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Moderated Mediation Effect: Pre-Service Teachers' Perceptions, Classroom Management Beliefs, and Proactive Classroom Management Self-Efficacy

Yogaranees Sakhthivel* 
University of Colombo, SRI LANKA

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Abstract: Teachers' self-efficacy in classroom management is essential to their professional identity and teaching quality. While contextual factors shape these beliefs, the role of pre-service teachers' perceptions of teacher education courses in influencing self-efficacy through their classroom management beliefs remains underexplored. This study expands self-efficacy theory by proposing an integrated model in which beliefs serve as both a mediator and a moderator between course perceptions and classroom management self-efficacy, particularly in inclusive classrooms. It builds on previous evidence that pre-service teachers' beliefs about proactive strategies partially mediate the relationship between their course perceptions and capability beliefs in proactive management practices. This leads to the proposal of a moderated mediation model to explore a more nuanced relationship by investigating whether pre-service teachers' punishment-oriented classroom management beliefs alter the strength and direction of this partial mediation effect. Data collected online from 480 pre-service teachers enrolled in State University and National Colleges of Education in Sri Lanka, which were used in the previous study, were analyzed using SmartPLS4 structural equation modeling. The findings indicate that punishment-based beliefs negatively moderated the indirect partial effect of pre-service teachers' perceptions of classroom management training on their self-efficacy for inclusive classroom management, mediated by preventative beliefs. This positive indirect effect was significant only when reactive punishment-based beliefs were at low to moderate levels. These findings suggest that an overreliance on reactive strategies diminishes the beneficial influence of teacher education on self-efficacy in implementing preventive measures for inclusive classroom management. The results emphasize the importance of fostering proactive beliefs through targeted training within initial teacher education programs, supported by dedicated engagement from teacher educators and policymakers.

Keywords: Classroom management, inclusive education, mediator, moderator, pre-service teachers, self-efficacy.

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Introduction

Classroom management (CM) is essential for effective teaching, with proactive strategies proven to prevent student misbehavior (Emmer & Stough, 2001; Hepburn & Beamish, 2019; Lewis & Sugai, 1999; Oliver et al., 2011). These preventative methods focus on establishing clear rules and expectations, encouraging positive behavior, and organizing the classroom thoughtfully to reduce student disruptions (Korpershoek et al., 2016; Melnick & Meister, 2008; Pas et al., 2015). Such practices improve student engagement, boost academic achievement, and support teacher well-being (Clunies-Ross et al., 2008; Evertson & Poole, 2008; Sullivan et al., 2014). However, studies indicate that pre-service teachers (PSTs) often depend heavily on reactive, consequence-based approaches, responding to misbehavior after it occurs, despite evidence showing their limited effectiveness and potential harm (Clunies-Ross et al., 2008; Güner Yıldız et al., 2022; Kher et al., 2000; Main & Hammond, 2008; Oliver & Reschly, 2007; Parsonson, 2012; Sugai & Simonsen, 2012; Yogaranees, 2024).

Research indicates that reactive measures can escalate misbehavior, strain student-teacher relationships, and undermine the classroom climate (Sullivan et al., 2014). They may also hinder students' self-regulation and increase teacher stress and burnout (Aloe et al., 2014; Bibou-Nakou et al., 1999; Hepburn & Beamish, 2019; Karasova & Nehyba, 2023). When

* Correspondence:

Yogaranees Sakhthivel, University of Colombo, Sri Lanka. ✉ yogaranees@edpsy.cmb.ac.lk

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teachers depend on traditional, authoritarian disciplinary strategies, they must continually monitor for disruptions, diverting attention from instruction (Clunies-Ross et al., 2008). Perceiving students as misbehaving, regardless of the severity of their actions, often leads to reactive, corrective measures that do not address root causes (Tsouloupas et al., 2010).

Many education policies continue to place sole responsibility for misconduct on students, often neglecting the role of the classroom environment and teachers' practices in shaping behavior (Sullivan et al., 2014). Such a limited view can conceal underlying factors contributing to misbehavior and may lead to a negative perception of students. As a result, teachers may frequently attribute problems entirely to students and adopt rigid control strategies rather than exploring the root causes of behavior (McGuire et al., 2024).

PSTs' continued use of ineffective punitive strategies often stems from naïve beliefs formed during schooling, where CM was mainly reactive and focused on managing misbehavior after it occurred (Berger et al., 2018; Cho et al., 2020; File & Gullo, 2002; Pajares, 1992; Parsonson, 2012; Soodak, 2003). Research shows that initial teacher education (ITE) programs often fail to challenge these beliefs, instead reinforcing traditional, control-based approaches, limiting PSTs' exposure to proactive, prevention-focused strategies (Stough & Emmer, 1998). Poulou (2007) notes that while PSTs develop coping strategies through experience and reflection, their initial management approaches are rooted in limited preparation based on traditional discipline models. This suggests that ITE may unintentionally sustain reactive rather than proactive CM.

Despite criticisms of ITE, recent studies highlight efforts to promote proactive orientations in teacher preparation. Potter (2019) found that repeated, structured practice with preventive strategies, such as verbal cues, modeling, and proximity, helped early childhood and elementary PSTs apply proactive behaviors. This suggests that hands-on rehearsal in ITE enhances the use of preventive techniques. Similarly, the Australian Institute for Teaching and School Leadership (AITSL, 2021 December) emphasizes equipping pre-service and beginning teachers with proactive skills, such as setting clear expectations, building positive relationships, and minimizing disruptions. Although not yet widespread, these studies reflect a growing shift in ITE toward preventive, student-centered approaches.

PSTs' reliance on reactive strategies is also shown to be influenced by various psychological constructs, such as teacher self-efficacy (TSE) and its domain-specific form, classroom management self-efficacy (CMSE) (Main & Hammond, 2008; Zee & Koomen, 2016). These studies consistently found that teachers with higher TSE or CMSE were more likely to adopt proactive strategies focused on prevention and relationship-building, while those with lower efficacy tended to rely on reactive, control-oriented responses to student misbehavior. Although these constructs help explain tendencies toward proactive or reactive choices, existing studies often overlook the role of underlying CM beliefs (CMBs) in shaping such decisions.

Within the broader construct, CMBs can be classified into proactive and reactive orientations, reflecting PSTs' tendencies toward preventive, student-centered strategies or consequence-based, disciplinary approaches. This study distinguishes between proactive and reactive beliefs because of their opposing orientations. Since these beliefs represent fundamentally different views of CM, a strong focus on one often diminishes the influence of the other. PSTs with strong proactive beliefs are more likely to prevent misbehavior and reduce the need for punitive measures. In contrast, strong reactive beliefs may inhibit the development of proactive tendencies.

PSTs' reliance on reactive strategies does not necessarily reflect rejection of proactive methods. While they may support preventive approaches in theory, many struggle to apply them in practice (Hepburn & Beamish, 2019). Main and Hammond (2008) found that despite increased CMSE, PSTs often favored reactive strategies, likely influenced by deeply rooted beliefs from prior schooling and real-world pressures. Although proactive beliefs are known to foster CMSE, limited research has explored why some PSTs fail to develop them during ITE. This study addresses that gap by examining whether reactive beliefs weaken the impact of CM-focused ITE on CMSE, while proactive beliefs act as an enabling pathway.

Literature Review

Classroom Management Beliefs

The literature lacks consensus on what constitutes CMB. Earlier studies, for example, by Martin et al. (1994, 1998) adopted a widely cited typology of CMB, categorizing it along a continuum of control: non-interventionist beliefs emphasize student autonomy and intrinsic growth with minimal teacher control; interventionist beliefs focus on external control, where the environment shapes behavior through rules and consequences; and interactionist beliefs strike a balance between the two, emphasizing mutual influence between teacher and student through cooperation and shared responsibility. These studies lay the groundwork for later research that increasingly captures the multifaceted structure of the CMB construct (see, for example, Avaroğulları & Karpınar, 2020; Dikmenli & Çifçi, 2016; Yılmaz & Huyugüzel Çavaş, 2008).

Another typology of CMB was introduced by the Organisation for Economic Co-operation and Development (OECD, 2014), distinguishing between constructivist and direct transmission orientations, which reflect different assumptions

about how students learn and how classrooms should be managed. According to OECD (2014), constructivist beliefs emphasize student-centered learning and active participation. In contrast, direct transmission beliefs emphasize teacher authority, structured delivery of content, and control over learning processes.

Despite the extensive use of Martin et al.'s (1994) and OECD's (2014) typologies in assessing CMB, few studies have explicitly framed these beliefs within proactive and reactive orientations. This study conceptualizes proactive CMB as rooted in non-interventionist views and broader constructivist pedagogical orientations to address this gap. These beliefs reflect a preventative focus that promotes student self-regulation, shared responsibility for behavior management, and positive teacher-student relationships, all of which create supportive learning environments and reduce misbehavior (Hepburn & Beamish, 2019; Berger et al., 2020).

In contrast, this study conceptualizes reactive CMB as originating from interventionist perspectives and direct transmission pedagogical orientations. These beliefs emphasize teacher authority, control, and implementing corrective measures to manage misbehavior after it occurs. Teachers holding such beliefs regard CM as their primary responsibility, focusing on maintaining order through structured discipline and rule enforcement (OECD, 2014).

Classroom Management Self-Efficacy

Teachers may possess adequate and relevant CM knowledge, skills, and dispositions acquired through ITE. However, these factors alone do not ensure their effectiveness as frontline managers in the classroom unless they cultivate confidence in their CM capabilities – CMSE – a critical construct that predicts PSTs' accomplishments related to CM (Bandura, 1997). "If teachers do not believe they can manage particular classroom events and situations effectively, they will be less likely to act; self-doubt can overrule knowledge and skills" (O'Neill & Stephenson, 2011, p. 262).

CMSE, based on Bandura's (1997) social cognitive theory (SCT), broadly refers to teachers' beliefs in their ability to manage classrooms effectively (Tschannen-Moran & Woolfolk Hoy, 2001). Brouwers and Tomic (2000) define it as teachers' confidence in organizing and carrying out actions to maintain classroom order. These actions include evidence-based preventive and responsive strategies, such as enforcing clear rules, teaching social skills, fostering peer support, using token economies, and promoting engagement, to support all students, especially those with behavioral challenges (Clunies-Ross et al., 2008; Simonsen et al., 2008; Parsonson, 2012).

This study defines CMSE by integrating prior perspectives, viewing it as PSTs' confidence in managing student misbehavior reactively and proactively, enforcing rules, and promoting prosocial behavior. This comprehensive definition reflects the key aspects of behavior management relevant to the study and highlights CMSE's domain- and task-specific nature, similar to TSE (Yogarane, 2025).

CMBs and CMSE

Literature often highlights the interchangeable use of CMB, TSE, and CMSE, despite their different meanings. TSE is based on Bandura's (1977) concept and is seen as a separate construct related to teachers' overall belief system, which influences their decision-making about instructional practices and CM. Other researchers describe it as a part of a larger teacher belief system (Tschannen-Moran & Woolfolk Hoy, 2001). From this view, broader CMB can create a domain-specific, context-dependent framework for CMSE development, focusing on specific CM skills that match the core value system.

Studies emphasize the distinctiveness of CMB and CMSE. Berger et al. (2018) found that beliefs about student motivation differ from pedagogical beliefs, including constructivist and direct transmission beliefs. Similarly, CMSE and CMB are separate; teachers' confidence in CM doesn't always mirror their overall CMB. For instance, teachers who value student-centered, constructivist methods may feel confident in applying them, while those questioning the effectiveness of engaging students may feel less assured in using interactive strategies, even after training.

Teachers may also demonstrate high self-efficacy (SE) in one context but not in another. Depending on the situation, a teacher confident in reactive disciplinary strategies might lack confidence in preventive measures. Therefore, CMBs can influence specific SE and affect overall CM practices more significantly, based on prior experiences, context, and resources. The OECD (2014) found that constructivist beliefs have a positive relationship with CMSE, and Fackler et al. (2021) confirmed this predictive role.

The literature lacks consensus on the predictive role of these management-related constructs, specifically whether CMB predicts CMSE or vice versa. However, this study views CMSE as an outcome influenced by CMB, which is potentially justifiable. For instance, teachers may believe they can effectively manage classrooms regardless of their overall perspectives. Suppose a teacher believes that student-centered, constructivist, and student-engagement CM approaches benefit students' social-emotional growth compared to reactive CM practices. In that case, they are more likely to gain confidence in successfully implementing those methods.

Conversely, compared to control-based practices, teachers who doubt engaging students in learning to prevent misbehavior may feel less confident designing and implementing interactive activities, even if they believe they possess

adequate CM skills. Efficacy beliefs may also vary across contexts; teachers confident in using authoritarian, disciplinary CM strategies may feel less assured when applying preventive measures. In this way, CMB guides teachers' perceptions of effective practice and influences their confidence in enacting those practices. Supporting this, studies have shown positive correlations between constructivist beliefs and CMSE (Duan et al., 2024; OECD, 2014), with Fackler et al. (2021) highlighting their predictive role in shaping CMSE.

The existing literature highlights that although Bandura's (1997) SCT conceptualizes SE and positions CMSE as an outcome influenced by key experiences, much of the current research has framed CMSE as a predictor of teacher performance, student outcomes, and well-being. For example, Brouwers and Tomic (1999) found CMSE to be significantly related to teacher burnout, but their longitudinal study (2000) showed effects only on depersonalization and personal accomplishment, not on emotional exhaustion.

Expanding on this line of research, Dicke et al. (2015) identified CMSE as both a predictor and a moderator of emotional exhaustion, with its moderating role evident only at low CMSE levels, intensifying the impact of classroom disturbances. Dicke et al. (2018) applied the Job Demands-Resources model in a follow-up study, framing classroom disturbances as job demands and CMSE as a personal resource. Their findings emphasize CMSE's protective role in reducing stress and enhancing teacher engagement, energy, and commitment.

Bandura (1997) also emphasizes that SE, including CMSE, is influenced by personal experiences and social factors, suggesting that it can develop over time. In ITE, CMSE likely evolves through perceived learning opportunities and beliefs about CM. However, despite this theoretical foundation, only a few studies have investigated CMSE as an outcome, particularly in intervention or training effectiveness studies, which aim to enhance teachers' confidence in managing classrooms shaped by ITE experiences and belief systems (Inceçay & Keşli Dollar, 2012; Main & Hammond, 2008; Sciuchetti & Yssel, 2019; Sokal et al., 2013).

Bosch and Ellis (2021) explored the impact of technology-enhanced learning tools, such as avatar-based simulations, on SE. Their study established a significant connection between these interventions and improved TSE in areas such as CM, instructional strategies, and student engagement. These studies provide strong empirical support that CMSE can be fostered as an outcome of ITE, primarily through aligned coursework, teaching practicum experiences, reflective practices, and inclusion-focused CM coursework.

Studies examining CMSE as a predictor are important because they show how effectively CMSE can buffer job demands, reduce emotional exhaustion, and enhance teacher engagement. These findings provide valuable insights for shaping ITE and professional development programs to strengthen CMSE and promote teacher well-being through effective CM. However, research on CMSE as an outcome remains limited, despite its importance in identifying key influencing factors. Such studies are crucial for informing the design of ITE programs that enhance CMSE and better prepare PSTs for effective CM.

Theoretical and Conceptual Framework

This study utilizes the integrated TSE model to elucidate the moderated mediation model (Tschannen-Moran et al., 1998). Although Bandura's (1997) SCT has been extensively employed to clarify TSE through four key sources: mastery experiences, vicarious experiences, verbal persuasion, and physiological/emotional states, it primarily adopts a decontextualized or general perspective. This limitation hinders its ability to thoroughly explain how teachers evaluate their capabilities in specific teaching contexts (Charalambous et al., 2008; Chang, 2009).

In addressing this issue, Tschannen-Moran et al. (1998) proposed an integrated model incorporating three cognitive mechanisms: teachers' cognitive processing, task analysis, and personal teaching competence assessment. These mechanisms mediate efficacy information and TSE, clarifying how contextual factors influence interpreting efficacy-relevant experiences. While some definitions remain broad, the integrated model provides a more nuanced framework for understanding how teacher beliefs and task-specific demands shape SE, particularly in CM contexts (Philippou & Pantziara, 2015).

This extended integrated model incorporates PSTs' perceptions (TP) of ITE, especially the quality and relevance of CM education, as efficacy-related experiences. These perceptions are expected to influence CMSE, particularly ICMSE, through CMBs. Specifically, TBPA and TBRA act as separate cognitive filters that shape how PSTs interpret training experiences and assess their competence in CM.

The study adopts a moderated mediation model, where TBPA mediates the relationship between CM training perceptions and ICMSE (Figure 1). TBRA is proposed as a moderator, influencing the strength or direction of this mediation, which aligns with the idea that belief systems shape learning outcomes and determine how training experiences translate into perceived competence. By integrating cognitive, experiential, and belief-based components, the framework offers a clear basis for understanding how ITE programs support or hinder the development of ICMSE among PSTs, especially in inclusive settings.

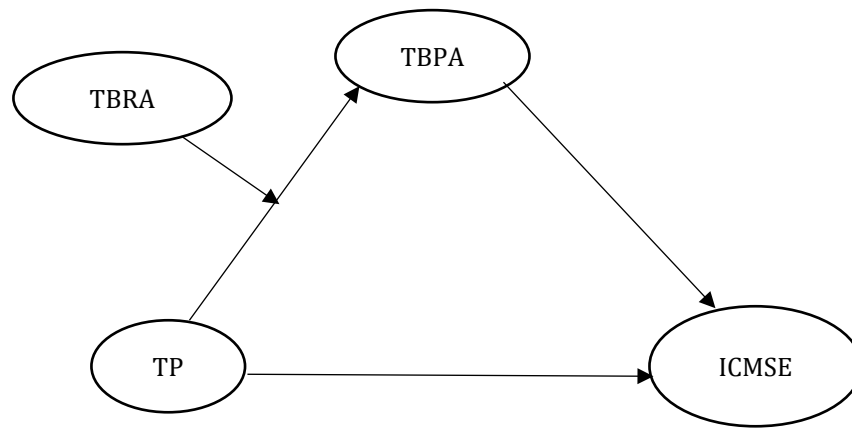


Figure 1. The Conceptual Model Showing a Moderated Mediation

Typically, a moderator contextualizes the mediating effect, either strengthening or weakening, depending on the relationship between the moderator, the mediator, and the endogenous variable. In other words, the indirect effect becomes conditional upon the presence and level of the moderator; the effect is called the conditional indirect effect, which is defined as “the magnitude of an indirect effect at a particular value of a moderator or at particular values of more than one moderator” (Preacher et al., 2007, p.186).

Proactive Beliefs as a Potential Mediator

While previous research has primarily positioned CMBs as an outcome influenced by TSE, the potential for CMBs to function as a mediator remains theoretically and empirically viable. Since teachers' beliefs reflect cognition, motivation, and attitude, CMBs may serve as a cognitive mechanism through which broader constructs can impact specific dimensions of TSE, such as CMSE and associated management practices. This notion is supported by Fackler et al. (2021), who found that CMSE is positively predicted by constructivist beliefs, emphasizing how belief orientations can shape teachers' efficacy in effectively managing classrooms. Therefore, examining CMB as a mediator offers a more nuanced understanding of its role in shaping proactive CMSE rather than viewing it solely as an outcome variable.

Since CMBs are often studied as predictors or outcomes, their mediating role is less explored. Berger et al. (2018) found that constructivist beliefs (aligned with proactive beliefs) mediated the link between teaching experience and CM practices, whereas direct transmission beliefs (aligned with reactive beliefs) did not. This implies that proactive beliefs help clarify how experience shapes CM. In contrast, reactive beliefs may act more as moderators, influencing how background factors relate to CM behaviors, a role that requires further study.

Van den Brink et al. (2024) investigated how teachers manage disruptive classroom behavior and found that those who felt more capable of addressing such behavior were less likely to experience emotional exhaustion. Their mediation study, which focused on special education teachers, demonstrated that these competence beliefs connected students' misbehavior to teacher well-being. Although their work concentrated on in-service teachers, it emphasizes the significant role of CM-related beliefs in shaping how teachers respond to daily challenges. This concept also informs the focus of the present study.

Reactive Beliefs as a Potential Moderator

Since the ongoing use of reactive CM is associated with various adverse outcomes for teachers, including physical and mental health issues, as well as an increased likelihood of attrition, it is essential to understand the mechanisms that influence the impact of these beliefs on ICMSE. For instance, teachers with authoritarian beliefs may approach CM differently from those with democratic beliefs, which could affect how they perceive challenges and implement strategies. Teachers who strongly believe in proactive CM may feel more confident applying strategies that promote students' prosocial behavior and effectively enforcing classroom rules and procedures when their reactive beliefs are weaker, and vice versa. To further explore this understanding, the current study examined the role of reactive beliefs in shaping teachers' convictions about their ability to manage inclusive classrooms, focusing on their perceptions of ITE courses.

This study extends previous findings that examined the mediating effect of CMB on the association between TP and ICMSE. The findings demonstrated a significant partial mediation effect of TBPA; however, TBRA did not serve as a mediator (Yogarane, in press). Since the mediation was only partial, TBPA alone could not fully explain this relationship, suggesting that other external factors, such as psychological or contextual influences, might contribute to this indirect relationship. Thus, this study hypothesizes whether TBRA might moderate the mediating effect rather than serve as a mediator, helping to account for the incomplete relationship.

Although existing literature has extensively explored CMSE, much of this work has primarily emphasized the CMB shaped by PSTs' perceptions of CM training within ITE programs. Many studies have examined the direct relationship between TP and CMSE, yet few have investigated the underlying mechanisms driving this relationship. Notably, the distinct roles of TBPA and TBRA in shaping CMSE remain underexplored. There is a limited understanding of how proactive beliefs contribute to the development of CMSE, particularly when considered alongside reactive beliefs, and whether these beliefs interact to influence CMSE indirectly.

Moreover, most existing research has been conducted in Western contexts, with minimal attention to PSTs' experiences in Sri Lanka. This represents a contextual and developmental gap in the literature, especially regarding how CMSE is cultivated within inclusive environments. Addressing these gaps is crucial for informing more contextually relevant and effective ITE programs.

Consequently, this study is guided by the following research questions: Which proactive ICMSE dimensions and CMB are strongest among PSTs? To what degree do PSTs' perceptions of ITE courses with CM components predict their ICMSE? Do proactive CMB mediate the relationship between PSTs' perceptions of CM-focused ITE and their ICMSE across its various dimensions? Do reactive CMB moderate the indirect effect of perceptions of CM-focused ITE on ICMSE through proactive beliefs? Does the strength of the mediation effect of proactive beliefs differ across varying levels of reactive beliefs (low, moderate, high)?

The findings of this study address these critical research questions and provide valuable insights for improving ITE by demonstrating how proactive beliefs support the development of ICMSE, while reactive beliefs can hinder its growth. By clarifying these belief pathways, the study offers guidance for designing ITE programs that help PSTs cultivate stronger, proactive ICMSE and adopt more inclusive classroom practices.

Methodology

Research Design

This study employed a quantitative, cross-sectional design to examine the moderated mediation effect among latent variables: perceptions, beliefs, and SE in proactive CM. Building on the author's prior research, it specifically investigated whether proactive CMBs among PSTs mediate the relationship between their perceptions of CM-focused ITE courses and their proactive ICMSE, with reactive CMBs functioning as a moderator (Yogarane, in press).

Participants

As this study builds on a previous investigation, it analyzes the same dataset, which includes 480 PSTs enrolled in ITE programs at a state university and National Colleges of Education (NCOEs) in Sri Lanka. Approximately 16% of the participants were from the state university, while 84% were from the NCOEs. The original study received ethical approval and fully adhered to established ethical standards, including voluntary participation, the right to withdraw, respect for participant autonomy, and assurance of privacy and confidentiality. Informed consent was obtained from all participants, encompassing approval for the data to be used in future related analyses. Therefore, no additional ethical clearance was necessary for the present study.

Instruments

The following three instruments were used to collect data: The Tamil Teacher Perceptions (TP) scale, the Tamil Teacher Beliefs (TB) scale, and the Tamil Inclusive Classroom Management Self-Efficacy (TICMSE) scale. The 12-item TP scale was developed and validated in a previous study to assess PSTs' perceptions of their ITE courses, particularly regarding the inclusion of CM components, whether they are embedded or offered as standalone modules (Yogarane, 2025). Exploratory factor analysis (EFA) confirmed the scale's unidimensional structure and demonstrated high internal consistency with a Cronbach's alpha of .914.

The 18-item TB scale, developed and validated in a prior study, was designed to measure PSTs' beliefs about CM. Factor analysis revealed two distinct dimensions: TBPA and TBRA. A confirmatory factor analysis (CFA) supported the two-factor structure of the refined 16-item version, with adequate model fit indices. The scale showed strong internal consistency, with Cronbach's alpha values of .844 for TBPA and .901 for TBRA, and comparable McDonald's ω values (Yogarane, in press).

The 25-item TICMSE scale evaluates the self-efficacy of PSTs in managing inclusive classrooms. It consists of four subscales: Self-efficacy for Promoting Prosocial Behavior (SEPB), Enforcing Classroom Rules and Procedures (SECRP), Reactive Actions (SERA), and Proactive Actions (SEPA). Items were developed based on the literature, validated by experts, and refined through pilot testing. Responses were rated on a six-point Likert scale (1 = strongly agree to 6 = strongly disagree). Confirmatory factor analysis (CFA) indicated a good model fit (CMIN/df = 1.184, CFI = .982, TLI = .980, RMSEA = .030, SRMR = .0478). The scale demonstrated strong psychometric properties with acceptable convergent validity (CR = .86–.91; AVE = .50–.63) and high internal consistency (α = .855–.913; ω = .856–.916), showing excellent reliability for the overall scale (α = .920; ω = .921) (Sakthivel, 2025).

Although initially validated as a four-factor model, this study includes only the SEPB and SECRP dimensions based on theoretical rationale and prior mediation results. Only these subscales showed significant mediating effects, while SERA and SEPA did not. TBRA predicted only SERA, and SEPA was not mediated by either belief type, suggesting limited theoretical relevance. SERA relates to reactive practices, which do not fit well with the model's focus on TBPA as the proactive mediator. SEPA also showed no meaningful results, so it was left out. Leaving out both SERA and SEPA made the model simpler, improved how well it fits the data, and clarified the theory behind it (Hair et al., 2022).

Analysis of Data

A paired-sample *t*-test was conducted to analyze the mean differences between the belief sets of TBRA/TBPA and SECP/SECRP to determine the dominant beliefs PSTs hold regarding CM practices. EFA was conducted using IBM-SPSS (v. 25) on the proactive ICMSE (SEPB and SECRP subscales) with Principal Axis Factoring and Direct Oblimin rotation specifications to determine its factor structure. However, EFA was again conducted to confirm the TP and TB scales' factor structure. All the scales were validated with the help of SmartPLS4 (v.4.1.0.9) outer measurement models.

A moderated mediation analysis was performed to test the hypothesized statistical model (Figure 2) using the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique in SmartPLS 4 (v.4.1.0.9) under the PROCESS option. The analysis was conducted with 10,000 bootstrapping iterations, a one-tailed test, and a 95% confidence interval.

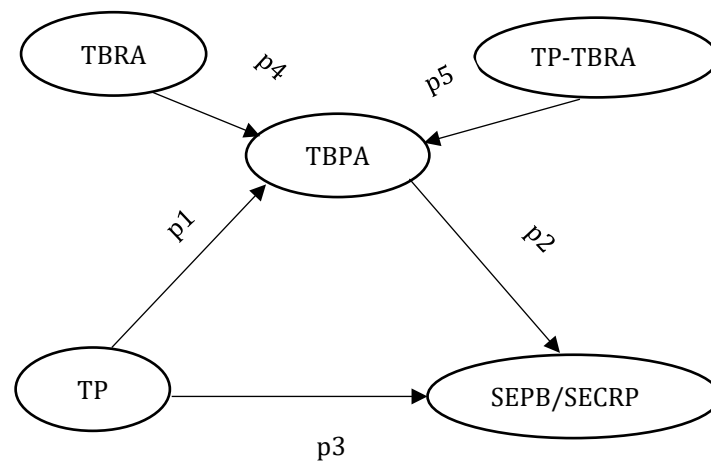


Figure 2. The Statistical Model

Note: p1 – the effect of TP on TBPA; p2 – the effect of TBPA on SEP/SECRP; p3 – the direct effect of TP on SEP/SECRP; p4 – the effect of TBRA on SEP/SECRP in the indirect relationship; p5 – the effect of the interaction of TP-TBRA; $p2 \cdot p5$ – Conditional Mediation Index.

A one-tailed test was used for specific hypotheses, based on strong theoretical foundations and prior empirical findings supporting a clear directional expectation. It was hypothesized that TBRA would negatively predict SEP/SECRP through its inverse relationship with TBPA, aligning with the idea that reactive beliefs limit the development of proactive efficacy. Bandura's (1997) SCT and later models of TSE further endorse this direction, highlighting the importance of cognitive belief systems in shaping efficacy judgments (Tschannen-Moran & Wolfolk Hoy, 1998).

Although two-tailed tests are generally recommended in studies involving exploratory components to reduce the risk of Type I error in either direction, the current hypothesis is explicitly directional. Key paths were re-evaluated using two-tailed significance thresholds to verify the robustness of the findings. The results remained consistent, confirming the theoretical rationale and supporting the appropriateness of the one-tailed test in this context.

The Factor Structure of the Proactive ICMSE, TB, and TP Scales

The EFA revealed a two-factor solution for proactive ICMSE after confirming factorability. The Kaiser-Meyer-Olkin measure was .891, exceeding the "meritorious" cutoff of .80, and Bartlett's Test of Sphericity was significant ($\chi^2(45) = 2374.521, p = .021$). The determinant value was .007, above the minimum threshold of .00001. Kaiser's eigenvalues greater than 1, the scree plot, and parallel analysis all supported the two-factor solution. Standardized loadings ranged from .633 to .803 for SEPB and .713 to .813 for SECRP, surpassing the .50 cutoff (Hair et al., 2019). SECRP explained 46.94% of the variance, SEPB accounted for 19.82%, totaling 66.76%, well above the acceptable threshold of 50% (Fornell & Larcker, 1981; Hair et al., 2019).

The unidimensionality of the 10-item TP scale was confirmed by meeting key factorability criteria. The KMO measure was .933, exceeding the "marvelous" threshold of .90, and Bartlett's test of Sphericity was significant ($\chi^2(45) = 2354.984, p < .001$). The determinant value (.007) exceeded the minimum required (.00001). Factor loadings ranged from .647 to

.754, surpassing the .60 cutoff, and the items explained about 55% of the variance, exceeding the .50 benchmark. These results support the scale’s validity (Hair et al., 2019).

The factor solution for the 16-item TB scale aligns with previous findings (Yogarane, in press). Items loaded adequately onto TBPA (.567 to .690) and TBRA (.605 to .815). The KMO measure was .913, and Bartlett’s test was significant ($\chi^2(120) = 3233.369, p < .001$). TBRA accounted for 35% of the variance, and TBPA for 19%, totaling 48%, slightly below the .50 benchmark. Despite some loadings and total variance falling short, retaining these items is justified given the adequate sample size (Field, 2013; Hair et al., 2019; Tabachnick & Fidell, 2019).

Measurement Model Evaluation

The model (Figure 3) was tested using SmartPLS 4 with the PLS-SEM algorithm. PLS-SEM was chosen for several reasons: it suits prediction-oriented research focused on explaining variance in key constructs like ICMSE and proactive beliefs rather than confirming established theory (Hair et al., 2017; Sarstedt et al., 2017). The study’s complex model, including multiple latent variables, mediators, and moderators, is well-handled by PLS-SEM. Additionally, PLS-SEM is appropriate for small to medium samples and non-normal data, both relevant here.

In contrast, covariance-based SEM requires larger samples and multivariate normality and is better suited for theory testing (Hair et al., 2021). Thus, PLS-SEM provides a robust, flexible approach aligned with this study’s aims and data, consistent with current methodological standards in education and behavioral research (Hair et al., 2017; Hair et al., 2021; Sarstedt et al., 2017).

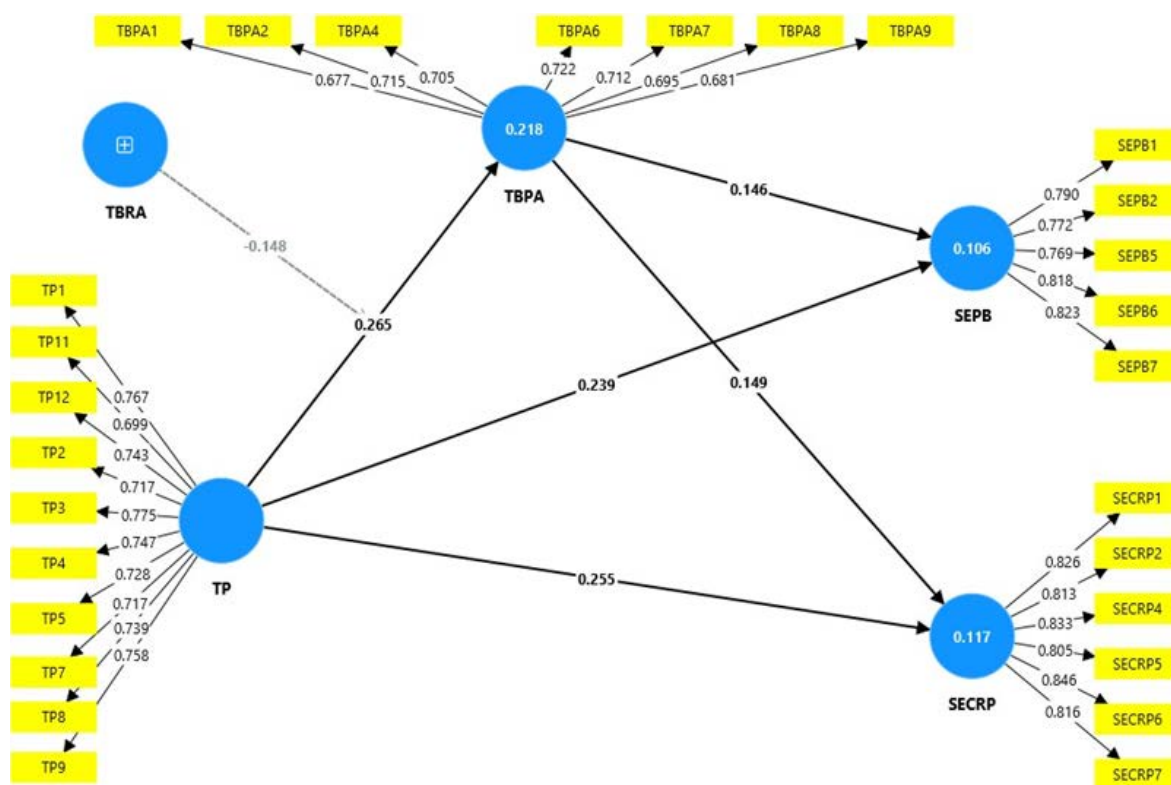


Figure 3. Final Measurement Model

The model fit indices (Table 1) indicate that the Standardized Root Mean Square Residual (SRMR), which assesses the difference between the observed and predicted correlations, is 0.05. This value falls well below the recommended threshold of 0.08, indicating a good model fit (Hu & Bentler, 1999). The Normed Fit Index (NFI), which compares the proposed model to a null model, yielded a value of 0.862. While the value falls slightly below the conventional cutoff of ≥ 0.90 , such thresholds are not rigid criteria in PLS-SEM (Bentler & Bonett, 1980).

Table 1. Model Fit Indices for the Outer Measurement Model

Model Fit Indices	Saturated model	Threshold
SRMR	0.050	$\leq .08$
d_ULS	1.576	Lower is better
d_G	0.421	Lower is better
NFI	0.862	$\geq .90$

Note: SRMR - Standardized Root Mean Square Residual; NFI - Normed Fit Index

Recent literature emphasizes that fit indices like NFI should be interpreted cautiously and in conjunction with other model fit measures (Hair et al., 2022). Given that the SRMR indicates a good fit and the NFI value is relatively close to the recommended threshold, the model fit can still be considered acceptable. Moreover, slightly lower NFI values are uncommon in complex models tested via SmartPLS and do not necessarily indicate poor model fit (Hair et al., 2019).

The moderated mediation model showed strong indicator reliability, with outer loadings exceeding the .708 threshold, except for a few items that were close to it but below this threshold (Hair et al., 2022). The SEPB had item loadings ranging from .769 to .823, SECRP from .805 to .846, and TBRA from .733 to .835 after removing TBRA9 due to its low loading of .577. The TP construct had loadings ranging from .699 (TP11) to .775; however, TP11 was kept since its value was close to the threshold.

Reliability and Validity of the Scale Scores

Table 2 presents the latent factors' construct reliability and convergent validity indices. All reliability measures, including rho_a and rho_c, ranged from .829 to .928, exceeding the .80 threshold, indicating high reliability (Hair et al., 2022). The Average Variance Extracted (AVE) assesses convergent validity by measuring the extent to which a construct explains the variance of its indicators. The AVE values ranged from .492 to .678. Although the AVE for TBPA was slightly below the threshold (.492), it remains acceptable as it is close to the recommended cutoff of .50.

Table 2. Construct Reliability and Convergent Validity of the Scale Constructs

Factors	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
SECRP	0.911	0.927	0.678
SEPB	0.861	0.895	0.631
TBPA	0.829	0.871	0.492
TBRA	0.928	0.916	0.610
TP	0.909	0.923	0.547

Table 3 presents the Heterotrait-Monotrait (HTMT) ratio, which was used to assess the discriminant validity of the scale constructs. The results indicate that all values ranged from .190 to .448, well below the threshold of .85, confirming that discriminant validity is established (Hair et al., 2022; Henseler et al., 2015). Additionally, the Fornell-Larcker criterion, presented in Table 4, further supports this conclusion, as the diagonal values exceed those in the corresponding rows and columns (Fornell & Larcker, 1981).

Table 3. HTMT Ratio for the Latent Factors

	SECRP	SEPB	TBPA	TBRA
SECRP				
SEPB	0.418			
TBPA	0.284	0.279		
TBRA	0.222	0.190	0.345	
TP	0.338	0.330	0.448	0.363

Table 4. Fornell-Larcker Criterion for the Latent Factors

Factors	SECRP	SEPB	TBPA	TBRA	TP
SECRP	0.823				
SEPB	0.373	0.794			
TBPA	0.249	0.240	0.701		
TBRA	0.216	0.175	0.321	0.781	
TP	0.314	0.297	0.394	0.340	0.739

The study intentionally retains certain items, even though their loadings are slightly below the conventional .708 thresholds; their retention is theoretically and statistically justified. Compared to the outer loadings of other latent factors, TBPA had three items with loadings below .708 (.677, .695, and .681), even after omitting TBPA5 due to its poor loading of .622. The Average Variance Extracted (AVE) for this construct is close to the .50 threshold (.492), and Jöreskog's composite reliability (CR; rho_c) exceeds .70 (.871), making the retention of this construct justifiable, as long as it contributes to theoretical validity (Hair et al., 2022).

Moreover, Hair et al. (2022) note that items with loadings between .40 and .70 can be retained if construct reliability and validity remain acceptable. In this model, all constructs show strong composite reliability (CR > .70), and most meet the AVE threshold of .50, supporting convergent validity. For example, TBPA includes three items with loadings of .677, .695,

and .681, yet achieves a CR of .871 and an AVE of .492, which is acceptable. Removing these items would reduce the construct's conceptual depth. Likewise, item TP11 (.699) in the TP reflects a key aspect of PSTs' perceptions and is theoretically important. Its exclusion would limit the scope of the construct. The model has already removed weaker items (TBPA5, TBRA9) with loadings below .60, indicating a balance between theory and empirical evidence. Therefore, retaining slightly lower-loading items maintains the integrity of the constructs without compromising reliability or validity, in line with recommended PLS-SEM practices (Hair et al., 2022; Sarstedt et al., 2017).

Descriptive Statistics and Internal Consistency of the Scale Scores

Table 5 presents descriptive statistics and internal consistency (Cronbach's alpha) for the scales. TP had a mean score of 43.40, indicating generally positive perceptions of teacher training courses with CM components. SEPB scored the lowest mean (19.92), suggesting lower confidence in promoting students' prosocial behaviors. Positive correlations among TP, SEPB, SECRP, TBRA, and TBPA ranged from .162 to .389 ($p < .01$), reflecting weak to moderate relationships. These findings indicate that the constructs are related but distinct, with no multicollinearity concerns, as correlations remained below .70 (Field, 2013; Tabachnick & Fidell, 2013).

Table 5. Scale Reliability and Descriptive Statistics for the Scale Scores

Scales		1	2	3	4	5
1	TPs					
2	SEPB	.291**				
3	SECRP	.305**	.365**			
4	TBPA	.389**	.234**	.244**		
5	TBRA	.322**	.162**	.195**	.294**	
	Number of Items	10	5	6	7	7
	Mean	43.40	19.92	24.49	29.49	28.90
	Standard Deviation	5.408	3.104	4.476	3.354	4.787
	Cronbach's α	.91	.85	.91	.83	.89

Note: **Correlation is significant at the .01 level (2-tailed)

Cronbach's α for the scales showed values exceeding the threshold of .70 (TP = .91, SEPB = .85, SECRP = .91, TBPA = .83, and TBRA = .89), indicating strong internal consistency (Cortine, 1993). This suggests that all items within each scale were highly correlated and effectively measured the constructs they were intended to evaluate. TPs and SECRP exhibited the highest alpha (.91), indicating that these scales are exceptionally robust.

Findings/Results

Mean Differences Between TBRA/TBPA and SEPB/SECRP

The mean comparison showed that PSTs held stronger beliefs in enforcing rules as preventive practices than in promoting prosocial behaviour, $t(479) = 2.78, p < .01, d = 0.13$. They also favoured proactive over reactive CM practices, $t(479) = 2.60, p < .01, d = 0.12$. Although statistically significant, the small effect sizes indicate limited practical significance.

The Direct Effects

The moderated mediation analysis, utilizing the proposed structural model illustrated in Figure 2, yielded the results shown in Figure 4 and Table 5. The results indicate that all direct path coefficients for the relationships among the latent constructs are positive and statistically significant at the .001 alpha level, with t -values exceeding the threshold of 1.645, except for the moderated effect of TBRA on the indirect path ($p7$), which was statistically significant but negative ($b = -0.226; t = 3.300, SD = 0.068, p < .000$).

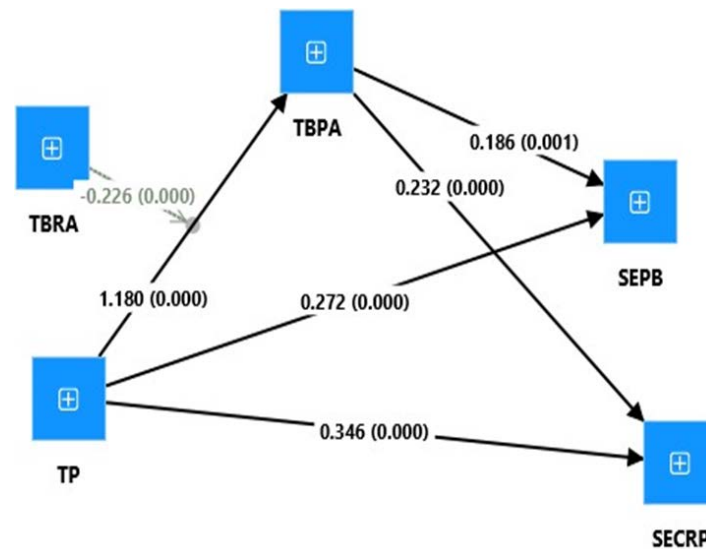


Figure 4. The Structural Inner Model With Path Coefficients and Respective p -Values Specified Within Parentheses

Table 5. Path Coefficients, t -Values, and p -Values

Direct Paths	Coefficients symbols	Unstandardized path Coefficients (b)	t-value	SD	p-value
TP → TBPA	p1	1.180	4.203	.281	.000
TBPA → SEP	p2	.186	3.134	.059	.001
TBPA → SECRP	p3	.232	3.311	.070	.000
TP → SEP	p4	.272	4.718	.058	.000
TP → SECRP	p5	.346	4.885	.071	.000
TBRA → TBPA	p6	1.132	3.626	.312	.000
TP x TBRA → TBPA	p7	-.226	3.300	.068	.000

TP had a direct effect on TBPA (p_1) with an unstandardized coefficient of 1.180 ($t = 4.203$, $SD = .281$, $p < .000$), on SEP (p_4) with .272 ($t = 4.718$, $SD = .058$, $p < .000$), and on SECRP (p_5) with .346 ($t = 4.885$, $SD = .071$, $p < .000$). This statistically significant impact indicates that an increase in TP leads to improved proactive CM beliefs and CMSE. TBPA had a positive and statistically significant influence on SEP (p_2) ($b = .186$, $t = 3.134$, $SD = .059$, $p = .001$) and SECRP (p_3) ($b = .232$, $t = 3.311$, $SD = .070$, $p < .000$), indicating that an increase in proactive CM beliefs is likely to lead to a higher level of proactive CMSE beliefs. The moderator, TBRA, had a positive and statistically significant direct effect on TBPA, with an unstandardized coefficient (p_6) of 1.132 ($t = 3.626$, $SD = .312$, $p < .000$). However, this positive relationship changed when TBRA acted as a moderator and interacted with TP.

The Indirect Effects

Table 6 shows the unstandardized and standardized path coefficients for the mediation effect. The results suggest that this mediation effect is partial, as both the direct and indirect effects are positive and have statistically significant path coefficients. The direct effects were significant, with unstandardized path coefficients of .272 ($t = 4.718$, $p < .000$) for SEP and .346 ($t = 4.885$, $p < .000$) for SECRP. The indirect effects were also significant, with standardized path coefficients of .220 for SEP ($t = 2.335$, $CI: [.089, .400]$, $p = .01$) and .273 for SECRP ($t = 2.348$, $CI: [.114, .507]$, $p < .01$). The partially mediated effect of proactive CMs on the relationship between TP and proactive ICMSE confirms the previous findings (Yogarane, in press).

Table 6. Path Coefficients for the Mediated Effects

Moderated indirect paths	Direct Effects	t-value	Indirect Effects	t-value	CI		p-value
	b-coefficients		β -coefficients		LB	UB	
TP → TBPA → SEP	.272***	4.718	.220	2.335	.089	.400	.010
TP → TBPA → SECRP	.346***	4.885	.273	2.348	.114	.507	.009

Note: b – unstandardized path coefficients; β – standardized path coefficients; CI – Confidence Interval; LB – Lower Boundary; UP – Upper Boundary

The Moderated Mediation Effects

Table 7 presents the conditional indirect effect and moderated mediation (ModMed) indices for SEPB and SECRP. The indirect effect was negatively and significantly moderated by TBRA, with a coefficient of -0.042 ($t = 2.101$, CI: [-.082, -.015], $p < .05$) when SEPB was the outcome variable, and -0.052 ($t = 2.101$, CI: [-.104, -.019], $p < .05$) when SECRP was the outcome variable. This indicates that an increase in TBRA reduces the indirect effect of TP on SEPB and SECRP through TBPA. In other words, when teachers hold strong reactive CM beliefs, the mediating effect of TBPA in this pathway is weakened.

Table 7. Conditional Indirect Effects of TBRA and Moderated Mediation Indices for SEPB and SECRP

Different Levels of TBRA	Conditional Indirect Effects	t-value	CI		p-value
			LB	UP	
Indirect Path TP → TBPA → SEPB					
At the mean level	.047	2.703	.021	.078	.003
Below the mean level (at -1 SD)	.075	2.687	.033	.124	.004
Above the mean level (at +1 SD)	.019	1.376	.001	.047	.084
Moderated Mediation Index- SEPB	-.042	2.101	-.082	-.015	.018
Indirect Path TP → TBPA → SECRP					
At the mean level	.058	2.839	.029	.097	.002
Below the mean level (at -1 SD)	.093	2.765	.045	.156	.003
Above the mean level (at +1 SD)	.023	1.437	.003	.057	.075
Moderated Mediation Index- SECRP	-.052	2.104	-.104	-.019	.018

Beyond statistical significance, the effect sizes found in this study range from small to moderate, indicating a modest yet meaningful practical impact. These findings imply that while TP and beliefs consistently influence ICMSE, the effects develop gradually. Even minor effects are important in education, as they can shape teacher practices over time, emphasizing the need to address reactive beliefs in teacher training.

The Conditional Mediation Effect

The ModMed analysis examined whether the indirect effect of TP on proactive ICMSE (SEPB and SECRP) via TBPA varied across levels of TBRA. The index of ModMed confirmed that the strength of the indirect effect depends on the level of TBRA. For SEPB, the indirect effect was strongest at low TBRA levels ($\beta = .075$, $t = 2.687$, 95% CI [-.124, -.033], $p < .01$) and moderate at the average level ($\beta = .047$, $t = 2.703$, CI [-.078, -.021], $p < .01$), but it became weak and non-significant at high TBRA levels ($\beta = .019$, $t = 1.376$, CI [-.047, -.001], $p > .05$). A similar pattern was found for SECRP, with a slightly more substantial conditional indirect effect (-.052) than SEPB (-.042). This suggests that PSTs may prioritize enforcing rules over promoting prosocial behavior when TBRA is high. TBPA significantly mediates the relationship between TP and proactive ICMSE only at low to moderate TBRA levels. At high TBRA, the mediation weakens, indicating that heavy reliance on reactive strategies suppresses proactive beliefs and reduces proactive ICMSE development. The Johnson-Neyman plot (Figure 5), following Preacher et al. (2007), shows that the positive TP-TBPA relationship holds across all TBRA levels but weakens and becomes non-significant beyond a certain TBRA threshold. This visual evidence supports that strong TBRA diminishes TBPA's mediating role in proactive ICMSE.

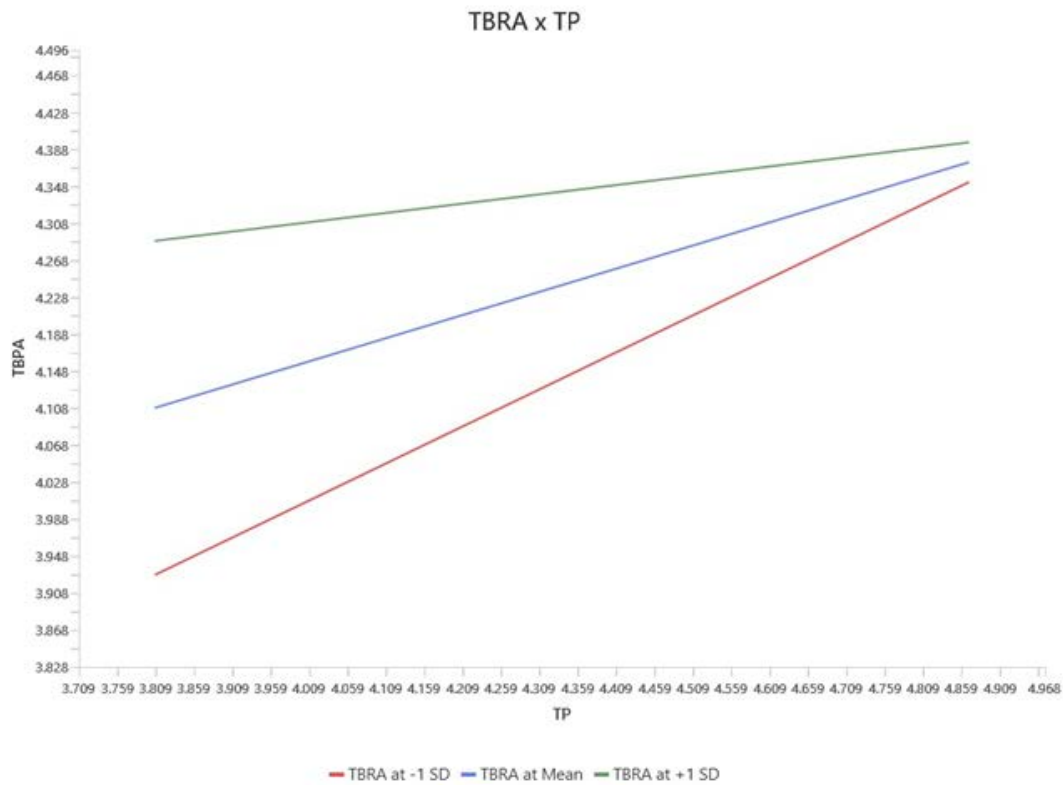


Figure 5. Johnson-Neyman's Simple Slope Analysis of the Interaction Between TP and TBPA at Different Levels of TBRA.

The results show that PSTs' beliefs about responding to student misbehavior negatively influence their confidence in proactively managing an inclusive classroom. Specifically, when teachers strongly believe in using reactive approaches, it diminishes the positive impact of their proactive CMB on their management abilities. However, when reactive beliefs are weaker or moderate, proactive beliefs more effectively enhance their confidence. These findings emphasize the importance of promoting proactive strategies in teacher training to improve CM skills.

Discussion

This study expands on prior research that found teachers' perceptions of ITE courses with CM components partly influence ICMSE through proactive CM beliefs. In contrast, reactive CM beliefs did not mediate as hypothesized. This suggests that proactive beliefs partly explain the relationship, but other factors also play an intermediary role. Therefore, this study tested a moderated mediation model where reactive beliefs serve as a moderator. Results confirmed that low and medium levels of reactive beliefs significantly impact the partially mediated relationship. The discussion section interprets these findings to address the research questions directly.

Dominant Beliefs and Proactive ICMSE Dimensions

PSTs reported higher SECRP than SEPB, likely because managing routines is easier and more emphasized in ITE (Brouwers & Tomic, 2000; O'Neill & Stephenson, 2011). Lower SEPB scores indicate less confidence in promoting prosocial behavior, consistent with findings that TP does not significantly affect SEPB, perhaps because PSTs view prosocial strategies as instructional rather than part of CM (Yogarane, 2025). This underscores the need for ITE programs to explicitly include prosocial behavior to support positive classroom climates and inclusive peer interactions (Main & Hammond, 2008; Simonsen et al., 2008).

The finding that PSTs reported stronger TBPA than TBRA suggests a promising move toward proactive CM, indicating a positive impact of ITE programs. Potter (2019) found that repeated practice with preventive strategies during training increased their use in real classrooms. Likewise, AITSL (2021) stresses preparing teachers to set clear expectations, build relationships, and prevent disruptions. However, this contrasts with earlier research showing that PSTs often retain reactive, punitive beliefs shaped by schooling (Berger et al., 2023; Cho et al., 2020; Pajares, 1992). Stough and Emmer (1998) and Poulou (2007) note that ITE programs sometimes fail to challenge these beliefs and may reinforce traditional control-based approaches. Thus, while the results suggest progress toward proactive beliefs, changes in ITE remain gradual and uneven.

Direct Effect of TP on ICMSE

PSTs need positive perceptions of their ITE programs, especially regarding CM content and training, to boost their confidence in applying CM strategies effectively. This study supports that view by showing that TP significantly affects proactive ICMSE. Similar findings were reported by Sokal et al. (2013), who noted improved PST perceptions when CM content was included in coursework. Likewise, Bosch and Ellis (2021) found that structured CM training in simulated environments enhances PSTs' confidence, echoing the current study's results.

Sciuchetti and Yssel (2019) also found that structured coursework and field experiences significantly boost PSTs' CMSE. According to Bandura's SCT (1997), these experiences provide key sources of efficacy: mastery and vicarious learning, social persuasion through feedback, and reduced anxiety supporting positive emotions. Likewise, this study suggests that when PSTs perceive CM coursework as meaningful and relevant, their confidence in applying proactive, inclusive strategies grows. This highlights the need for CM training that engages multiple sources of self-efficacy to better prepare PSTs for inclusive classrooms.

Proactive Beliefs as a Potential Mediator

Within the moderated mediation model, TP positively and significantly influenced proactive CMBs, suggesting that PSTs with favorable views of their ITE courses with CM components are more likely to develop proactive beliefs. This finding aligns with Yılmaz and Huyugüzel Çavaş (2008), who reported that while PSTs' science TSE was not significantly shaped by their teaching practicum, their broader beliefs about science teaching were. Although subject-specific, these findings suggest that teaching experience may shape overall pedagogical beliefs, including CM, even if it does not directly strengthen TSE. This highlights the importance of ITE in shaping how PSTs approach CM beyond just building efficacy.

Despite this study highlighting the predictive role of PSTs' proactive beliefs in shaping their proactive CMSE, it contrasts with earlier literature on CMB and TSE. Specifically, studies by Good (1981) and Henson (2001) found an inverse relationship, which warrants further discussion. Notably, research on SE, a foundation for much of the inquiry into factors influencing successful inclusion, began to gain prominence in the 1980s following Bandura's (1977) introduction of SCT.

Interest in this area grew following the landmark study by Tschannen-Moran and Woolfolk Hoy (2001), resulting in a heightened focus on TSE. This excessive emphasis on TSE may overshadow the broader and more fundamental concept of teacher beliefs, which could offer a more comprehensive understanding of teachers' classroom practices than TSE's task- and context-specific perspective. However, more recent findings, such as those from Duan et al. (2024) and Fackler et al. (2021), align with the current study's results and demonstrate the positive association between constructivist beliefs about teaching (an orientation closely linked to proactive CMBs) and their predictive role in promoting CMSE.

Similarly, recent research by Woodcock et al. (2023) has demonstrated that CMB can predict TSE. Their study found that teachers who strongly believed in inclusion tended to report higher TSE across all areas, including CM. Although the belief was measured using a single yes/no question, the findings highlight the important role of CMBs in shaping TSE. These studies suggest that CMB is not just a result of efficacy but may also be a key factor influencing overall TSE. Such beliefs are likely essential in helping teachers apply ICMSE to real CM practices.

The mediation effect in this study supports the TSE integrated model, which emphasizes that efficacy develops through task analysis and self-evaluation (Tschannen-Moran et al., 1998). In this process, TP serves as an efficacy-relevant input, while proactive beliefs act as cognitive filters shaping how PSTs interpret classroom demands. The partial mediation indicates that although proactive CMBs influence ICMSE, they do not fully account for the effect of TP. Early in training, PSTs often lack mastery and vicarious experiences, which are key sources of efficacy, and may rely more on perceptions and emerging beliefs than on performance-based confidence. Coursework alone is insufficient to build strong inclusive management SE, suggesting that proactive beliefs begin to influence ICMSE but likely interact with other unmeasured factors that become more important as PSTs gain experience.

However, some studies challenge this mediation effect, showing that TP has a greater influence on reactive, rather than proactive, ICMSE, as indicated in models without mediators (Yogarane, 2025). When TBPA acted as a mediator, PSTs' ICMSE shifted from reactive to proactive (Yogarane, in press). This may be because PSTs often enter ITE with the naive belief that CM mainly involves controlling misbehavior. These beliefs can gradually change to favor proactive approaches as PSTs develop positive views of their ITE programs, which may then strengthen their proactive ICMSE. Supporting proactive CMBs seems essential for promoting this teacher outcome.

Reactive CM Beliefs as a Moderator

This study confirmed the moderating role of TBRA, showing that PSTs' belief systems influence their interpretation of classroom demands. The integrated model suggests that SE develops through belief-based processes. Reactive beliefs can weaken the impact of proactive training by affecting how PSTs evaluate their competence, limiting the effectiveness of proactive strategies. While proactive beliefs help in viewing inclusive CM as manageable, strong reactive beliefs may cause doubt and reduce the influence of proactive beliefs on ICMSE. This demonstrates how conflicting beliefs can erode confidence, even with supportive training.

Conditional Indirect Effect of Reactive Beliefs

Reactive beliefs significantly moderated the relationship between proactive beliefs and ICMSE at low and medium levels, but this effect diminished at high levels of reactive beliefs. One possible explanation is that strong reactive beliefs may lead PSTs to disregard proactive strategies, resulting in consistently low SE regardless of proactive belief strength—a potential floor effect that limits variability. Alternatively, at extreme levels, reactive beliefs may override other cognitive influences, reducing the relevance of proactive beliefs in shaping efficacy. Future research should further examine these dynamics.

This finding aligns with Berger et al. (2018), who found that reactive, direct transmission beliefs moderate how other beliefs, including constructivist beliefs, influence CM rather than mediate directly. According to the integrated model, TSE develops through task analysis and self-assessment, shaped by belief systems. Reactive beliefs can limit teachers' confidence in proactive strategies, thus weakening the mediation effect. These results highlight the need to address reactive beliefs in teacher education to enhance self-efficacy development.

This study contributes to the existing literature by introducing a moderated mediation model that clarifies the interplay between teacher perceptions, proactive and reactive CMBs, and ICMSE. While previous studies have examined these constructs in isolation, this model demonstrates how proactive beliefs serve as a pathway through which perceptions shape ICMSE and how reactive beliefs condition this pathway. This nuanced approach offers a deeper understanding of why positive perceptions of ITE with CM training may not always translate into strong management SE beliefs, especially when reactive orientations are present.

Conclusion

This study showed that PSTs' reactive beliefs indirectly reduce the positive effect of their perceptions of CM education on proactive ICMSE through the mediation of proactive beliefs. The findings also identified a belief pattern linked to lower CMSE; those with stronger reactive beliefs, which favor punitive strategies, tended to report less confidence in proactive management. These results emphasize the importance of addressing belief orientations in ITE to boost PSTs' confidence and readiness for inclusive CM practice.

Recommendations

This study has important implications for teacher preparation, professional development, school reform, and public perceptions of teacher education. ITE programs must focus on strengthening PSTs' proactive CMBs, which are broader and more transferable than the often overemphasized, context-specific TSE. Policy and practice need to work together to address this issue. Policymakers should ensure that ITE programs offer structured, targeted practicum experiences in diverse and inclusive classrooms, where PSTs can implement proactive management strategies with guided supervision. Additionally, ITE curricula should explicitly emphasize developing ICMSE, which is more closely connected to effective CM practices and long-term teacher well-being.

Teacher educators should provide evidence-based training that addresses diverse student behaviors, strengthens proactive beliefs, and reduces reliance on reactive strategies. PSTs need practical skills such as building positive teacher-student relationships, providing antecedent attention, increasing student participation, and involving parents—approaches that support social and prosocial development (Graves, 2020; Pas et al., 2015). ITE programs must offer sustained feedback, reflection, and practical experiences with students who have severe behavioral challenges to reshape PSTs' CMBs.

In teacher preparation, ITE programs must embed meaningful, sustained feedback and reflective opportunities throughout the practicum and coursework to help PSTs critically examine and reshape their initial beliefs about CM. Practical experiences with students who present severe emotional and behavioral challenges are significant for developing both preventive strategies and, when necessary, individualized corrective approaches.

This study also highlights the need for future research to focus more specifically on ICMSE, which better captures the competencies required for managing diverse, inclusive classrooms than general TSE. Future investigations should examine how proactive-focused ITE programs influence PSTs' beliefs, ICMSE, and CM practices and the long-term impact of structured, reflective interventions in shifting reactive beliefs toward preventive approaches.

Limitations

This study's findings should be interpreted considering its inherent limitations. First, the generalizability of the results is limited because the study sample comprised only Tamil-speaking participants. Data were collected using instruments developed in Tamil, one of Sri Lanka's native languages. These factors raise concerns about the findings' applicability to non-Tamil-speaking populations.

The persistence of partial mediation, even after introducing reactive beliefs as a moderator, indicates that other unmeasured variables may contribute to developing ICMSE. Factors such as peer discussions, mentorship, school culture

during the practicum, personality traits (e.g., openness or resilience), and prior exposure to children with SEN could directly influence ICMSE. Future models may benefit from the inclusion of these additional variables.

Although reactive beliefs serve as a moderator, the interaction between proactive and reactive beliefs might be more complex than the current model indicates. PSTs may hold conflicting beliefs at the same time, showing proactive tendencies in some situations and reactive tendencies in others, which could obscure the clarity of the indirect pathways. Since the present model does not fully capture this dynamic interplay, future research should explore the dual-pathway nature of proactive and reactive beliefs to provide a more detailed understanding of their impact on ICMSE.

Ethics Statement

This study utilized data from the author's previous research, which received ethical approval. All participants provided informed consent.

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Conflict of Interest

None.

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None.

Generative AI Statement

As the author of this work, I used the AI tool Grammarly to edit the language. After using this AI tool, I reviewed and verified the final version of the work. As the author, I take full responsibility for the content of my published work.

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