadings, ranging from .647 to .739 for SERA, .631 to .711 for SEPA, .653 to .770 for SEPB, and .712 to .813 for SECRP (Field, 2013; Hair et al., 2019; Tabachnick & Fidell, 2013).

Since most loadings of the items in the ICMSE exceeded the recommended threshold of .60, the extracted factors had strong explanatory power (Costello & Osborne, 2005). The four factors explained 52.71% of the total variance, with SECRP contributing 24.97%, SERA 12.70%, SEPB 7.88%, and SEPA 7.17%, demonstrating a clear and meaningful factor structure. Additionally, the internal consistency of each factor confirmed that the items reliably measured their respective latent constructs (Table 4). These findings support the overall reliability of the ICMSE scale. With 23 items across four factors, the scale is prepared for further Confirmatory Factor Analysis (CFA).

The parallel analysis confirmed a single-factor solution for TP, leading to an EFA with an unrotated model. The results show that the standardized factor loadings ranged from .587 (TP6) to .741, except for TP10, which had a lower loading of .462, well below the .60 benchmark for initial factor extraction (Costello & Osborne, 2005).

Moreover, EFA indicated a unidimensional structure, with the single extracted factor explaining 48.308% of the total variance, a value within the generally recommended threshold of 40–50% for single-factor retention (Hair et al., 2019; Tabachnick & Fidell, 2013). While this supports the adequacy of a unidimensional model, it does not provide a strong, conclusive result. TP6 had a lower loading of .587, and deleting it would increase the total variance to 49.729%, which still does not meet the threshold. Therefore, its removal was postponed to maintain theoretical consistency with the construct. Further validation, such as CFA, will be needed to evaluate the model's suitability and overall fit.

A subsequent EFA was conducted for the TB scale. This scale assessed CMBs of PSTs, specifically their inclination toward proactive and reactive measures in inclusive classrooms. The items, standardized factor loadings, and descriptive statistics are presented in Table 3.

Table 3: *Standardized Factor Loadings and Descriptive Statistics for the Items Assessing Beliefs About Classroom Management*

Item Code	Item	FL	*M*	*SD*
TBPA1	Allowing students to make choices during classroom activities can decrease the chances of disruptive behaviour.	.648	4.25	.613
TBPA2	Fostering students' socio-emotional skills is a more effective way to prevent disruptions than waiting to correct misbehavior.	.694	4.23	.700
TBPA3	Enforcing clear and consistent classroom rules may sometimes disrupt the flow of lessons, but in the long run, it enhances classroom structure and reduces misbehavior.	.497	4.21	.785
TBPA4	Student misbehavior is less likely to occur when teachers actively engage learners through various interactive instructional strategies.	.619	4.19	.638
TBPA5	Differentiated instruction is crucial for meeting the diverse learning needs of students with special educational needs.	.639	4.25	.718
TBPA6	Building and maintaining positive emotional connections with students is crucial for creating a welcoming classroom environment that reduces the likelihood of misbehavior.	.690	4.21	.703
TBPA7	Classroom rules, procedures, and expectations must be clearly communicated to students at the beginning of the school year to create a structured and predictable learning environment.	.601	4.17	.708
TBPA8	Engaging students in setting classroom rules, procedures, and expectations nurtures a supportive classroom environment by enhancing their sense of ownership and responsibility.	.567	4.17	.680
TBPA9	Teachers should consistently implement rules and procedures to foster an organized and effective classroom environment.	.617	4.27	.737
TBRA1	Escalating the severity of consequences is necessary if a student’s misbehavior continues over time.	.462	4.20	.863
TBRA2	Assigning detention is an effective way to manage students who repeatedly misbehave.	.605	4.19	.724
TBRA3	Disruptive students should receive immediate corrective feedback to help them understand the impact of their actions.	.815	4.13	.895
TBRA4	Punitive measures, like sending students to the principal’s office, play a significant role in effectively managing student disruptions in the classroom.	.735	4.14	.843
TBRA5	Restricting student access to classroom resources is an effective way to address misbehaviour.	.798	4.10	.922
TBRA6	Implementing disciplinary measures, such as suspension, is the only way to foster positive change in students' behavior.	.666	4.12	.935
TBRA7	Eliminating students who interrupt classroom lessons or group activities is an effective strategy for managing disruptive behaviour.	.802	4.10	.954
TBRA8	Contacting parents is an essential step in addressing students’ persistent misbehaviour.	.727	4.12	.822
TBRA9	Punishing students with extra tasks or assignments during and after school as a consequence of misbehaviour is an effective strategy for addressing their behaviour.	.663	4.03	.803

Note. FL – Factor Loadings; *M* – Mean; *SD* – Standard Deviation

Standardized factor loadings for the indicators of TBPA ranged from .497 to .694, with the few lowest values

falling below the recommended threshold of .60. Given its weak contribution to the construct, TBPA3 (.497) was removed. Similarly, TBRA factor loadings ranged from .462 (TBRA1) to .815, and TBRA1 was removed due to its poor loading of .462. TBRA accounted for 31.801% of the variance, while TBPA contributed 15.695%, resulting in a combined explanation of 47.496% of the total variance in the CMB construct. Although this falls slightly short of the 50% benchmark, it remains close enough to suggest that the EFA model adequately supports the hypothesized two-factor structure of the TB scale, as in social sciences, factors explaining at least 40%–50% of the variance are generally considered acceptable (Hair et al., 2019; Tabachnick & Fidell, 2013).

Notably, in the EFA model of the TB scale, some items of TBRA and TBPA showed factor loadings in the .60s range. According to Field (2013) and Hair et al. (2019), while a loading of .70 or higher is ideal, loadings of .60 or above still indicate a moderate to strong relationship between the item and its underlying factor, especially in social science research, where constructs tend to be complex. Although TBPA8 had a loading of .567, which is well below the .60 threshold, its removal was not recommended because it did not improve the model. Therefore, it is assumed that keeping it will not necessarily weaken the model's strength. Overall, the items TBPA1, TBPA2, TBPA4, TBPA5, TBPA6, TBPA7, TBPA8, and TBPA9 (n = 8) from the proactive belief construct and the items from TBRA2 to TBRA9 (N = 8) from the reactive belief construct were retained in the final TB scale, resulting in a 16-item TB construct.

Evaluation of the Measurement Models the ICMSE, TP and TB

Three separate models involving the 23-item four-factor ICMSE scale, the 11-item unidimensional TP scale, and the 16-item two-factor TB scale were tested using CFA in IBM SPSS AMOS (v. 23). The model fit indices, including CMIN/df (normed chi-square), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR), are shown in Table 4.

The ICMSE model demonstrates an excellent fit to the data, as shown by its fit indices: CMIN/df = 1.388, TLI = .979, CFI = .981, RMSEA = .028, SRMR = .050, although with a significant chi-square value ($\chi^2_{(226)} = 313.718$, $p < .05$), which may be an issue with large samples and that the deviation is not a big issue, as the relative x2 exceeded the recommended threshold of ≤ 2.0 for good fit (Kline, 2016; Schumacker & Lomax, 2010).

The MM1 of TP did not fit the data well due to poor loadings of some items. There was a slight improvement in model fit after removing TP6 due to its loading, which was far below the recommended threshold of ≥ .60 (.586), as shown by the following fit indices: $\chi^2(35) = 212.987$, $p < .001$; CMIN/df = 6.085; TLI = .902; CFI = .924; RMSEA = .103; and SRMR = .0515. The maximum indices still did not meet the recommended standards. Therefore, only minor modifications were made, rather than a full overhaul. Specifically, two adjustments involved covarying error variances to improve the fit further. The MM2 showed a good fit, with $\chi^2(33) = 99.506$, $p < .001$, CMIN/df = 3.015, TLI = .961, CFI = .971, RMSEA = .065 (acceptable, since it is ≤ .08), and SRMR = .0347, meeting the recommended criteria.

The MM with the 16-item, two-factor TB moderately fit the data with good fit indices of CMIN/df = 2.564, RMSEA = .057, and SRMR = .0325, except for TLI (.941), and CFI (.949), which were below the benchmarks of ≥ .95. Although the TLI and CFI were slightly below the recommended .95 thresholds, they are within the acceptable range (> .90). Considering the satisfactory values of RMSEA, SRMR, and factor loadings, the measurement model can be regarded as adequately fitting the data.

Table 4: *Model Fit Indices for Latent Constructs*

Model Fit Index	Construct				Recommended Thresholds	Source
	ICMSE	TP		CM		
	MM1	MM1	MM2	MM1		
CMIN/df	1.388	6.085	3.015	2.564	≤ 2 perfect fit ≤ 3 acceptable fit ≤ 5 upper limit	Byrne (2016), Tabachnick & Fidell (2019), Kline (2016)
TLI	.979	.902	.961	.941	≥ .95 excellent fit ≥ .90 acceptable	Hu & Bentler (1999) and Kline (2016)
CFI	.981	.924	.971	.949	≥ .95 excellent fit ≥ .90 acceptable	Hu & Bentler (1999) and Kline (2016)
RMSEA	.028	.103	.065	.057	≤ .06 good fit	Hu & Bentler (1999) and Kline (2016)
SRMR	.050	.0515	.0347	.0325	≤ .08 good fit	Hu & Bentler (1999)

χ^2 (df, p)	313.718 (226, $p < .05$)	212.987 (35, $p < .001$)	99.506, (33, $p < .001$)	264.098 (103, $p < .001$)	Non-significant	Byrne (2016), Kline (2016)

Standardized factor loadings (λ), the squared multiple correlation (R^2), representing the variance in an indicator explained by the latent construct, and their respective latent constructs are given in Table 5. Higher R^2 values indicate a stronger relationship between the latent construct and its indicators, showing how well the model accounts for the variance in each construct.

Table 5: *Standardized Factor Loadings and R^2 for the Corresponding Latent Constructs*

Construct	Latent Factor	Item Number	N	Std. λ (range)	R2
ICMSE	SERA	1,2,3,5,6,7	6	.640 – .738	.290
	SEPA	1,2,3,5,6,7	6	.613 – .710	.292
	SEPB	1,2,5,6,7	5	.684 – .765	.279
	SECRP	1,2,4,5,6,7	6	.750 – .815	.312
TP	Single Factor	1,2,3,4,5,7,8,9,11,12	10	.609 - .763	.491
CMB	TBPA	1,2,4,5,6,7,8,9,	8	.564 - .696	.395
	TBRA	2,3,4,5,6,7,8,9	8	.651 - .806	.537

All factor loadings for the ICMSE were statistically significant, with indicators showing strong associations with their respective latent constructs: SERA (standardized λ = .640 – .738), SEPA (standardized λ = .613 – .710), SEPB (standardized λ = .684 – .765), and SECRP (standardized λ = .750 – .815), all above the threshold of ≥ .60, confirming the model's validity. SECRP (.312) has the highest variance explained among the four latent constructs, signifying the most significant relationship with its indicators. Conversely, SEPB (.279) has the lowest variance explained, while SERA (.290) and SEPA (.292) are in between. Generally, R^2 values above .30 are considered strong in social science research, whereas values above .20 are acceptable depending on the context (Hair et al., 2019). These findings suggest that additional factors may influence these constructs beyond what the model captures, pointing to potential areas for refinement.

All the indicators were statistically and significantly loaded onto the TP with standardized lambda values ranging from .609 to .763, surpassing the threshold of .60. The R^2 values for the indicators varied from .371 (TP11) to .582 (TP3), demonstrating moderate to strong relationships with the latent variable. The average R^2 was .491, indicating that, on average, approximately 49.1% of the variance in the indicators was explained by the TP. This indicates a reasonably strong model fit, demonstrating the explanatory power of the latent variable over its observed indicators.

Although TBPA8 had a low standardized lambda value of .564, which fell below the threshold of .60 and may have contributed to the low variance explained by the construct, its deletion was not justified since removing it did not significantly increase the variance. Furthermore, removing it would deviate from the scale's theoretical foundation. Minor modifications could have improved the model fit slightly and increased the average variance explained by TBPA from 40% to 42.6%; however, these changes also led to decreased standardized lambda values for some indicators. Therefore, the 16-item, two-factor model was retained for further analysis without modifications.

The R2 values indicated that TBPA accounted for an average of 39.54% of the variance in its observed indicators. TBRA explained an average of 53.65% of the variance in its respective indicators, indicating a moderate to high proportion of explained variance (Fornell & Larcker, 1981). This suggests that the model demonstrates acceptable levels of explanatory power for their observed variables.

Notably, further validation of the complete MM was conducted in two phases: one based on statistical evidence and the other on theoretical considerations. This is because, while the factor structures of TB and ICMSE were confirmed through both EFA and parallel analysis, the EFA results for TP were inconsistent: EFA indicated a two-factor solution, which is theoretically sound, whereas parallel analysis suggested a single-factor structure, statistically proven. Due to this discrepancy, the complete MM and subsequent path analyses were approached from both statistical and theoretical perspectives. This dual approach ensures that the findings are interpreted with a balanced view of empirical evidence and theoretical coherence (Byrne, 2010; Fabrigar et al., 1999; Henson & Roberts, 2006; Schmitt, 2011).

Data Analysis I

The full hypothesized MM (Figure 3) consists of a single-factor TP (n = 10) as a predictor, a two-factor TB with its two latent factors, TBPA (n = 8) and TBRA (n = 8) serving as mediators, and ICMSE (n = 23), which includes four latent factors: SERA (n = 6), SEPA (n = 6), SEPB (n = 5), and SECRP (n = 6) as outcome variables. Grounded in Bandura's Social Cognitive Theory (1977, 1997) and its extended version by Tschannen-Moran et al. (1998), this MM provides a comprehensive framework that integrates the key constructs of the study.

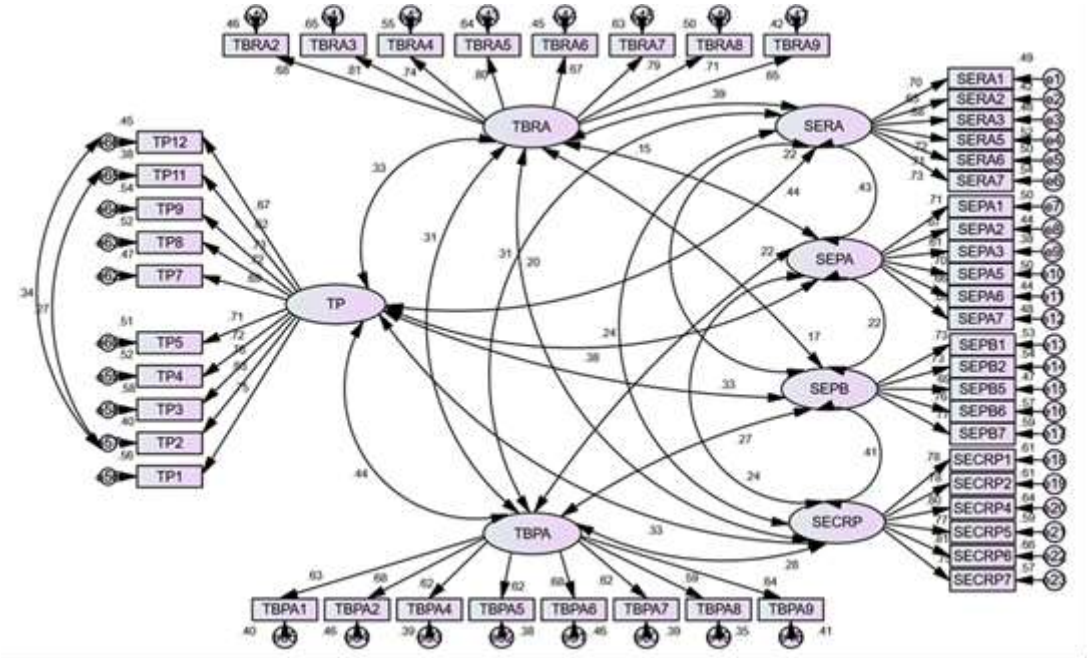


Figure 3: *The Measurement Model with a Single-Factor TP as a Predictor*

The results of CFA conducted on full MM indicate an excellent fit between the hypothesized model and the observed data, as demonstrated by the fit indices: CMIN/df = 1.290, TLI = .967, CFI = .969, RMSEA = .025, and SRMR = .040. All these indices meet the required thresholds, despite a statistically significant chi-square value ($\chi^2_{(1104)}$ = 1423.725, p < .000) (Table 6). These fit indices suggest that the model effectively represents the relationships between the latent constructs and their indicators, as hypothesized.

Table 6. *Model Fit Indices for the Measurement Model*

Model	χ^2	CMIN/df	TLI	CFI	RMSEA	SRMR	Decision
MM	1423.725 (1104), p < .000)	1.290	.967	.969	.025	.040	The Hypothesis is supported.

The model had statistically significant standardized lambda values for all the indicators, with a substantial number of indicators loaded adequately, ranging between .647 and .732 for SERA, .613 and .706 for SEPA, .686 and .767 for SEPB, .753 and .814 for SECRP, .595 and .682 for TBPA, .648 and .805 for TBRA, .618 and .759 for TP. However, the factor loadings for some items did not meet the threshold of ≥. .60, the deletion of these items to improve their variances and factor loadings was negated, as the model perfectly fits the data.

The R^2 values for each indicator were computed to determine the variance explained by their respective latent constructs. The results indicated that the highest proportion of variance, exceeding the benchmark of 50%, was explained by SECRP (61.53%), followed by SEPB (54.16%) and TBRA (53.68%). The lowest variance was explained by TBPA, accounting for 40.50%. TP explained 49.24%, while SERA and SEPA accounted for 48.70% and 45.57% of the variance, respectively. The hypothesized model explained 50.03% of the total variance, which aligns with the structural equation modelling (SEM) guidelines of a benchmark greater than 50% explained variance. This suggests the overall model adequately accounts for the variance in their respective observed indicators (Hair et al., 2019). Therefore, the MM structure remains suitable for validating the multidimensional ICMSE, unidimensional TP, and multidimensional TB constructs.

Establishing the Psychometric Properties of the Study Constructs

The next step in the SEM process involved validating the MM to determine the psychometric properties of the

latent constructs, including their validity and reliability. Validation includes assessing convergent validity (CV) by measuring the Average Variance Extracted (AVE), as well as discriminant validity (DV) and internal consistency reliability, to make sure that the items accurately reflect their intended constructs. The AVE indicates that items within a construct share a high level of common variance, whereas the DV confirms that each construct is distinct from the others. Reliability is evaluated using Cronbach's α, Composite Reliability (CR), and McDonald's ω to ensure internal consistency. Meeting these criteria guarantees that the structural model analysis is based on solid and trustworthy measurements.

While all three reliability indicators evaluate how well the items within a construct measure the same underlying concept, each has its own strengths and limitations. Cronbach's α, the most commonly used measure of internal consistency, assumes tau-equivalence, meaning all items contribute equally to the latent construct with identical factor loadings. This assumption may not always hold in SEM, potentially leading to an underestimation of reliability when factor loadings vary. While CR does not assume tau-equivalence, it incorporates individual factor loadings into its calculation. McDonald's ω, on the other hand, offers more flexible and accurate reliability estimates by considering differences in factor loadings across items (Warne, 2025).

Table 7 shows the validity and reliability indices for the study's latent constructs. Cronbach's alpha and McDonald's omega values indicate strong reliability, confirming that the constructs are measured consistently with separate yet related factors (Field, 2013; Hair et al., 2019; Tabachnick & Fidell, 2013). McDonald's ω shows higher reliability than the other two measures, suggesting excellent internal consistency. Since each measure captures different aspects of internal consistency, reporting all three provides a more comprehensive view of the MM's reliability.

Table 7: *Psychometric Evaluation Matrices for the Latent Constructs*

Psychometric Evaluation Matrices		SERA	SEPA	SEPB	SECRP	TP	TBPA	TBRA
Validity	AVE	.487	.456	.541	.615	.493	.405	.536
Internal	Cronbach's α	.857	.888	.871	.907	.908	.844	.901
Consistency	McDonald's ω	.857	.889	.872	.908	.908	.844	.902
Reliability	CR	.850	.834	.855	.905	.906	.845	.902

The results of AVE show that TBRA (AVE = .536), SEPB (AVE = .541), and SECRP (AVE = .615) had AVE values above the benchmark of .50, indicating strong CV, as the constructs adequately explain the variance in their indicators (Fornell & Larcker, 1981). SERA (AVE = .487) and TP (AVE = .493) had AVE values below, albeit close to the threshold of .50. The lower values of SEPA (AVE = .456) and TBPA (AVE = .405) indicate the constructs may not sufficiently explain the variance in their indicators.

Research indicates that AVE values below .50 can be acceptable if the overall model fit is good. For example, Fornell and Larcker (1981) state that AVE is important for assessing CV, with values above .50 showing that a construct accounts for more than half of the variance in its indicators. However, when AVE drops below this level, researchers should not automatically dismiss the construct if other fit indices (such as CFI, TLI, and RMSEA) suggest a good model fit.

Moreover, Hair et al. (2019) suggest that model fit indices and the reliability of the constructs (e.g., CR, factor loadings) should be prioritized when assessing construct validity. In such cases, the trade-off between AVE and model fit can be considered, especially if the constructs in question show satisfactory reliability (e.g., Cronbach's alpha above .70) and predictive power within the overall model. This approach aligns with Henseler et al. (2015), who argue that in variance-based SEM, such as Partial Least Squares (PLS), researchers may accept low AVE values if the model demonstrates a good fit and the construct remains robust in terms of other validity measures.

The Fornell-Larcker (F-L) criterion and the Heterotrait-Monotrait (HTMT) ratio were used to evaluate the DV. The F-L criterion is the conventional approach in covariance-based SEM (CB-SEM), as it aligns with the statistical assumptions underlying CB techniques (Fornell & Larcker, 1981; Kline, 2016). Since the study employs AMOS, a CB-SEM software, the F-L method is particularly relevant, as it is widely used for validating the distinctiveness of constructs within a CB framework (Hair et al., 2019).

The F-L criterion values, which determine DV by ensuring that each construct's square root of the AVE (√AVE) is ≥ its correlations with other constructs, are presented in Table 8. The off-diagonal values represent the correlations between constructs, while the diagonal values are √AVE, demonstrating greater than or equal to the correlations. Consequently, the F-L criterion is met for all constructs, confirming that each construct shares more variance with its indicators than others, reflecting strong DV.

Table 8: *Fornell and Larcker Criterion for the Latent Constructs*

Factors	SERA	SEPA	SEPB	SECRP	TP	TBPA	TBRA
SERA	.698						
SEPA	.657	.675					
SEPB	.328	.271	.736				
SECRP	.278	.176	.459	.784			
TP	.546	.455	.314	.302	.702		
TBPA	.325	.255	.282	.234	.393	.636	
TBRA	.396	.182	.211	.183	.311	.279	.655

Research has shown that the F-L criterion often fails to detect a lack of DV, leading to false positives (assuming DV when it does not exist) (Henseler et al., 2015). Therefore, DV was further cross-validated with HTMT, the most reliable measure based on variance-based SEM, such as PLS, to enhance the credibility of the findings (Henseler et al., 2015). Typically, an HTMT value below .85 indicates that DV is supported, suggesting that the two constructs are distinct. In Table 9, all off-diagonal values representing the HTMT ratios fall well below the standard HTMT threshold of .85 (or .90 in more liberal criteria). This indicates strong DV among the model's constructs. It means that the constructs are distinct, with no substantial overlap or similarity, thereby supporting the validity of the MM.

Table 9: *HTMT Values for the Individual Latent Constructs*

	SECRP	SEPA	SEPB	SERA	TBPA	TBRA
SEPA	.237					
SEPB	.418	.214				
SERA	.239	.423	.220			
TBPA	.281	.222	.276	.316		
TBRA	.210	.160	.179	.398	.324	
TP	.336	.403	.326	.447	.448	.347

RESULTS

The Results of Data Analysis I

A parallel multiple mediation model with validated latent constructs was tested using IBM SPSS AMOS (v. 23) software. This structural model (SM) includes a single-factor TP as the predictor, two-factor CMBs—TBPA and TBRA— as mediators, and four ICMSE factors—SERA, SEPA, SEPB, and SECRP—as outcomes to explore the causal mechanisms underlying these relationships. The model illustrates how TP indirectly affects the four ICMSE factors through CMB dimensions, TBPA, and TBRA. Bootstrapping the SEM involved 5,000 resamples to estimate the indirect effects of these eight parameters, and a bias-corrected 95% confidence interval was used to assess the statistical significance of the indirect effects. The path model demonstrated an acceptable model fit to the data, as hypothesized, with fit indices falling within the excellent range: $\chi^2_{(1111)} = 1513.055$, $p < .001$, CMIN/df = 1.362, TLI = .959, CFI = .962, RMSEA = .027, and SRMR = .056.

The next step in the SEM procedure involves examining the statistical significance of path coefficients, which provide insights into the direction and magnitude of the model's direct and indirect effects. Table 10 shows the standardized and unstandardized path coefficients for the specific indirect effects through TBPA and TBRA.

Table 10: *The Standardized and Unstandardized Path Coefficients for the Total Specific Indirect Effects via TBRA and TBPA Paths*

Indirect Paths	B	β	CI		*p*-value	Interpretation
			LB	UB		
Specific Indirect Effects via TBPA Path						
TP → TBPA → SECRP	.090	.070	.026	.173	.003	A significant path
TP → TBPA → SEPB	.068	.068	.017	.137	.010	A significant path
TP → TBPA → SEPA	.024	.029	-.016	.071	.224	An insignificant path
TP → TBPA → SERA	.044	.045	-.006	.099	.079	An insignificant path
Specific Indirect Effects via TBRA Path						
TP → TBRA → SECRP	.035	.027	-.014	.093	.150	An insignificant path
TP → TBRA → SEPB	.016	.016	-.022	.058	.367	An insignificant path
TP → TBRA → SEPA	.007	.008	-.027	.045	.698	An insignificant path
TP → TBRA → SERA	.084	.086	.042	.141	.000	A significant path

The results indicate several statistically significant indirect paths as well as direct paths from TP to all four outcome variables. Specifically, the unstandardized path coefficient for the indirect effect of TP on SECRP via TBPA was .090 (p < .01, 95% CI [.026, .173]), while the effect on SEPB via TBPA was .068 (p < .01, 95% CI [.017, .137]). However, other indirect paths through TBPA were not statistically significant. Similarly, when TBRA functioned as a mediator, it significantly mediated only the effect of TP on SERA (B = .084, p < .001, 95% CI [.042, .141]), whereas the other paths remained nonsignificant.

These findings align with CM theory, highlighting that proactive CMBs influence proactive CMSE, while reactive CMBs shape reactive CMSE, suggesting the importance of developing proactive and reactive CMBs in PSTs to enhance their confidence in proactive efficacy beliefs. The insignificant paths were removed, based on this theoretical consideration and for model parsimony.

The model was re-estimated, which yields the trimmed model with excellent fit indices, including a significant chi-square value ($\chi^2_{(1116)}$ = 1520.540, p < .001), CMIN/df = 1.362, TLI = .959, CFI = .961, RMSEA = .028, and SRMR = .0584 (Figure 4).

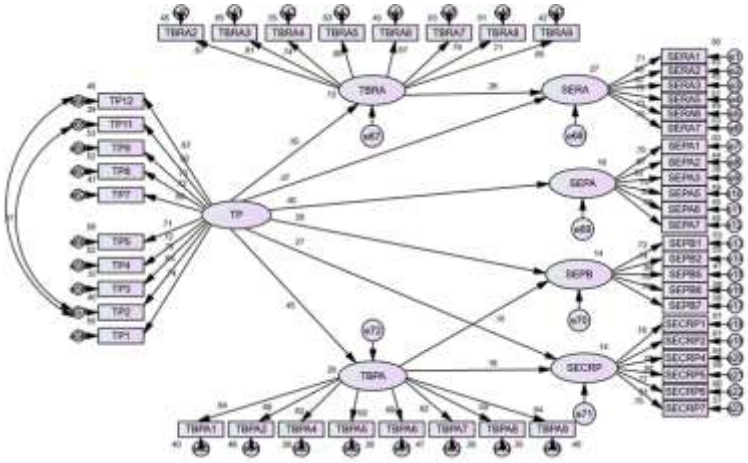


Figure 4: *The Trimmed SM with Significant Path Coefficients Showing Direct and Mediation Effects*

Table 11 displays the standardized and unstandardized path coefficients for direct and specific indirect effects, along with their confidence intervals and p-values for the trimmed SM. The specific indirect effects differed across various mediation paths. The results showed that TP → TBRA → SERA (B = .088, p = .000, 95% CI [.046, .145]), TP → TBPA → SEPB (B = .071, p = .008, 95% CI [.017, .137]), and TP → TBPA → SECRP (B = .096, p = .002, 95% CI [.032, .178]) were statistically significant, as their confidence intervals did not include zero. This indicates that these paths serve a meaningful mediating role.

Table 11: *The Standardized and Unstandardized Path Coefficients for Direct and Indirect Effects*

Mediation Paths	Indirect effects B	CI		Indirect Effects β	Hypotheses	Interpretation
		LB	UB			
Specific Indirect Effects						
TP → TBRA → SERA	.088***	.046	.145	.090***	Accepted	Partial
Total Indirect Effect	.088***	.046	.145	.090***		
TP → TBPA → SEPB	.071**	.019	.140	.070**	Accepted	Partial
TP → TBPA → SECRP	.096**	.032	.178	.074**	Accepted	Partial
Total Indirect Effect	.166***	.065	.300	.144**		
Direct Effects						
	Estimate	S.E	C.R	p-value		
TP → SERA	.361	.054	6.737	.000	Accepted	Partial
TP → SEPA	.330	.046	7.210	.000	Rejected	Direct
TP → SEPB	.279	.060	4.672	.000	Accepted	Partial
TP → SECRP	.355	.074	4.821	.000	Accepted	Partial

Note. ** p < .01, *** p < .001

The analysis further examined the direct effects of the predictor variables on the outcome variables. All direct effects, including TP→SERA (B = .361, 95% CI [.247, .487], p = .000), TP→SEPA (B = .330, 95% CI [.248, .419], p = .000), TP→SEPB (B = .279, 95% CI [.156, .408], p = .000), and TP→SECRP (B = .355, 95% CI [.186,

.522], p = .000), were statistically significant. These results indicate that, even after accounting for mediation effects, the predictor variables continue to have a strong direct effect on the outcome variables. These findings suggest partial mediation, as some specific indirect effects were significant, while the direct effects remained strong. This implies that while mediation mechanisms contribute to the observed relationships, the predictor variable TP had a substantial influence on ICMSE dimensions.

The specific indirect effect of TP on SERA via TBRA (β = .090, p < .001) is more substantial than its effect on SEPB (β = .070, p < .01) and SECRP (β = .074, p < .01) via TBPA, indicating a more substantial effect on reactive CMSE than self-efficacy in promoting prosocial behavior and enforcing classroom rules. However, the total indirect effect of TP on SERA via TBRA (β = .090) is lower than that of TP on SEPB and SECRP via TBPA (β = .144), likely due to the combined effect of TP on SEPB and SECRP. TP's total effect (direct plus total indirect effects) on SERA via TBRA is β = .460, whereas SEPB and SECRP via TBPA are β = .346 and β = .348, respectively. Overall, the mediation model shows that the total effect is β = .460 when TBRA serves as a mediator, compared to β = .622 when TBPA is the mediator, indicating that PSTs' proactive beliefs have a more substantial influence on shaping proactive CMSE than their reactive CMBs.

The Results of Data Analysis II

The cross-sectional, parallel multiple Mediation Path Analysis I with an 11-item, single-factor TP as the predictor was statistically significant. However, it was theoretically unsubstantiated, yielding several insignificant path coefficients with partial mediation effects of TBPA and TBRA, contradicting the hypothesized model. Therefore, a revised path analysis was conducted using an 11-item, two-factor TP in Data Analysis II. This two-factor solution was theoretically grounded, with Factor 1 representing Quality Content (QC) and Factor 2 representing Quality Instruction (QI). TP, therefore, assesses to what extent PSTs perceive their ITE courses, including CM components, as having content quality and quality instructional practices.

The results of EFA, conducted on an 11-item, two-factor TP, demonstrate that the indicators for the QC accounted for approximately 49% of the variance with factor loadings ranging between .647 (the lowest for QC4) and .797, while QI indicators accounted for approximately 7% of the variance with factor loadings ranging between .633 (the lowest for QI12) and .818, indicating adequate indicator reliability. The total variance explained by both constructs was approximately 56%, surpassing the threshold of 50%, deemed acceptable when extracting factors from psychological constructs, suggesting that the TP construct and its factor solution are appropriate for further CFA and path analysis (Costello & Osborne,2005; Field, 2018; Hair et al., 2019).

The inter-factor correlation between QC and QI was .669, not exceeding the benchmark of .80, indicating a moderate relationship and suggesting two distinct constructs. The statistically significant Pearson's correlation coefficient of .649 (p < .01) between QC and QI further supported this relationship. Additionally, Cronbach's alpha values of .889 for QC and .852 for QI indicated good internal consistency for these two constructs.

CFA was conducted to confirm the 11-item, two-factor structure of the TP: QC (N = 7) and QI (N = 4), redefining the MM to include QC and QI as the predictors. The results (Table 12) demonstrated a good fit to the observed data, as indicated by the following fit indices: CMIN/df = 1.932; TLI .980; CFI = .985; RMSEA = .044, and SRMR = .0286. All these indices meet the required thresholds, despite a statistically significant chi-square value ($\chi^2_{(43)}$ = 83.068, p < .001), which is generally significant for large samples (Table 6). These fit indices suggest that the model effectively represents the relationships between the latent constructs and their indicators, as hypothesized. The standardized lambda values for all indicators were statistically significant, ranging from .691 to .766 for QC and from .706 to .796 for QI, indicating that the TP indicators adequately represent QC and QI.

Table 12. *Model Fit Indices for the Measurement Model*

Model	χ^2	CMIN/df	TLI	CFI	RMSEA	SRMR	Decision
MM	83.068 (43), p < .001)	1.932	.980	.985	.044	.0286	The hypothesis is supported.

The full MM was redefined with a two-factor TP, using QC and QI as predictors, to ensure that the latent constructs explain more variance than error, compared to the previous single-factor solution (Figure 5). As hypothesized, the results demonstrate a good fit to the observed data with a statistically significant Chi-square value ($\chi^2_{(1147)}$ = 1419.998, p < .001), CMIN/df = 1.238, TLI = .973, CFI = .975, RMSEA = .022, and SRMR = .0394 (Table 13), all of which adequately met the recommended thresholds. This suggests that the model adequately represents the relationships between the indicators and the latent constructs.

Table 13. *Model Fit Indices for the Full Measurement Model*

Model	χ^2	CMIN/df	TLI	CFI	RMSEA	SRMR	Decision
Full MM	1419.998 (1147), p < .001	1.238	.973	.975	.022	.0394	The hypothesis is supported.

While the standardized lambda values for the indicators of other latent constructs remained unchanged, the indicators of the TP construct loaded adequately onto their respective latent constructs, QC and QI, with statistically significant standardized lambda values. For QI, the values ranged from .706 to .797, indicating substantial contributions of the respective items (QI2, QI6, QI11, and QI12) to the construct. QC demonstrated standardized loadings ranging from .691 to .765, with all seven items (QC1, QC3, QC4, QC5, QC7, QC8, and QC9) exceeding the recommended threshold of .60, suggesting good indicator reliability and CV for the factors (Hair et al., 2019).

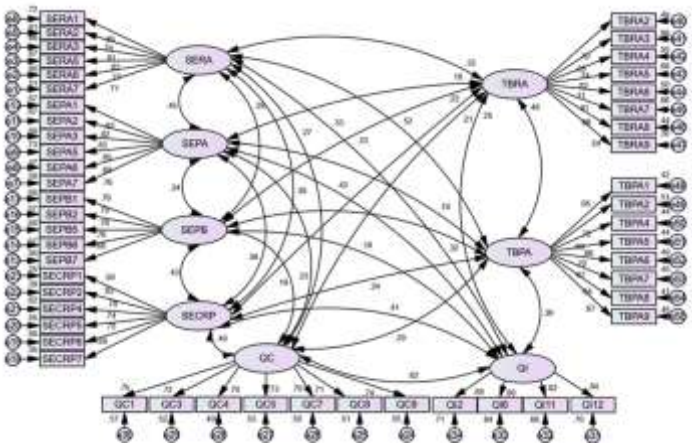


Figure 5: *The Final MM with two-factor TP*

The psychometric properties for QC and QI were well established with AVE values of .535 for QC and .590 for QI, and CR values of .890 for QC and .852 for QI. The HTMT was calculated to assess the DV between QC and QI. The results show the ratio of .444, well below the commonly accepted thresholds of .85 of Kline (2011) and .90 of Gold et al. (2001), indicating strong evidence of DV, suggesting that the constructs are empirically distinct. Thus, the refinement of the full MM with a two-factor TP enhanced the factor loadings, total variance explained, overall model fit, and the validity and reliability of TP, which had shown limitations when treated as a unidimensional construct.

Consequently, a parallel multiple mediation analysis was re-conducted using bootstrapping procedures (5,000 samples with 95% CI) with QC and QI as predictors. The path model had an excellent fit to the observed data, as reflected by fit indices, including a statistically significant chi-square value (χ^2(1154) = 1508.863, p < .000), CMIN/df = 1.308, TLI = .965, CFI = .967, RMSEA = .025 and SRMR = .0544, all fall within the acceptable range, strengthening the credibility of the theoretical framework of Path Analysis II, which will allow for valid interpretation of the mediation effects (Table 14).

Table 14. *Model Fit Indices for the Path Model*

Model	χ^2	CMIN/df	TLI	CFI	RMSEA	SRMR	Decision
SM	1508.863 (1154), p < .000	1.308	.965	.967	.025	.0544	The hypothesis is supported.

The mediation analysis yields several significant and insignificant indirect path coefficients. Accordingly, the path model was retested after removing the insignificant paths (Figure 6). The model fit indices remain unchanged despite removing insignificant paths from the initial SM to improve the model's parsimony. This can be attributed to the fact that model fit indices, such as CFI, TLI, RMSEA, and SRMR, assess the model's overall fit by evaluating how well the proposed structure reproduces the observed covariance matrix, and removing insignificant paths was unlikely to contribute to the model's overall misfit. Hence, the trimmed model with all significant paths was theoretically meaningful and statistically equivalent in fit to the initial SM.

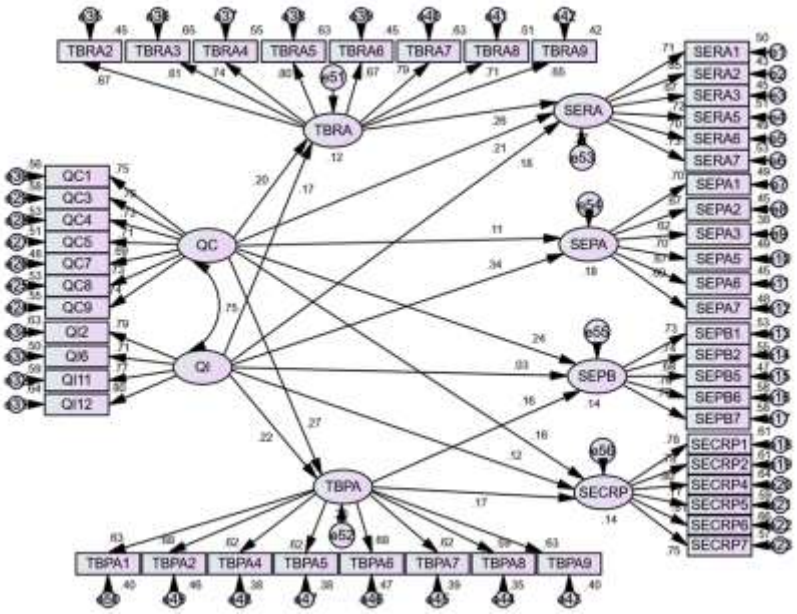


Figure 6: *The Trimmed Path Model Showing the Significant Indirect Paths*

Table 15 displays the unstandardized path coefficients for the direct and specific indirect effects. The results show that TBRA perfectly functioned as a mediator in the effect of QC (B = 0.049, 95% CI: [.011, .110], p = 0.013) and QI (B = .037, 95% CI: [.001, .094], p = .042) on SERA dimension, as the mediation effects were complete because the direct effects of QC (B = .180, 95% CI: [-.009, .361], p = .059) and QI (B = .139, 95% CI: [-.054, .340], p = .152) on SERA were statistically insignificant, while the mediation paths were significant.

Table 15: *The Unstandardized Coefficients for the Specific Indirect Effects and Direct Effects*

Mediation Paths	Unstd. Indirect effects (B)	CI		*p*-value	Type of Mediation Effect
		LB	UB		
Specific Indirect Effects					
QC → TBRA → SERA	.049	.011	.110	.013	Complete mediation
QC → TBPA → SEPB	.042	.009	.105	.009	Partial mediation
QC → TBPA → SECRP	.054	.011	.130	.006	Complete mediation
QI → TBRA → SERA	.037	.001	.094	.042	Complete mediation
QI → TBPA → SEPB	.030	.006	.084	.011	Complete mediation
QI → TBPA → SECRP	.039	.009	.102	.009	Complete mediation
Direct Effects					
QC → SERA	.180	-.009	.361	.059	Complete mediation
QC → SEPA	.073	-.093	.235	.389	Neither complete nor partial mediation
QC → SEPB	.234	.042	.451	.017	Partial mediation
QC → SECRP	.190	-.054	.456	.139	Complete mediation
QI → SERA	.139	-.054	.340	.152	Complete mediation
QI → SEPA	.248	.090	.423	.004	Direct effect only
QI → SEPB	.021	-.195	.205	.827	Complete mediation
QI → SECRP	.133	-.142	.365	.351	Complete mediation

This indicates that PSTs who perceive the content and instructional practices of the CM courses as high quality are more likely to develop their reactive CMSE by fostering their reactive CMBs, rather than through the direct effect of their perceptions of the CM courses. This suggests that reactive beliefs played a significant role in shaping their confidence in implementing reactive CM practices when they perceive CM courses as high-quality in terms of content and instruction.

Both QC and QI showed significant indirect effects on SEPB and SECRP through TBPA. Specifically, QC had indirect impacts on SEPB (B = .042, 95% CI [.009, .105], p = .009) and SECRP (B = .054, 95% CI [.011, .130], p = .006), with nonsignificant direct effect was observed only on SECRP (B = .190, 95% CI: [-.054, .456], p =

.139), indicating a complete mediation effect, and not on SEPB (*B* = .234, 95% CI: [.042, .451], *p* = .017), indicating a partial mediation.

A similar pattern was observed for the QI construct, where the TBPA showed significant indirect effects on SEPB (*B* = .030, 95% CI: [.006, .084], *p* = .011) and SECRP (*B* = .039, 95% CI: [.009, .102], *p* = .009), with the nonsignificant direct effects on SEPB (*B* = .021, 95% CI: [-.195, .205], *p* = .827) and SECRP (*B* = .133, 95% CI: [-.142, .365], *p* = .351), indicating its complete mediation effect on these construct.

Overall, the findings indicate that QC exerted a partial mediating effect on SEPB through TBPA, as both the direct and indirect paths were significant. On the other hand, QC impacted on SECRP through TBPA was complete, as only the indirect path was statistically significant. For QI, the nonsignificant direct paths alongside significant indirect effects indicate complete mediation on both SEPB and SECRP.

The overall mediation effects of TBPA and TBRA align with the CM theory, highlighting an association between reactive CMBs and reactive CMSE, as well as proactive CMBs and proactive CMSE. Notably, as mediators, both TBRA and TBPA functioned differently on the SEPA dimension, in which QC insignificantly impact SEPA directly (*B* = .073, 95% CI: [-.093, .235], *p* = .389), as well as indirectly (*B* = .030, 95% CI: [.006, .084], *p* = .011) insignificant influence, indicating neither partial nor complete mediation effect. On the contrary, QI had only a direct significant effect on SEPA (*B* = .248, 95% CI: [.090, .423], *p* = .004). This pattern of effects is consistent with the findings of Data Analysis I, which report that TP had no significant impact on SEPA.

Descriptive Statistics and Bivariate Correlations

A descriptive analysis was conducted to examine the perceptions of PSTs regarding CM courses, their CMBs, and ICMSE. Table 16 shows the bivariate correlations and descriptive statistics for the validated constructs. The mean scores for all latent factors were reasonably high, with TP (*M* = 4.34, *SD* = .530) having the highest mean, indicating positive perceptions of CM courses among respondents. The standard deviations suggest moderate variability, with SECRP (*SD* = .759) showing a reasonable spread. Inter-factor correlation coefficients revealed significant relationships among the validated constructs (*p* < .01, 2-tailed).

Table 16: *Correlations and Descriptive Statistics for Scores of the Latent Constructs*

	Factors	1	2	3	4	5	6	7	8	9
1	SERA	--								
2	SEPA	.657**	--							
3	SEPB	.328**	.271**	--						
4	SECRP	.278**	.176**	.459**	--					
5	TP	.546**	.455**	.314**	.302**	--				
6	TBPA	.325**	.255**	.282**	.234**	.393**	--			
7	TBRA	.396**	.182**	.211**	.183**	.311**	.279**	--		
8	QC	.499**	.400**	.301**	.284**	-	.369**	.290**	--	
9	QI	.498**	.441**	.264**	.264**	-	.344**	.273**	.649**	--
	N	6	6	5	6	11	8	8	7	4
	M	4.32	3.91	4.07	4.07	4.34	4.22	4.12	4.33	4.36
	SD	.579	.589	.651	.759	.530	.476	.665	.733	.722

Note. ** *p* < .01 (2-tailed); *M* – Mean; *SD* – Standard Deviation; N – number of items

Notably, the analysis showed a positive correlation between TBPA and TBRA, which could be theoretically inconsistent, as an increase in proactive beliefs might interfere with the development of reactive beliefs and vice versa. Ideally, teachers with strong beliefs in punishment-focused (reactive) CM approaches would be less likely to support preventative (proactive) strategies. A possible explanation is that, as novice teachers, PSTs may not yet have enough practical experience to clearly distinguish between these opposing approaches.

PSTs' Stronger Inclination: Proactive or Reactive Beliefs

A paired sample *t*-test was conducted to compare proactive and reactive CMBs. The results revealed a statistically significant difference between the two belief types, *t*(479) = 3.157, *p* = .002. The mean score for proactive beliefs (*M* = 4.22, *SD* = .476) was higher than that for reactive beliefs (*M* = 4.12, *SD* = .665), with a mean difference of .101 (*SD* = .701). The 95% confidence interval for the mean difference ranged from .038 to .164. These results indicate that PSTs in this study tended to hold stronger proactive beliefs compared to reactive ones.

Level of Inclusive Classroom Management Self-Efficacy

The descriptive analysis showed that the overall ICMSE mean score was 4.09, falling within the cutoff criteria of

3.50 – 4.32**,** indicating a moderately high level, with the mean scores for SERA 4.32 (*SD* = .579), SEPA 3.91 (*SD* = .589), SEPB 4.07 (*SD* = .651), and SECRP 4.07 (*SD* = .759). Among these, PSTs reported the highest self-efficacy in reactive actions and the lowest in proactive actions. Despite this variation, all mean scores fall within the moderately high range on the 6-point Likert scale.

DISCUSSION and CONCLUSION

The hypothesis that management beliefs mediate the relationship between PSTs' perceptions of CM courses, embedded in ITE curricula, and their confidence in managing inclusive classrooms was supported, although only partially. However, when participants perceived their CM courses to provide high-quality content and instruction, the mediation effect became complete. In those cases, proactive beliefs fully mediated the effect on PSTs' confidence in enforcing classroom rules and procedures, except for promoting students' prosocial behavior, where only partial mediation was observed. These findings, aligned with the integrated model of TSE (Tschannen-Moran et al., 1998), suggest that PSTs' proactive beliefs are a central driver of their confidence in implementing classroom rules; their perceptions of course quality become less directly relevant when proactive beliefs are well established.

Reactive beliefs partially mediated the effect of CM course perceptions on reactive efficacy, suggesting that other factors also contributed to the indirect effect. However, when pre-service teachers viewed their CM courses as providing high-quality content and instructional practices, the mediation effect was complete. This implies that high-quality training enhances the function of reactive beliefs as a pathway through which PSTs develop their reactive CMSE. In line with the integrated model of TSE, these findings suggest that the interaction between personal beliefs, contextual factors, and the interpretation of teaching experiences shapes reactive CMSE.

Overall, high-quality course content and instruction can serve as powerful mastery and vicarious experiences, which in turn reinforce beliefs about effective management strategies. When such beliefs align with practice expectations, they directly enhance efficacy for handling reactive classroom challenges. This highlights the importance of customizing ITE programs to strengthen particular aspects of self-efficacy based on PSTs' management beliefs.

The following discussion section covers the information in line with the study's research questions.

Perceived Effectiveness of CM Courses in ITE Programs

The present study found that PSTs generally held positive and consistent perceptions of their CM courses (M = 4.34, SD = .53). This result is somewhat unexpected, as Sri Lankan ITE programs do not offer discrete classroom or behaviour management courses. Instead, content is typically embedded within educational psychology or dispersed across other course units. In contrast, much of the international literature reports widespread concerns about the adequacy of CM preparation (Freeman et al., 2014; Emmer & Stough, 2001; O'Neill & Stephenson, 2011, 2012, 2014; Patterson & Seabrooks-Blackmore, 2017; Stough, 2006). Additionally, substantial studies emphasize that PSTs often feel underprepared to manage classrooms effectively, pointing to insufficient or fragmented course provision as a central issue (Greenberg et al., 2014; Livers et al., 2021; Oliver & Reschly, 2007

However, some studies suggest that positive perceptions of CM preparation are possible, especially when coursework is seen as relevant, engaging, and connected to practice. Patterson and Seabrooks-Blackmore (2017) argue that the quality of instructional design—rather than just the existence of a course—significantly influences confidence and beliefs. These findings are consistent with the current study, where PSTs appear to value their CM preparation despite structural limitations in course offerings.

Taken together, the evidence presents a nuanced picture: while many international studies highlight gaps and weaknesses in CM training, especially when specific units are absent, the current results suggest that even embedded or psychology-based content can foster positive perceptions when delivered in a way that supports belief development and confidence. This indicates that PSTs' judgments of their preparation may depend not only on program structure but also on the perceived quality and relevance of the instruction they receive.

Nature of Proactive and Reactive CMBs Among PSTs

The finding of a significant difference between reactive and proactive beliefs, with a slightly higher level of proactive beliefs, suggests that PSTs rely more on proactive strategies than reactive ones. Although the difference is slight, the consistently higher score for proactive beliefs indicates a positive tendency toward preventative and student-centered approaches. However, reactive beliefs are still present, showing that PSTs also value corrective strategies when needed. Several studies support this finding, demonstrating that PSTs tend to favor proactive approaches. For example, Simonsen et al. (2008) reviewed CM practices and found that PSTs and novice teachers

generally prefer proactive over reactive strategies. The authors argue that ITE is increasingly focusing on prevention to reduce behavioral problems before they escalate, which influences PSTs' beliefs.

While many studies report that PSTs generally prefer proactive CM strategies, other research indicates that they often enter ITE programs holding naive, reactive beliefs. For example, Martin et al. (1998) and others found that PSTs initially favor immediate, punishment-oriented responses over preventive, proactive strategies (Berger et al., 2018; File & Gullo, 2002; Huang et al., 2019; Pajares, 1992; Parsonson, 2012; Soodak, 2003). Such response-based, discipline-oriented beliefs can persist despite ITE, highlighting the strong influence of pre-existing naive beliefs on CM preferences. This complexity underscores the need for ITE programs to address both proactive and reactive belief systems in order to develop PSTs' CMSE and skills effectively.

The Level of ICMSE among PSTs

The results indicate that PSTs in this study generally demonstrated moderate to high levels of ICMSE, which is encouraging as higher self-efficacy is associated with greater teacher confidence and improved CM. Specifically, they hold stronger beliefs about reactive practices (SERA) than they do about the effectiveness of rule enforcement and improving students' prosocial behavior. The findings align with previous studies, which suggest that PSTs often rely on reactive approaches, potentially due to a limited emphasis on proactive strategies in their training (Martin et al., 1998; Yogaranee, 2025). However, overall, ICMSE levels align with Simonsen et al. (2008), who emphasized the growing focus on inclusive, proactive management in modern teacher education. These findings highlight the need for ITE programs to strengthen practical opportunities that build PSTs' confidence in proactive management, alongside refining their reactive skills.

The Direct Influence of the Teacher Perceptions of CM Courses on ICMSE

The finding of the direct impact of TP on ICMSE implies that PSTs' overall course perceptions significantly influence all four ICMSE dimensions, with a notably more substantial effect on SERA compared to other proactive CM latent factors ($M = 0.361$, $SD = 1.183$). This supports Bandura's (1977, 1997) self-efficacy information principle, which states that positive mastery experiences in CM courses generally increase management self-efficacy. Previous targeted intervention studies also support these findings, showing the effect of CM training on CMSE (O'Neill, 2015; Patterson & Farmer, 2018; Patterson & Seabrooks-Blackmore, 2017; Yuksel, 2014). Additionally, several empirical studies confirm the stronger reactive efficacy, suggesting that ITE programs usually prepare PSTs with higher reactive than proactive CMSE (Main & Hammond, 2008; Yogaranee, 2025).

This pattern of findings may be connected to the type of CM training offered by ITE institutions, which often focuses on reactive strategies, possibly because these are more visible and easier to teach within limited time frames. To support a more balanced CMSE, ITE programs should consider improving the curriculum and practicum experiences related to proactive strategies. This could result in more effective, anticipatory CM, reduce the frequency and severity of disruptive behaviors, and improve overall teaching effectiveness.

When QC and QI are examined separately, only QI shows a significant direct effect, specifically on SEPA. This suggests that instructional delivery has a more substantial impact on building confidence in specific CM areas than content alone, aligning with Tschannen-Moran and Woolfolk Hoy's (2001) perspective that high-quality instructional experiences shape self-efficacy. The lack of direct effects from QI on other ICMSE dimensions indicates CMBs probably mediate these influences, consistent with Buehl and Beck (2015) and Lazarides et al. (2024), who highlight the vital role of beliefs in developing self-efficacy.

Although PSTs perceived CM courses as having high-quality content, their effect on SEPA was not significant, suggesting that proactive CM strategies may require more than just theoretical exposure to be effective. Bandura (1997) argued that mastery experiences and modeling are crucial for developing strong efficacy beliefs, particularly in complex and proactive actions. These findings underscore the importance of interactive, practice-based learning in effectively building PSTs' confidence in CM in inclusive settings.

Mediating Role of Classroom Management Beliefs

When reactive and proactive CM beliefs served as mediators, with TP functioning as a single-factor predictor, the results show a stronger partial indirect effect of TP on reactive efficacy through reactive beliefs than on proactive efficacy through proactive beliefs, indicating PSTs' heavy reliance on reactive beliefs in shaping reactive efficacy. This effect may be caused due to their ingrained naïve beliefs that might have developed during early training, school observations, or cultural expectations, thereby reinforcing reactive strategies as a faster or more tangible way to manage classrooms (Berger et al., 2018; File & Gullo, 2002; Huang et al., 2019; Pajares, 1992; Parsonson, 2012; Soodak, 2003).

This pattern of mediation is supported by Baier-Mosch and Kunter's (2024) study, which found that PSTs' knowledge, based on their own schooling experiences, was predominantly focused on simple reactive strategies, rather than student-centered proactive measures. This suggests that PSTs may default to these reactive strategies due to their familiarity and perceived immediacy in addressing classroom disruptions. In contexts where order and discipline are culturally emphasized, such reliance on reactive beliefs becomes further reinforced, which helps to explain their stronger mediating role in the present study.

Comparatively, the strongest link between reactive beliefs and reactive efficacy, due to the influence of course perceptions, also indicates that although proactive strategies are emphasized in ITE, PSTs may still see reactive approaches as a necessary and unavoidable step for managing student behaviour challenges (Wang et al., 2020). These findings have specific implications for ITE, highlighting the importance of addressing both proactive and reactive beliefs. Developing proactive strategies remains essential to understanding how and why reactive beliefs influence self-efficacy, offering insights into narrowing the gap between theoretical training and real-life classroom challenges. Additionally, strengthening proactive efficacy could also support long-term teacher resilience, as it reduces teacher stress and burnout (Hattie, 2009).

Additionally, the partial mediation effects across all three indirect paths indicate that PSTs do not rely solely on their ITE with CM courses to develop their ICMSE; instead, their CMBs also play a role in forming this vital construct. The pattern of effects of CMBs can be explained by Bandura (1997), who states that self-efficacy develops through four main mechanisms: mastery experiences, vicarious learning, social persuasion, and physiological states. PSTs, especially those in senior cohorts with more exposure to these sources of information that provide practical classroom experience, are more likely to face real-world teaching challenges, enabling them to gain mastery experiences that influence their CMSE.

Main and Hammond (2008) and Tschannen-Moran and Woolfolk Hoy (2001) further argue that self-efficacy develops as teachers gain direct teaching experience through a practicum. PSTs with mastery experiences are more likely to develop CMSE with less reliance on their CMBs. Conversely, those lacking such experiences may depend more heavily on their CMBs, which are a strongly developed construct early in their careers, rather than on the domain- and task-specific CMSE when making self-efficacy judgments. Although CMBs did not fully serve as a mediator, failing to thoroughly explain the mediation pathway, the findings have implications for ITE. The focus should be on building strong CMBs early in training, allowing these beliefs to evolve with experience, and enhancing CMSE for effective management practices.

The mediation analysis with a two-factor TP demonstrated that both TBRA and TBPA significantly mediated the impact of QC and QI on the three dimensions of ICMSE, but not on SEPA. Specifically, the indirect effect of QC on SERA via TBRA was significant and fully mediated, indicating that the perception of course content quality enhances PSTs' self-efficacy in managing reactive classroom situations by shaping their beliefs about reactive strategies. This finding is consistent with those of O'Neill and Stephenson (2014), who emphasized that course content directly influences teachers' reliance on reactive management practices.

A similar pattern of the indirect effect was observed by QI through TBRA on SERA, suggesting that the quality of instructional delivery mainly boosts self-efficacy in reactive management through belief formation rather than direct experience. According to Bandura's (1997) social cognitive theory, belief systems are powerful mechanisms through which vicarious learning and verbal persuasion (often embedded in instructional quality) enhance self-efficacy.

Furthermore, the mediating effects of proactive beliefs were observed across multiple pathways. The influence of QC on SEPB was partly mediated through TBPA, indicating that PSTs do not solely depend on their perception of the quality of the CM course content to develop SEPB. TBPA also significantly contributes to this relationship. This may be because proactive beliefs about building positive student relationships, encouraging cooperative behaviors, and creating supportive classroom environments act as internal motivators that guide PSTs to consistently apply proactive strategies, even beyond what is explicitly taught in ITE.

Interestingly, the complete mediation of TBPA in the effect of QI on SEPB and SECRP suggests that PSTs' confidence in enforcing rules and procedures and promoting students' prosocial behavior can be enhanced when their proactive beliefs are strengthened. These proactive beliefs appear to develop when PSTs perceive the instructional practices delivered by their teacher educators as high-quality, which indicates that the quality of instruction in CM courses alone does not directly and significantly contribute to shaping PSTs' proactive CMSE. Instead, their proactive beliefs play a critical mediating role in this process.

This indirect effect helps clarify why many PSTs continue to depend heavily on reactive strategies despite reporting high levels of overall CMSE (Main & Hammond, 2008). The implication is that without strong proactive beliefs, even high-quality instructional exposure may not effectively translate into confident, proactive CM practices. Previous research emphasizes that beliefs about proactive strategies must be explicitly nurtured to shift reliance away from reactive approaches (O'Neill & Stephenson, 2014; Lewis & Sugai, 1999; Sugai & Simonsen, 2012). When PSTs genuinely believe in the effectiveness of proactive approaches, they are more likely to internalise and actively apply these strategies, which, in turn, strengthens their proactive efficacy. This internalisation process may be reinforced through reflective practices, peer discussions, and exposure to models of positive CM, indicating that belief transformation serves as a vital bridge between course exposure and confident classroom implementation (Bandura, 1997; Reupert & Woodcock, 2010).

Notably, the findings revealed that neither QC nor QI had significant direct or indirect effects on SEPA through TBPA or TBRA. This indicates that PSTs' self-efficacy in proactive actions is not substantially influenced by their perceptions of the quality of CM course content or its instructional delivery, nor by their beliefs about proactive or reactive management strategies in this model. This pattern suggests that SEPA may depend less on course-based learning or belief formation and more on mastery experiences gained through real-world teaching practicums (Bandura, 1997). Unlike reactive self-efficacy, which can develop through exposure to course examples or vicarious learning, proactive self-efficacy probably requires sustained, practical application in authentic classroom settings. PSTs may need hands-on opportunities to plan, implement, and adjust proactive strategies, such as lesson structuring, student engagement techniques, and preventative classroom routines, before they can build strong confidence in this area.

The CM courses in this study may have focused more on reactive strategies or behavioral management techniques rather than providing enough depth and practice for proactive planning. If proactive strategies are not clearly modeled, practiced, and reinforced during training, PSTs may struggle to internalize these approaches, thereby limiting the effectiveness of both QC and QI in SEPA. This result aligns with Reupert and Woodcock (2010), who argued that proactive management skills develop most effectively through repeated, supported practice in real teaching settings. Similarly, Lazarides et al. (2020) emphasized that proactive efficacy tends to grow more strongly through field-based experiences rather than coursework alone.

Overall, these findings underscore the importance of ITE programs in incorporating more authentic, experience-based learning opportunities, such as extended teaching practica, micro-teaching, and classroom simulations, which enable PSTs to actively develop, test, and refine proactive management strategies in practice, rather than relying solely on course exposure and confidence-building exercises.

Furthermore, while EFA and CFA in this study support the distinction among SEPA, SEPB, and SECRP, aligning with Bandura (1977, 1997) and others who argue that self-efficacy (and also CMSE) is domain- and task-specific, often criticizing global self-efficacy measures, some overlap in concepts may still exist (Pajares, 1996; Tschannen-Moran & Woolfolk Hoy, 2001). Typically, SEPB measures teachers' CMSE in promoting students' prosocial behavior, while SECRP focuses on enforcing classroom rules and procedures. Although part of proactive ICMSE, SEPA explicitly assesses PSTs' preventive strategies to stop student misbehavior before it happens.

Although these theoretical distinctions exist, how teachers interpret and apply these constructs in real settings may not always be clearly separated. This potential overlap might explain the non-significant indirect effect of TP on SEPA through TBPA, suggesting that participants may not have perceived TBPA as an intermediary between their perceptions and preventive actions. Since both TBPA and SEPA involve proactive strategies for managing student behavior, participants might have naturally linked their overall perceptions of CM directly to their preventive strategies, bypassing TBPA as a distinct mediator. This close conceptual relationship probably diminished the hypothesized indirect effect while still allowing a significant direct effect to be observed.

The overall findings build on Bandura's (1997) self-efficacy theory and include an integrated model of TSE. This model highlights teachers' beliefs about CM as a key mediator in shaping self-efficacy across various CM dimensions, clarifying the causal mechanisms. While Bandura's framework identifies four main sources of self-efficacy information, this study suggests that beliefs about CM may act as an additional factor influencing ICMSE. This means that PSTs' ICMSE is not only affected by direct experiences or external feedback but also by their core beliefs about CM strategies, which the integrated model supports. This demonstrates how PSTs interpret and internalize their perceptions of classroom events, potentially affecting the strength of their ICMSE.

These findings emphasize the importance of cognitive appraisal processes in developing ICMSE, an aspect that Bandura's original theory misses in the context of CM. This study broadens the theoretical understanding of

CMSE formation by showing that PSTs' beliefs about CM can serve as an intermediary step. ITE programs should prioritize increasing practical experiences and fostering positive and adaptable CMBs. Future research might investigate how different types of beliefs, such as those related to student behavior, discipline methods, and teaching strategies, interact with Bandura's traditional sources of self-efficacy to influence teacher development.

The study concludes that TP and its components, QC and QI, directly and indirectly influence ICMSE, as theorized. The role of CMBs as a mediator suggests that ICMSE does not develop solely from ITE and training experiences. Instead, PSTs must internalize and reinforce these beliefs for their ICMSE and translate them into effective CM practices. This underscores the importance of fostering strong, well-grounded, proactive, and reactive beliefs during their ITE.

RECOMMENDATIONS

Findings from this study, combined with insights from McGuire et al. (2024), underscore the need to improve the quality of CM course content and instruction. As such, this study recommends that CM training programs incorporate more practical, context-specific learning experiences, including coaching and real-world scenarios, to strengthen both reactive and proactive teacher beliefs and self-efficacy effectively.

Given the differentiated effects observed in proactive versus reactive beliefs and self-efficacy, the study recommends that ITE institutions offer CM courses explicitly emphasizing evidence-based, proactive strategies such as Positive Behavioral Interventions and Supports to better prepare PSTs for promoting positive behavior (Lewis & Sugai, 1999; Simonson et al., 2008; Sugai & Simonsen, 2012).

The findings of this study add to the existing literature with new insights into explaining the causes of PSTs' CMSE development in inclusive classrooms. This is not due to their direct experience with ITE programs, but rather how their CMBs influence this development. These insights underscore the importance of addressing PSTs' CMBs, along with their associated perceptions, when designing interventions to enhance CMSE for IE.

ITE programs should include structured opportunities that challenge and reshape CMBs, incorporating experiential learning through practicum or simulation, and enhancing reflective practices within ITE programs when developing IE policy and practice. Such initiatives can better prepare future teachers to manage inclusive classrooms effectively and confidently. Overall, by explaining this causal effect, the findings expand international scholarship and offer context-specific evidence from Sri Lanka.

LIMTATIONS

A key limitation of this study is the insufficient explanation of SEPA's role as an outcome influenced by TP, QC, and QI through CMBs. This raises concerns about whether the conceptualization of SEPA was fully developed or if it overlapped with other proactive ICMSE dimensions, specifically SEPB and SECRP. Although EFA and CFA supported their theoretical distinction, the potential overlap among proactive CMSE remains a concern since participants may have perceived these constructs as related, which could have affected the expected mediation pathways. Future research should further validate the distinctiveness of these proactive ICMSE dimensions and explore alternative conceptual or measurement approaches to minimize possible construct overlap.

The study has additional limitations that should be considered when interpreting the results. First, the findings are based on the performance of Tamil-speaking PSTs across ITE institutions in Sri Lanka, and the data were collected using the Tamil versions of the instruments, which limits the applicability of the findings to Sinhala-speaking PSTs and the broader global transcultural community. Therefore, it is recommended that this study be replicated using cross-culturally adapted and validated tools to expand the scope of the results.

Second, the use of a convenience sample limits the generalizability of the findings to the broader population. Random sampling enables the increase of generalizability, which was not feasible in this study; it relied on online data collection to secure a larger number of responses.

Another limitation is the use of a cross-sectional design to examine the mediating effect of CMBs. Although the analysis showed that CMBs statistically explain part of or the entire link between PST's course perceptions and ICMSE, this design cannot establish the sequence of events or causality among the variables. A longitudinal approach, measuring perceptions, beliefs, and CMSE at different times, would provide stronger evidence for the mediation pathways proposed in this study.

Lastly, the study relied on self-reported data, which may introduce response bias, as participants' perceptions and beliefs might not always match their actual classroom practices. These limitations can be addressed in future

research by using more qualitative approaches, such as observational methods, phenomenological interviews, or capturing lived experiences, as well as simulated experiences like teaching tasks, which could offer a more comprehensive view of CMBs and CMSE among PSTs.

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