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# How Do Pre-Service Teachers Perceive Their Teacher Education Courses? The Impact on Inclusive Classroom Management Self-Efficacy

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**Abstract**

In the successful implementation of inclusive education, classroom management (CM) is considered one of the significant tasks of teachers to ensure that the classroom is supportive and conducive to students' academic and social-emotional development. However, CM has become a challenge for pre-service teachers (PSTs) due to accommodating more learners with unique and diverse needs in regular classrooms. It is a mandate of the teacher education institutions to prepare PSTs with adequate knowledge and competence to manage inclusive classrooms effectively; however, how adequately they are prepared to perform this task is a persisting question. Using a descriptive survey design, this study mainly focused on how pre-service teachers' perceptions of the courses offered by the teacher education programs that included coursework related to CM impact confidence in their ability to manage inclusive classrooms. Online data were collected from 243 PSTs from the teacher education institutions of Sri Lanka by administering the Tamil Inclusive Classroom Management Self-Efficacy scale and the Teacher Perceptions of Teacher Training Courses scale. Data were analyzed using structural equation modelling, and results show that teachers' increased perceptions affected their reactive CM actions more than other CM strategies. The study suggests more focused attention on the multifaceted aspects of CMSE by emphasizing the developmental nature of students' appropriate behaviour rather than relying on correcting disruptive behaviours to enable inclusive, student-friendly classrooms, thereby ensuring equality of educational opportunities for all.

**Keywords:** classroom management, misbehaviour, inappropriate behaviour, self-efficacy, teacher perception, pre-service teachers

## 1. Introduction

Classroom management (CM) has become increasingly challenging as regular classrooms accommodate more learners with unique and diverse needs (Eisenman, Pleet, Wandry & McGinley, 2011). Regular classroom teachers are the key to the effective implementation of CM practices to ensure better academic gains (Marzano & Marzano, 2003). They are expected to adapt their CM approaches, requiring individualized attention and strategies that meet the diverse needs, to create an environment that fosters effective teacher-student relationships (Florian, 2014; Hattie, 2009; Tomlinson, 2014; Wubbels, Brekelmans, Tartwijk & Admiraal, 1999). Nevertheless, they often rely on traditional, reactive CM strategies, including disciplinary measures to control students' misbehaviour in a mechanical, authoritarian manner to enforce obedience, which appears ineffective in addressing the diverse needs of all students (Doyle, 1986; Pianta, Hamre, & Allen, 2012; Weinstein, Tomlinson-Clarke & Curran, 2004; Wong & Wong, 2009).

A broad view of CM includes the idea of creating a positive learning environment through reactive and preventive/proactive teacher actions, guided by established rules, procedures, and regulations that foster learners' academic and social-emotional development (Emmer & Stough, 2001; Marzano, Marzano, & Pickering, 2003). The conceptualization of CM in the literature highlights inconsistencies that can often arise from differing perspectives on what CM entails, depending on different theoretical frameworks. The traditional view of CM, tracing back to the early 20th century when behaviourist schools of thought influenced CM studies, focused on maintaining discipline and order to reduce classroom inappropriate behaviors (Freeman, Simonsen, Briere & MacSuga-Gage, 2014; Garrett, 2008). In the 1960s and 1970s, CM studies began to gain momentum with Jacob Kounin's (1970) study, summarizing that good CM was based on teacher behaviours, not student behaviours, and contemporary studies were substantially influenced by this seminal work to transition from focusing on reactive strategies to preventive strategies (cited in Emmer & Stough, 2001).

In the 1980s, CM became a well-defined area of research, particularly with studies by Brophy (1982) and Doyle (1986), whose focus were on various predictors of CM, including monitoring student behaviour, communicating clear

expectations, keeping students engaged in academic tasks, and minimizing disruptions for student achievement gains. Additionally, Emmer, Evertson and Anderson's (1980) study emphasized the importance of teacher preparedness and effective classroom routines. In the 1990s, CM studies expanded to include more inclusive practices and differentiated strategies to meet diverse student needs (Tomlinson, 2001).

A contemporary perspective, entailing holistic practices, aligning with the constructivist approach, focusing on student-centered learning, includes creating an optimal learning environment by fostering student engagement and building student-teacher relationships to ensure students' social-emotional development (Marzano & Marzano, 2003). Given the importance of preventive and reactive approaches as critical elements of CM, although preventive strategies are considered more effective than reactive ones, and considering the contemporary view of CM, the present study operationally defined CM as the actions teachers take to address student disruptive behaviours, prevent these behaviours before they occur, enforcing classroom rules and procedures and fostering student prosocial behaviour to ensure creating an environment that is conducive for student learning and achievement (Korpershoek, Mouw & de Boer, 2022; Marzano et al., 2003).

*1.1 Why Is Classroom Management Important?*

CM is the keystone in achieving the ultimate goal of schooling in nurturing students with academic and social-emotional development (Korpershoek, Harms, de Boer, van Kuijk & Doolaard, 2016; Marzano & Marzano, 2003). Effective CM has been reported to have improved student engagement, reduced disruptive behaviours, and increased instructional time (Emmer & Stough, 2001; Marzano et al., 2003; Oliver, Wehby & Reschly, 2011; Simonsen, Fairbanks, Briesch, Myers & Sugai, 2008). Teachers who spend more time on instruction than addressing students' inappropriate behaviours are more likely to improve quality interactions with students, allowing them to receive constructive feedback about the effectiveness of their instruction and to tailor that instruction to meet the various needs of different students (Wang, Haertel & Walberg, 1993).

In a comprehensive literature review conducted to identify the salient variables affecting school learning, using evidence accumulated from 61 educational expert ratings, 91 meta-analyzed studies, and 179 content-analyzed handbook chapters (narrative reviews), Wang et al. (1993) showed that of the 30 variables related to school learning (categorized into six theoretical constructs), including classroom practices, CM had a significant effect on student learning and achievement. It is noted that this classic study has become the basis for other subsequent studies that attempted to examine the predictors of student learning. It is certainly noteworthy that while the CM variable, constituting 'minimal classroom disruptions', 'group alerting', 'learner accountability', 'transitions', and 'teacher with-it-ness', categorized under the classroom practices in this study, the 'student-teacher social interactions' variable, was treated differently from the CM variable. However, in contemporary studies, when conceptualizing CM, the caring and supportive student-teacher interaction variable has been included as one of the constituents and or a moderator of CM, which is a prerequisite to creating and maintaining a learning environment conducive to student learning (Hattie, 2009; Korpershoek et al., 2016; O'Neill & Stephenson, 2011a).

Marzano et al.'s (2003) meta-analysis reviewed 100 studies published for decades to identify effective CM strategies promoting student success. They found that of the four management factors: rules and procedures, disciplinary interventions, student-teacher relationships, and mental set, classrooms with high-quality student-teacher relationships had a significantly high effect, with fewer disciplinary problems, rule violations, and related issues over a year compared to the classrooms which had no such relationships. Another meta-analysis by Seidel and Shavelson (2007) summarized teaching effectiveness studies, focused explicitly on how CM contributes to student learning and achievement, and showed that CM is consistently one of the strongest predictors of student achievement. Teachers who effectively manage classroom dynamics and establish clear rules and routines are better able to foster student success.

A recent study by Hattie's (2009) meta-analysis did not exclusively focus on CM; rather, it synthesized a wide range of educational practices, including CM, and their impact on student achievement. CM was identified as one of the key factors influencing student success. Hattie ranked it among the top influences on learning, noting that effective management promotes a positive environment where students can engage and succeed. Given the importance of various CM strategies, a more recent meta-analysis by Korpershoek et al. (2016), using 54 random and non-random controlled intervention studies published between 2003 and 2013 and examining the effects of various CM strategies and programs on primary students' academic, behavioural, social-emotional, and motivational outcomes, found that the strongest effects were on social-emotional development with no impact on motivational outcomes.

A more recent longitudinal study, undertaken by Garrote et al. (2020) using 34 general education teachers taught in 34 classes with 580 students from nine cantons in two linguistic regions of Switzerland aimed to determine whether teacher attitudes toward inclusion predict their CM practices (enforcing classroom rules and time management), and students' social acceptance in the peer group. Path analysis was done using a multilevel SEM in the R package lavaan .60-5. Student

level of social acceptance was assessed at the beginning and the end of the school year. Video recordings of teaching mathematics were analyzed for successful time management and consistent implementation of clear rules, considering indicators of effective CM practices. Findings showed the significance of effective CM for student social acceptance in the classroom, while teacher attitudes toward inclusion did not predict CM practices. In addition to the positive association between CM and student academic outcomes, this finding added to the literature that CM affects student social acceptance.

*1.2 How Are Pre-service Teachers Prepared with CM Competence?*

For years, the literature has emphasized that pre-service teachers (PSTs) must be prepared with adequate CM skills alongside instructional skills, intertwining to maximize classroom instruction to ensure quality education (Emmer & Stough, 2001; Gore & Parkes, 2007). To become effective instructors, teachers must learn to manage instruction and behavior effectively (Stough & Montague, 2015). Because teacher educators are responsible for preparing PSTs with these pedagogical skills, they are typically expected to develop PST training programs that include CM content in curricula, either stand-alone or embedded within other courses. In considering CM content in the curriculum, Stough (2006) asserted that because the focus of CM is primarily pedagogic, it does not correspond to a specific content area and thus does not neatly fit into the curriculum.

In general, universities offer PST training with degrees for those who aspire to become professionally qualified graduate teachers in addition to teachers' colleges, which traditionally contributed to providing initial teacher training programs. A common feature among these teacher education programs is its semester-long subject-oriented coursework, which includes various academic subjects, for instance, mathematics, science, etc., and a pedagogical component that typically focuses on various professional subjects, including CM. One of the critical components of the teacher education curricula is the teaching practicum, an off-campus internship specially designed to offer PSTs direct school experiences alongside coursework during their final year of teacher training under the supervision of teacher educators (Stough & Montague, 2015).

Studies have demonstrated a lack of consistency across teacher preparation programs in the type of CM content to be integrated into the teacher preparation curricula, the extent to which it is provided, and how it should be taught (O'Neill & Stephenson, 2011b; Stough & Montague, 2015). Part of that can be attributed to the mistreatment of "management" in the context of teacher education, and "this mistreatment derives in part from a misunderstanding of pedagogy" (Gore & Parkes, 2008, p.1). Many university teacher education programs rarely have a stand-alone CM course within their curricula (Oliver & Reschly, 2010). Even more striking, when CM content was covered as a stand-alone course, it specifically focused on how to manage physical aspects of the classroom, for instance, the organization of the physical environment, rather than students' psychological dimension, which includes creating positive student-teacher interactions, sustaining student on-task behaviours, and adopting psychological strategies to mitigate students' persistent psychological problems. These variables are more relevant to educational psychology (Freeman et al., 2014). In addition, some literature argues that PSTs were exposed to CM/ behaviour management only through the contents embedded within teaching method units (Emmer & Stough, 2001; O'Neill & Stephenson, 2014).

Teachers must perceive their preparatory courses positively to bridge the gap between the content acquired during on-campus training and actual classroom environments (Flores & Day, 2006). Equally important is focusing on CM skills during pre-service training alongside instructional skills (Emmer & Stough, 2001). For Tomlinson (2001), "A benchmark of teacher development is the point at which the teacher has become secure and comfortable with classroom management" (p. 2). The evidence-based recommendations are highly influential for teacher educators focusing on training by providing instructional approaches for CM through coursework and guided practice with feedback enabling teachers to adopt various CM strategies rather than resorting to exclusive reliance on disciplinary actions, as no single strategy is effective for the classroom filled with a diverse range of learners (Korpershoek et al., 2016; Oliver & Reschly, 2007).

Teachers are often criticized for inadequate preparation in CM skills (Freeman et al., 2014; Junker, Gold & Holodynski, 2021; Meister & Melnick, 2003; Oliver & Reschly, 2007). Poor CM can negatively impact students' overall well-being and raise stress and burnout levels among teachers (Aloe et al., 2014; Brouwers & Tomic, 2000; Emmer & Stough, 2001; Friedman & Farber, 1992). Novice and PSTs are more concerned about CM than in-service teachers when classrooms contain students with disruptions and distractions (Meister & Melnick, 2003; Oliver & Reschly, 2007; O'Neill & Stephenson, 2011b; Yogaranee, 2024). When teachers are preoccupied with managing disruptive behaviors, students' valuable learning time and space are lost (Brouwers & Tomic, 2000; Clunies-Ross et al., 2008; Oliver et al., 2011). Considering the various CM strategies implemented in classrooms, Clunies-Ross and colleagues' findings also revealed that the predominant use of reactive CM approaches contributed significantly to increased teacher stress and students' off-task behaviours. The ongoing dilemma between teachers' knowledge and skills in CM and their confidence in using those skills led to a sense of inadequacy and inefficiency among them. This growing issue raises the question of what makes teachers feel unprepared.

*1.3 How Does Classroom Management Self-efficacy (CMSE) Develop?*

An extensively researched topic over the past few decades in preparing PSTs for IE is related to the self-efficacy of Bandura's (1997) social cognitive theory. Bandura conceived self-efficacy as one's belief in his/her capabilities to master the situations to attain designated outcomes. Among the many theories proposed over the years about the centrality of control in human lives, Bandura's social cognitive theory is believed to comprehensively explain, within a coalesced conceptual framework, the sources of personal efficacy, their structure and function, the processes by which they function, and their assorted effects. Accordingly, people's thought processes, feelings, and actions are based more on what they believe than on what is objectively the case (Santrock, 1997).

In his efficacy expectations model, Bandura (1997) shows four major sources: performance accomplishments, vicarious (observational) experience, verbal persuasion, and emotional arousal, from which people acquire information to raise their self-efficacy. Performance accomplishment refers to the experiences people gain when they take on a new challenge and are successful at doing so, which is especially influential because it is based on personal mastery experiences. In attempts to raise efficacy expectations, verbal persuasion is widely used because of its ease and readily available. However, efficacy expectations raised in this way are also likely to be weaker than those raised from one's accomplishments, as they do not provide an authentic experiential base for them. In the development of self-efficacy, the emotional arousal or the physiological state appears as another constituent source of information that can affect efficacy beliefs in coping with aversive conditions. (Santrock, 1997).

The concept of teachers' self-efficacy (teachers' sense of efficacy- TSE) is largely grounded in Bandura's (1997) concept of self-efficacy, which is defined as teachers' beliefs about their capabilities to effectively produce prospective performances that exercise influence over events that affect their professional activities (Guskey & Passaro, 1994; Tschannen-Moran & Woolfolk Hoy, 2001). More specifically, it refers to teachers' judgments of abilities that influence student performance (Tschannen-Moran, Hoy, & Hoy, 1998). High teaching efficacy prepares teachers to maintain high academic standards, focus on academic instruction, monitor student on-task behavior, and develop friendly, non-threatening relationships with low-achieving students (Ashton, Webb & Doda, 1983). Highly efficacious teachers tend to be more systematic and demonstrate better instructional skills, including questioning, explaining, providing constructive feedback to students with difficulties, and guiding students on task. Also, they are more likely to divide the class into small groups rather than teaching the whole class, providing more opportunities for individualized instruction (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2001). They are very committed to teaching and helping all students reach their potential.

*1.4 Why Is a Separate Study Important for CMSE?*

CMSE is defined as teachers' beliefs in their capabilities to effectively managing classroom behaviors, creating a positive learning environment, and maintaining order while addressing the diverse needs of students (Wolters & Daugherty, 2007). This definition describes the unique characteristics of the CMSE concept, specifically targeting teachers' confidence in implementing CM strategies and describing how they approach the challenges of CM, promoting students' academic and social-emotional development, which is different from the concept of TSE, which is broader and describing teachers' beliefs about teaching effectiveness in general, including subject knowledge and instructional skills.

Although the CMSE is domain-specific, specific to tasks and situations, most previous studies have relied heavily on assessing this construct by considering one of the domains of the TSE, as in the study by Tschannen-Moran & Woolfolk Hoy (2001), where TSE was conceptualized consisting of three main domains: instructional strategies, CM, and student engagement. They defined efficacy for CM as teachers' beliefs that they can maintain an orderly, organized, distraction-free classroom environment (Wolters & Daugherty, 2007). Many subsequent studies have adopted the same conceptualization in assessing TSE and its predictability for various student variables, including their academic performances. In line with this, in a recent study by Sharma et al. (2011), self-efficacy in managing student behaviour was considered one of the three domains of teacher efficacy for inclusive practices.

Conducting CMSE studies separately from the studies of TSE is important for several reasons. First, focusing on the specificity of CMSE allows teacher educators to develop more focused professional development programs that address the specific challenges PSTs face in managing inclusive classrooms (Dicke et al., 2014). Teachers may have strong beliefs in their teaching capabilities; however, this does not guarantee the successful implementation of CM practices. Second, understanding factors that influence CMSE may differ from factors affecting TSE. For instance, experiences of student misbehaviour can significantly impact one's confidence in CM, independent of instructional skills. Third, separate studies can yield more precise data without diluting the validity of the findings, allowing clearer insights into how each construct affects student outcomes. Fourth, increasing the specificity of the CMSE construct, for instance, by treating it as a multifactorial construct, allows teacher educators to identify specific areas where PSTs feel less confident and provide them with more effective support and resources, enhancing PSTs' abilities for the effective implementation of various CM strategies in their inclusive classrooms.

Earlier studies categorized the actions teachers take in dealing with students' inappropriate behavior into preventive, for example, keeping order, enacting rules and procedures, and reactive, for example, implementing disciplinary interventions without having a systematic classification that covers the whole range of CM dimensions (Korpershoek et al., 2016). As these classifications underrepresented the concept of improving student behavior, Korpershoek and colleagues proposed a comprehensive classification of teachers' CM actions, in which they highlighted students' self-regulated behavior and socio-emotional development, including the development of their social skills as effective interventions for CM, in addition to reactive and preventive/proactive strategies. By embracing this categorization, the present study found the concept of CM by including four facets: reactive and proactive actions of PSTs, and the actions they take to improve students' prosocial behaviour and enact classroom rules and procedures. In a similar tone, ICMSE is defined as PSTs' belief in their capabilities to implement these actions in inclusive classrooms.

Previous empirical studies supported the development of CMSE through continuous learning and experiences (Tschannen-Moran & Hoy, 2001). A substantial number of studies conducted in the context of IE documented the significant role that initial teacher education/training plays in developing the CMSE of PSTs. The impact of real classroom experience (practicum) of PSTs gained during their initial teacher training on self-efficacy in behaviour management strategies was investigated by Main and Hammond (2008) using the Behaviour Management Self-Efficacy Scale with a cohort of PSTs in their third year of a four-year Bachelor of Education degree from an Australian university. Findings showed a higher increase in their self-efficacy level from a high level after completing the practicum.

A study by Sokal, Woloshyn and Funk-Unrau, (2013) in the Canadian context investigated, using a pre and post-test design, the impact of completing a mandatory IE course on confidence, concerns, and self-efficacy of 60 PSTs about teaching in inclusive classrooms. The study also examined whether practicum played a significant role in the development of CMSE. The findings showed a statistically significant gain in the mean scores for knowledge of IE laws, confidence, and self-efficacy and a statistically significant decrease in concerns subscale mean scores. Furthermore, those who had experienced practicum with coursework showed a greater gain in classroom management efficacy subscale mean scores than those who did not.

Similarly, O'Neill's (2015) longitudinal study aimed to assess the changes in the CMSE of PSTs between pre and post-coursework completion. More specifically, a course on managing challenging student behaviours in inclusive classrooms was introduced for a semester. The change in classroom management sense of efficacy was assessed at four time- points using the 8-item Classroom Management Sense of Efficacy subscale of the 24-item Teachers' Sense of Efficacy Scale by Tschannen-Moran & Woolfolk Hoy (2001) with a small sample of Australian pre-service primary teachers. The findings showed a significant gain in subscale mean scores across intervening time points. Post-hoc tests revealed a statistically significant increase in the classroom management sense of efficacy between post-professional experience and post-coursework compared to pre-coursework and pre-professional experience.

### *1.5 Objectives and Hypotheses*

Managing inclusive classrooms has become a challenge with the increased number of children with diverse needs in regular classrooms. The core responsibility of prospective teachers is to address these needs adequately and appropriately to ensure equality of educational opportunities for all children. Nevertheless, teachers found their preparation for managing inclusive classrooms inadequate and felt more concerned about students' diversity, specifically in dealing with student misbehaviour, having implications for teacher education, and allowing teacher educators to prepare them equipped with adequate CM skills. As CMSE is influenced by classroom experiences and teachers' perceived preparedness, this study is important in addressing this issue.

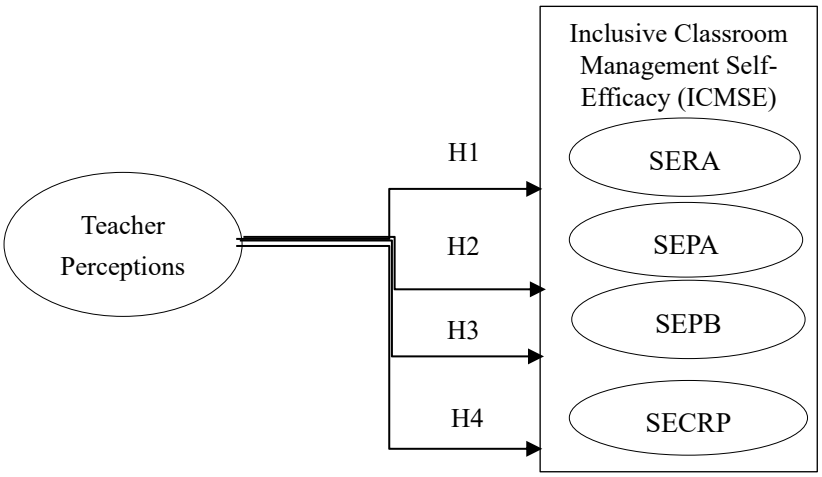


Figure 1. The proposed structural model used for hypothesis testing

Notes: SERA - self-efficacy for implementing reactive strategies to deal with students' misbehaviour; SEPA - self-efficacy for implementing proactive strategies to prevent students' misbehaviour; SEPB - self-efficacy for implementing strategies to improve students' prosocial behaviour; SECRP - self-efficacy for enacting rules and procedures to regulate students' misbehaviour.

Thus, the main purpose of the present study is to determine to what extent teacher perceptions of teacher training courses that captured the concept of CM impact on the four dimensions of inclusive classroom management self-efficacy (see Figure 1). The objectives guide to this study are 1) to assess the levels of perceptions of PSTs in teacher education courses; 2) to assess the levels of ICMSE, and 3) to examine the impact of perceptions of PSTs on ICMSE. The following hypotheses were formulated for this study: H1: Teacher perceptions of teacher training courses affecting (proposed change for all points) pre-service teachers' self-efficacy for implementing reactive strategies to deal with students' misbehaviour in inclusive classrooms (SERA); H2: Teacher perceptions of teacher training courses affect pre-service teachers' self-efficacy for implementing proactive strategies to prevent students' misbehaviour in inclusive classrooms (SEPA); H3: Teacher perceptions of teacher training courses affect pre-service teachers' self-efficacy for implementing strategies to improve students' prosocial behaviour in inclusive classrooms (SEPB); H4: Teacher perceptions of teacher training courses affect pre-service teachers' self-efficacy for enacting rules and procedures to regulate students' misbehaviour in inclusive classrooms (SECRP). The structural model showing the relationships among variables is presented in Figure 1.

## 2. Method

### *2.1 Participants*

This study employed a convenience sample of 243 PSTs enrolled in the Bachelor of Education (BEd) program offered by the State Universities (16%) and the Diploma in Teaching program offered by the National Colleges of Education (84%) in Sri Lanka. Male participants were excluded from the sample due to their poor representation (less than 1%). The participants' ages ranged between 19 and 23 years. These teacher education programs have professional components, including CM offered as a stand-alone course coupled with an infusion into the curriculum, intended to prepare PSTs to effectively work with student diversity in inclusive classrooms by creating a learning environment conducive to the academic and social development of learners with special educational needs.

### *2.2 Procedure*

The survey questionnaire was distributed online via WhatsApp groups to a convenience sample of 280 PSTs and the return rate of the survey was 92% (258). The preliminary data analysis conducted for screening purposes identified nine incomplete questionnaires, and six were removed due to a ceiling effect, leaving a total of 243 valid responses. Before data collection, participants were informed about the nature of the study, its significance, potential risks, and benefits of its outcomes. They were also assured that the data were collected only for this study and would not be used for other purposes. Additionally, they were assured that the information they provided would be treated confidentially. Informed consent was obtained from each participant.

### *2.3 Instruments*

The survey questionnaire contains the following two scales:

The Tamil Inclusive Classroom Management Self-Efficacy (TICMSE) Scale: The 25-item 6-point Likert-type TICMSE

scale, developed by Yogaranee (in press), was used to assess the extent to which participants believed in their capabilities to manage inclusive classrooms. This scale consists of four subscales: i) SERA - Self-Efficacy for Reactive Actions, consisting of six items; ii) SEPA - Self-Efficacy for Proactive Actions, consisting of seven items; iii) SEPB - Self-Efficacy for Improving Students' Prosocial Behavior, consisting of six items; and iv) SECRP - Self-Efficacy for Enforcing Classroom Rules and Procedures, consisting of six items. Response categories for the Likert-type positively worded items ranged between strongly agree and strongly disagree, with a maximum score of six for strongly agree and a minimum of one for strongly disagree. The TICMSE scale demonstrates strong internal consistencies established in the earlier study for the subscales and the scale, with Cronbach's alpha values of .905, .902, .913, and .855, and McDonald's omega values of .907, .905, .916, and .856 for the SECRP, SEPA, SERA, and SEPB dimensions, respectively (Yogaranee, in press). The convergent validity of the SECRP, SEPA, SERA, and SEPB subscales was established at .62, .56, .63, and .50, respectively. Additionally, the four subscales exhibit discriminant validity. The Teacher Perceptions of Teacher Training Courses (TPTTC) Scale: The author-developed, 12-item TPTTC scale was used to assess teacher perceptions of PSTS teacher training courses that captured the concept of CM. The 15-item scale's content validity was quantified using a panel of five academic experts with backgrounds in CM subjects and statistics disciplines. Content validity ensures that the items in the scale adequately represent the construct to be measured. Thus, the Content Validity Index for each item (I-CVI) and the Content Validity Index for the scale (S-CVI) were computed and yielded satisfactory results with the deletion of three items.

## 3. Data Analysis

Various multivariate assumption tests were conducted before performing EFA, including multivariate normality, linearity, multicollinearity, and outliers. Kurtosis and skewness for individual items were examined to satisfy the normality assumption. The results presented in Table 3 exhibited values ranging between +1 and -1, indicating the normal distribution of all variables. The linearity assumption test, indicating the linear relationships among variables, was performed by examining scatterplots, and the results revealed a linear relationship between each predictor and the outcome variables. Residual plots further supported the linearity assumption, as no patterns were observed in the residuals, confirming that the assumption of linearity was satisfied. The multicollinearity assumption test was conducted by calculating the Variance Inflation Factor (VIF) and tolerance values using linear regression analysis in IBM-SPSS (version 25). The results showed that the tolerance values showing the relationships among the observed variables ranged between .344 and .514, indicating all values well below the threshold of 10. The VIF ranged between 2.00 and 2.90, all above the threshold of .10. With These results, the multicollinearity assumption was satisfied. The multivariate outliers using Mahalanobis distance (MD) and univariate outliers using Boxplots and Z-scores were assessed. The results of MD revealed no multivariate outliers as all values exceeded the critical chi-square value at .001 alpha levels. Additionally, all Z-scores for indicator variables fell between ± 3.29, indicating the absence of univariate outliers. Although the Boxplots show some outliers in the SERA dimension, they were retained for further analysis, as they were within the expected range of variability and not deemed erroneous.

Exploratory Factor Analysis (EFA) was run using the IBM-SPSS (version 25) to assess the factorability of the TICMSE and TPTTC scales. Confirmatory Factor Analysis (CFA) using the SEM was performed using the IBM-AMOS (version 23) statistical software package to estimate the fit of the observed data to the proposed hypothetical model, specified by the study variables, teacher perceptions, an exogenous variable, the CMSE construct, an endogenous variable, which was then followed by a path analysis, conducted using the full structural model to test the proposed hypotheses.

The factorability of the correlation matrix was affirmed through the following statistical procedures: (i) Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA), the value ranging between 0 and 1, with values closer to 1 indicating that the data is likely to factor well. A KMO-MSA value above 0.6 is generally acceptable for FA (Kaiser, 1974). (ii) Bartlett's Test of Sphericity tests whether there is a significant relation between the correlation matrix of the observed data and the identity matrix. If the test yielded a significant statistic at the 0.05 alpha levels, the correlated variables are suitable for FA (Hair, Black, Babin & Anderson, 2010). (iii) Examine the correlation matrix. As a rule of thumb, a substantial number of correlations > .30 suggests the data to be factorable (Tabachnick & Fidell, 2019). (iv) Examine the determinant, which should be greater than 0.00001(or 1E-5) in the determinant of the correlation matrix. A very low determinant indicates multicollinearity or singularity among the variables, which can be problematic (Field, 2013). (v) A Measure of Sampling Adequacy (MSA). The values in the principal diagonals of the anti-image correlation matrix for individual variables should be above .50 to consider the matrix factorable (Taherdoost, Sahibuddin & Jalaliyoon, 2014).

Several criteria were used to determine the number of factors to be retained in the EFA model. These include the eigenvalues, which suggest retaining factors with Kaiser's criterion/eigenvalues > 1 rule (Hair et al., 2010). The Scree plot helps to visualize the number of factors to be retained to the point where the plot starts to level off (Tabachnick & Fidell, 2019). However, the literature shows that the Kaiser criterion and the scree plot can sometimes overestimate the number of factors, especially in small sample sizes or when factors are weak (Zwick & Velicer, 1986). Therefore, parallel

analysis was performed with 1000 iterations and eigenvalues at the 95th percentile to compare the actual eigenvalues from the observed data with those obtained from randomly generated data sets (Patil, Singh, Mishra & Donavan, 2017).

## 4. Results

### *4.1 Results of EFA Performed for the TICMSE Scale*

The results of the factorability assumption tests, including a substantial number of significant inter-item correlations, exceeding the value of .30, a "marvelous" KMO-MSA value of .917, and a significant Bartlett's Test of Sphericity ($\chi^2_{(300)} = 3794.558$, $p = .000$) indicated that the observed data were appropriate to FA (Table 1) (Field, 2013; Kaiser, 1974).

Table 1. KMO-MSA and Bartlett's Test

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | | .917 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 3794.558 |
| | df | 300 |
| | Sig. | .000 |

The determinant of the correlation matrix had a value close to zero (8.359E-8), indicating that multicollinearity was an issue. However, the multivariate and univariate assumption tests confirmed the absence of multicollinearity. The inspection of the Measures of Sampling Adequacy in the principal diagonals of the anti-image correlation matrix showed that all the values exceeded .85, indicating that the data were suitable for FA (Tabachnick & Fidell, 2019).

EFA, conducted initially using Principal Component Analysis to extract the underlying factors that fit 25 items of the ICMSE construct, yielded an unrotated four-factor solution with eigenvalues ≥ 1. The Scree plot also supported the four-factor solution, with a clear break after four factors (Figure 2). Parallel analysis was conducted using O'Connor's (2000) syntax in SPSS, generating 1000 random datasets (Table 2). The eigenvalues from the raw data were compared to the 95th percentile of the random eigenvalues.

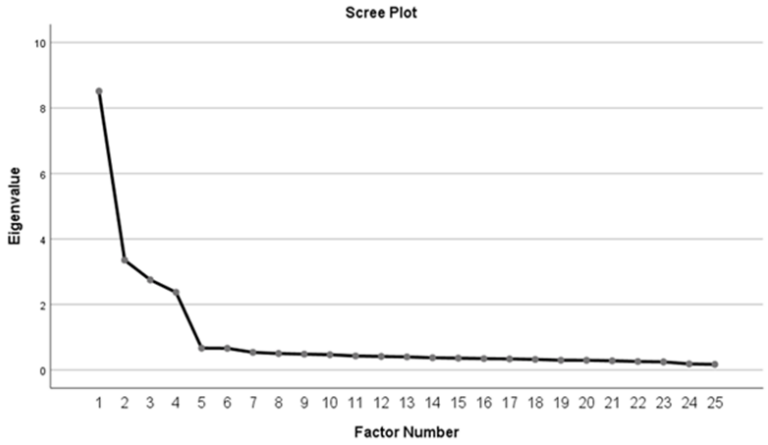


Figure 2. The Scree Plot

The analysis suggested retaining four factors as the eigenvalues for the first four factors exceeded the corresponding 95th percentile of the eigenvalues from the random data, and the eigenvalue for the fifth factor was lower than that of random data (Table 2). The original (1976) and revised (2000) MAP test, performed using O'Connor's (2000) syntax in SPSS, further suggested that a four-factor solution was optimal. The refined factors include Factor 1: Self-efficacy for proactive actions (SEPA), Factor 2: self-efficacy for improving the prosocial behaviour (SEPB) of students, Factor 3: Self-efficacy for enforcing classroom rules and procedures (SECRP), and Factor 4: Self-efficacy for reactive actions (SERA), as specified in the previous study by Yogaranee (in press).

Table 2. Raw Data Eigenvalues and Percentile Random Data Eigenvalues

| Factors | Raw Data Eigenvalues | 95th Percentile Random Data (1000) Eigenvalues |
|---|---|---|
| 1 | 8.513 | 1.732 |
| 2 | 3.353 | 1.611 |
| 3 | 2.750 | 1.526 |
| 4 | 2.371 | 1.448 |
| 5 | .666 | 1.387 |

The next run of EFA, performed using Principal Axis Factoring with the Direct Oblimin rotation method, which allows factors to correlate with the specification of four factors, yielded a final solution with communalities ranging between .51 and .72, except for SECRP7, which had a value less than .50 (.46). Although low communality for the SECRP7, meaning that the common factors explained a small portion of its variance, implied that this variable was ill-represented by the factor solution, it was not deleted from the scale due to its theoretical relevance and contribution to the overall factor structure. Table 3 shows the rotated factor loadings, descriptive statistics, skewness, and kurtosis for individual items. All items perfectly loaded onto their corresponding latent factors with the standardized factor loadings ranging between .64 and .85. The maximum loadings satisfied the assumption that there should be ≥ 50% (≥ .70) of the variance to be explained by all the factors in the indicator variables to demonstrate a satisfactory level of item reliability (Hair, Anderson, Tatham & William, 1998).

Table 3. Four-factor solution for the TICMSE Scale with factor loadings and descriptive statistics for individual items

| Item Code | Items | FL | M | SD | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| SERA1 | I feel confident in my ability to promptly address unexpected disruptions by students to learning in the classroom, such as talking out of turn, making noise, frequently getting up and moving around the classroom without permission, or engaging in activities that distract others from learning. | .822 | 4.09 | .993 | -.472 | -.244 |
| SERA2 | I believe I can effectively handle students' destructive behaviors, such as vandalizing classroom properties and intentionally damaging materials or equipment. | .718 | 4.18 | .838 | -.183 | -.403 |
| SERA3 | I can openly communicate with parents of students with severe behavioral problems, such as using or being under the influence of alcohol or drugs, and seek their support in addressing such behaviours. | .817 | 4.07 | 1.001 | -.249 | -.250 |
| SERA5 | I can de-escalate conflicts between students in my class by taking constructive resolutions. | .854 | 4.09 | .994 | -.429 | -.222 |
| SERA6 | I can seek support from school administrators in dealing with persistent or serious behavior problems of students in my class. | .725 | 4.13 | .902 | -.663 | .498 |
| SERA7 | I am confident I can verbally reprimand and correct students for disruptive behavior rather than resorting to punishment. | .804 | 4.12 | .911 | -.330 | -.013 |
| SEPA1 | I can effectively teach in the classroom to prevent students from engaging in unmotivated behaviors such as daydreaming or not paying attention to the lesson. | .784 | 3.84 | .900 | -.029 | -.392 |
| SEPA2 | I can anticipate potential issues or disruptive behaviours in the classroom and take appropriate steps promptly to handle them before they escalate. | .788 | 3.96 | .997 | .276 | -.533 |
| SEPA3 | I can teach students calming techniques and self-regulation strategies to help them deal with negative emotions and strong impulses. | .822 | 3.91 | .969 | .092 | -.395 |
| SEPA4 | I can prevent disruptions by making students feel valued and respected by recognizing their responsible behaviors in the classroom | .849 | 3.71 | 1.164 | -.182 | -.859 |
| SEPA5 | I can create a supportive classroom environment that empowers students to take responsibility for their learning and behaviour. | .850 | 3.95 | 1.094 | -.131 | -.296 |
| SEPA6 | I believe that I can listen attentively to students' concerns and opinions. | .735 | 3.90 | .935 | .076 | -.559 |
| SEPA7 | I can create learning opportunities for students with special educational needs by using differentiated instruction to meet their various needs. | .722 | 4.01 | 1.052 | .005 | -.661 |
| SEPB1 | I can improve students' sharing behaviours by encouraging them when they willingly share their belongings, resources, or time with fellow students in the class. | .778 | 4.11 | .739 | -.117 | -.671 |
| SEPB2 | I believe I can develop students who value diversity through my effective inclusive classroom teaching. | .758 | 4.21 | .774 | .149 | -.136 |
| SEPB3 | I am confident that I can empathize with students who exhibit aggressive behavior rather than punishing them. | .702 | 4.19 | .755 | .070 | -.506 |
| SEPB5 | I can provide adequate opportunities for students to participate in group learning with social consciousness rather than individual learning in the class. | .741 | 4.23 | .754 | -.010 | -.238 |
| SEPB6 | I know how to develop positive relationships with students to make it easy for them to approach me. | .767 | 4.26 | .814 | .150 | -.285 |
| SEPB7 | I can create opportunities for students to improve their selfless behaviors, such as sitting together or eating with fellow students who feel excluded or isolated. | .781 | 4.15 | .742 | .053 | -.232 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SECRP1 | I can establish classroom rules related to learning tasks, such as finishing assignments on time, coming to class prepared with necessary materials, and participating in group activities or discussions when asked at the beginning of the school academic year. | .793 | 4.23 | .865 | -.078 | -.656 |
| SECRP2 | I can enforce classroom rules and procedures consistently. | .759 | 4.23 | .961 | -.232 | -.037 |
| SECRP4 | I can get students to follow classroom rules and procedures through consistent reinforcement and feedback. | .820 | 4.23 | .925 | -.222 | -.399 |
| SECRP5 | I can effectively handle differences of opinion regarding classroom rules and procedures. | .743 | 4.24 | .988 | -.131 | -.558 |
| SECRP6 | I can seek support or resources when facing challenges in enforcing classroom rules. | .769 | 4.25 | .822 | -.315 | -.015 |
| SECRP7 | I can adapt classroom rules and procedures to accommodate the diverse needs of my students. | .639 | 4.24 | .784 | .011 | -.340 |

Notes: Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. SERA - Self-efficacy for reactive actions, SEPA - Self-efficacy for proactive actions, SEPB - self-efficacy for improving the prosocial behaviour of students, SECRP - Self-efficacy for enforcing classroom rules and procedures

The SERA dimension had the highest mean scores and standard deviation (M = 4.70, SD = .82) followed by SECRP (M = 4.00, SD = .64), SEPB (M = 3.75, SD = .53), and SEPA (M = 3.26, SD = .68). The ICMSE construct had a mean score of 4.10 and the standard deviation of .53.

The SERA subscale contains the items SERA1, SERA2, SERA3, SERA5, SERA6, and SERA7 (n = 6) with the highest factor loading of .854 for SERA5 and the lowest of .718 for SERA2, with 9% of the variance in the indicators. The SEPA dimension contains all seven items, with the highest loading of .850 for SEPA5 and the lowest loading of .722 for SEPA7, explaining 34% of the variance in the observed variables.

Among all latent factors, the SEPA dimension accounted for a large proportion of variance in its indicators. The SEPB subscale contains the items SEPB1, SEPB2, SEPB3, SEPB5, SEPB6, and SEPB7 (n = 6), with the highest loading of .781 for SEPB7 and the lowest loading of .702 for SEPB3, explaining 13% of the variance in the observed variables. The SECRP subscale contains items SECRP1, SECRP2, SECRP4, SECRP5, SECRP6, and SECRP7 (n = 6) with the highest factor loading of .820 for SECRP4 and the lowest loading of .639 for SECRP7, explaining 11% of the variance in the observed variables.

Overall, the EFA model revealed that about 68% of the variance in all 25 indicators can be explained by the ICMSE latent construct, indicating that the factor solution adequately captured the underlying construct (Hair et al., 1998). Additionally, the internal consistency of the subscales was computed, and the results of Cronbach's alpha value and descriptive statistics for the subscales and the scale are presented in Table 4. The SERA had the alpha value of .91, SEPA .93, SEPB and SECRP .90, and ICMSE .92, indicating excellent internal consistency, meaning that all variables perform unidirectional in assessing the underlying latent constructs (Table 4).

Table 4. Descriptive statistics with Cronbach's alpha and proportion of variance for the rotated solution for the latent factors and the overall ICMSE construct

| Factors | M | SD | Cronbach's alpha | Percentage of Variance |
|---|---|---|---|---|
| SERA | 4.70 | 0.82 | .91 | 9 |
| SEPA | 3.26 | 0.68 | .93 | 34 |
| SEPB | 3.75 | 0.53 | .90 | 13 |
| SECRP | 4.00 | 0.64 | .90 | 11 |
| ICMSE | 4.10 | 0.53 | .92 | 68 |

Notes: M – Mean; SD – Standard Deviation; SERA - Self-efficacy for reactive actions; SEPA - Self-efficacy for proactive actions; SEPB - self-efficacy for improving the prosocial behaviour of students; SECRP - Self-efficacy for enforcing classroom rules and procedures

*4.2 Results of EFA Performed for the TPTTC Scale*

Descriptive statistics, kurtosis, and skewness of the individual variables of the TPTTC scale are presented in Table 5. The kurtosis and skewness of all these indicator variables fall between -1 and +1, indicating their normal distribution, except for TP10, which demonstrated that the value exceeded this range, suggesting deletion (George & Mallery, 2016). The unidimensionality of the 12-item TPTTC scale assessed by EFA yielded a single-factor solution. All items loaded adequately onto the TP construct with loadings ranging between .58, the lowest for item TP10, and .764, the highest for

item TP3 (Table 5). This construct can account for approximately 52% of the variance in the indicator variables, indicating that the items adequately captured the construct (Hair et al., 2010). Deletion of TP10 was delayed until CFA as, despite its presence, the scale has an excellent significant Cronbach's alpha with a value of .914.

Table 5. Factor loadings with descriptive statistics for individual items of the 12-item TPTTC scale

| Item Code | Items | FL | M | SD | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| TP1 | The curriculum covers essential classroom management topics suitable for real classroom settings. | .734 | 4.56 | .715 | -.158 | -.192 |
| TP2 | The courses include content that is relevant to learning about classroom management skills. | .727 | 4.64 | .710 | -.268 | -.057 |
| TP3 | The courses provide updated materials and resources for learning about classroom management. | .764 | 4.49 | .695 | -.261 | -.229 |
| TP4 | The courses maintain a balance between classroom management theories and practices. | .736 | 4.70 | .682 | -.414 | .234 |
| TP5 | The courses provide comprehensive knowledge of various classroom management theories and principles. | .750 | 4.63 | .706 | -.255 | -.071 |
| TP6 | The courses provide learning materials and resources suitable for implementing classroom management strategies effectively in real classrooms. | .725 | 4.66 | .625 | -.619 | .391 |
| TP7 | The courses include interactive activities and discussions that help reinforce classroom management skills. | .720 | 4.68 | .619 | -.620 | .495 |
| TP8 | The courses adequately prepare me to deal with diverse student behaviours. | .710 | 4.63 | .676 | -.279 | -.005 |
| TP9 | The courses provide adequate practical examples of how to implement classroom management strategies. | .748 | 4.74 | .690 | -.591 | .514 |
| TP10 | The courses provide adequate opportunities to practice classroom management skills before direct classroom experience. | .579 | 4.57 | .765 | -1.056 | 1.528 |
| TP11 | Adequate observations and feedback are provided to practice classroom management skills before direct classroom experience. | .703 | 4.70 | .628 | -.470 | .359 |
| TP12 | The courses provide a thorough knowledge of handling different student needs. | .724 | 4.53 | .657 | -.451 | -.133 |
| TPs | | --- | 4.56 | .487 | -.927 | .983 |

Notes: TPs – Teacher Perceptions, FL – Factor Loadings, M – Mean, SD – Standard Deviation

*4.3 Results of Confirmatory Factor Analysis – The Measurement Model*

The theoretical models of this study were assessed through the following five steps: (i) estimating the standardized lambda for each indicator and its significance, representing the strength and statistically significant direction of the relationship between an indicator and the underlying latent factor. A standardized factor loading of 0.7 or above is generally considered a strong relationship, indicating that the observed variable shares a significant amount of variance (more than 50%) with the latent factor; (ii) estimating indicator reliability, which refers to the proportion of the variance in an indicator that is explained by the latent factor; (iii) examine internal consistency, an estimate reflects how well all indicators consistently measure the underlying construct; (v) assess average variance extracted (AVE); and (v) assess convergent and discriminant validity.

The present study adopted a reflective measurement model, where the indicator variables are assumed to reflect an underlying latent construct and are interchangeable, meaning that they all measure the same underlying construct and the error terms are uncorrelated (Hair, Anderson, Tatham & William, 2017). The theoretical model, including the 25-item multi-dimensional TICMSE scale and the 12-item unidimensional TPTTC scale, was analyzed using the SEM technique by testing five different models. Model 1 was generated to disprove that the TICMSE scale was unidimensional. The specifications for Model 2 were made to demonstrate that the ICMSE construct was multi-dimensional. The 37 indicators of the TICMSE and TPTTC scales were loaded into Model 3 to show that the model fits the data well. Model 4 is the refined model that excludes TP10 for its low loadings to the latent factor TP.

The fit indices for the measurement models (Table 6) indicated that Model 1 did not fit the data well. The chi-square value was significant ($\chi^2$ (275) = 2192.845, $p < .001$), and the fit indices are as follows: CMIN/df = 7.977, CFI = .47, TLI = .43, RMSEA = .17, and SRMR = .16. None of these indices met the accepted thresholds, suggesting that the ICMSE construct is not unidimensional. Model 2 had statistically significant standardized factor loadings for all indicators ranging between .678 and .859, at $p < .001$, indicating a strong relationship between indicators and their corresponding latent

factors. The model fit indices suggested a good fit to the data: insignificant chi-square value of $\chi^2(269) = 336.068$, ($p > .001$), CMIN/df = 1.249 (below the threshold of 2 for a good fit and 3 for an acceptable fit), TLI = .98 (exceeding the threshold of .95), CFI = .98 (exceeding the threshold of .95), RMSEA = .03 (below the threshold of .06), and SRMR = .04 (below the threshold of .08) (Hu & Bentler, 1999; Kline, 2015). Overall, about 61% of the variance in the indicators was explained by the latent factors, suggesting that the ICMSE construct is multidimensional.

The standardized factor loadings of all indicators in Model 3 were statistically significant, with values ranging between .657 and .795 at $p < .001$, indicating that all indicators perfectly loaded onto their respective latent factors. The model had a good fit to the data with indices, including a statistically significance chi-square value ($\chi^2$ (584) = 714.000, $p < .001$), CMIN/df = 1.223, CFI = .97, TLI = .97, RMSEA = .03, and SRMR = .05 (Hu & Bentler, 1999; Kline, 2015). In this model, 58% of the variance in the indicator variables was shared, providing an adequate representation of the data.

Although Model 3 fit the data well with acceptable thresholds for the fit indices, it was further refined by excluding TP10 due to its poor loading with the value below the threshold of .70 (.657, $p < .001$), indicating that it did not explain a significant amount of the variance of the underlying factor (Hair et al., 2010). Consequently, Model 4 (Figure 3), a refined model considered the final model, was used to establish the psychometric properties of the scales. The standardized factor loadings showed slight improvements, with values ranging between .667 and .861 at $p < .001$. It had the following fit indices: a significant chi-square value ($\chi^2$ (584) = 715.495, $p < .001$), CMIN/df = 1.225, CFI = .97, TLI = .97, RMSEA = .03, and SRMR = .05, consistent with those demonstrated by Model 3.

Model 4 explained 57% of the total variance in the indicator variables, with SERA and SEPA accounting for 64%, SEPB and SECRP for 58%, and TP for 50%. These results suggest that the model is appropriate for establishing the psychometric properties of the survey questionnaire. Although the deletion of TP10 resulted in zero changes to the overall model fit indices except for the standardized lambda values, the decision was prudent to ensure that all items aligned well with the theoretical definition of the construct. Ensuring theoretical consistency is crucial for the construct validity of the scales (Byrne, 2016; Hair, Black, Babin & Anderson, 2019; Kline, 2015; Schumacker & Lomax, 2016).

Table 6. Model Fit Indices for the Test of Five Different Measurement Models

| Models | $\chi^2$ | df | p | CMIN/df | TLI | CFI | RMSEA | SRMR | Variance % |
|---|---|---|---|---|---|---|---|---|---|
| Model 1 | 2192.845 | 275 | .000 | 7.974 | .43 | .47 | .17 | .16 | 30 |
| Model 2 | 336.068 | 269 | .003 | 1.249 | .98 | .98 | .03 | .04 | 61 |
| Model 3 | 714.000 | 584 | .000 | 1.223 | .97 | .97 | .03 | .05 | 58 |
| Model 4 | 715.495 | 584 | .000 | 1.225 | .97 | .97 | .03 | .05 | 57 |
| Model 5 | 721.725 | 588 | .000 | 1.227 | .97 | .97 | .03 | .05 | 56 |

Notes. TLI – Tucker Lewis Index; CFI-Comparative Fit Index, SRMR-Standardized Root Mean Residual, RMSEA-Root Mean Square Error of Approximation.

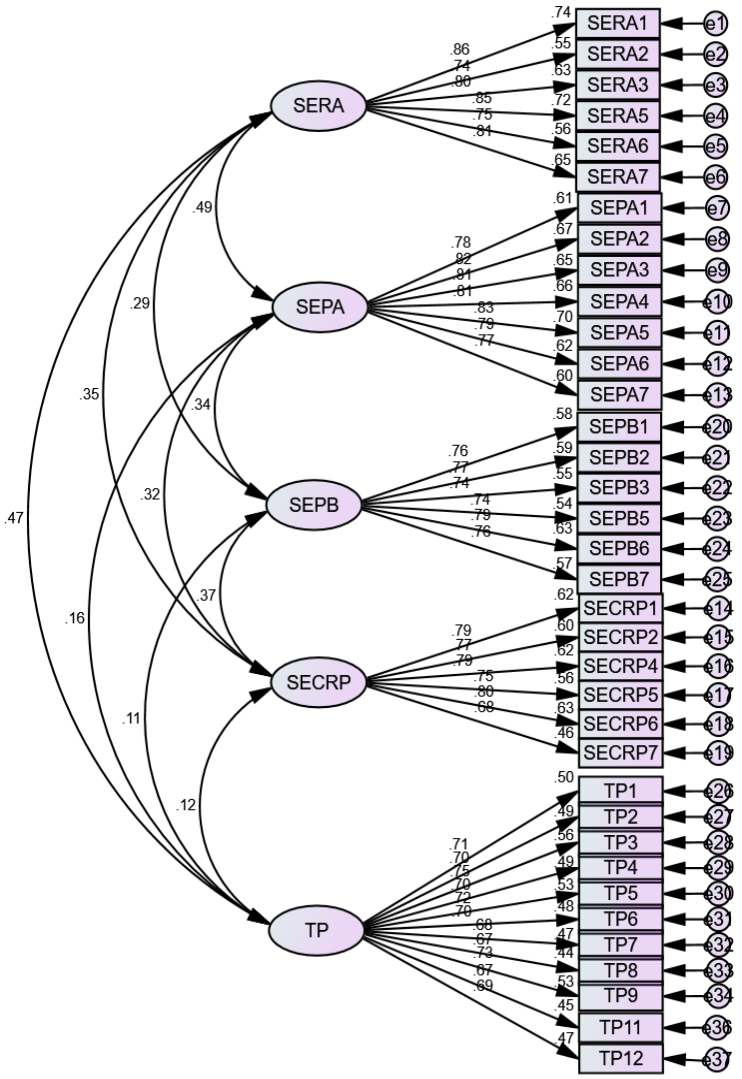


Figure 3. Measurement Model 4

Notes: SERA - Self-efficacy for reactive actions; SEPA - Self-efficacy for proactive actions; SEPB - self-efficacy for improving the prosocial behaviour of students; SECRP - Self-efficacy for enforcing classroom rules and procedures; TP – Teacher Perceptions.

Inter-factor correlations (Table 7) showing the relationships among latent constructs in the final measurement Model 4 showed significant correlation values ($p < .001$) ranging between .11 between the TPs and SEPB dimensions and .50 between the SEPA and SERA dimensions, which had an acceptable range from .30 to .70, indicating that the constructs were related but distinct from one another, supporting the theoretical model (Brown, 2015; Kline, 2015). However, the statistically insignificant correlations between TP and SECRP (.12, $p > .05$) and SEPB (.11, $p > .05$) suggested that there is insufficient evidence to conclude that these factors are related in the population.

The inter-factor correlation matrix showed some interesting points: the regression weights of all but the SERA dimension of the ICMSE construct were weak and insignificant, which may lead to a potentially weak effect when conducting a path analysis. Consequently, the theoretical model was re-conceptualized in line with the existing literature to include two latent factors: Self-Efficacy towards Proactive Actions (PROACT_ACT) and Self-Efficacy towards Reactive Actions (REA_ACT) (Clunies-Ross, 2008; Emmer & Stough, 2001; Korpershoek et al., 2016; Oliver & Reschly, 2007). Thus, Model 5 was generated by allowing the latent factors SEPA, SEPB, and SECRP to converge into one common factor, PROACT_ACT, which may appear distinct from the latent construct of REA_ACT (Figure 4).

Model 5 had a good fit to the data with excellent fit indices, including a significant chi-square value ($\chi^2$ (588) = 721.725, $p < .001$), CMIN/df = 1.227, CFI = .97, TLI = .97, RMSEA = .03, and SRMR = .05 (Table 6). All indicators had significant standardized factor loadings ($p < .001$) ranging between .50 and .86 and perfectly loaded onto their corresponding latent

factors, which explained 56% of the variance in the indicator variables. Specifically, REA_ACT accounted for 64% and TP 49% of the variance in their respective indicators, with the PROACT_ACT latent factor explaining 25% of the variance in the SEPB, 47% in the SEPA, and 28% in the SECRP dimensions (Figure 4).

Table 7. Standardized and Unstandardized Lambda values with Corresponding Standard Errors, Critical Ratios, and Probability for Inter-Factor Correlations

| Factors | Un.Std.lambda | Std. lambda | S.E | C.R | p |
|---|---|---|---|---|---|
| SERA - SEPA | .293 | .49 | .049 | 5.972 | *** |
| SERA - SECRP | .200 | .35 | .045 | 4.484 | *** |
| SERA - SEPB | .137 | .29 | .036 | 3.789 | *** |
| SEPA - SECRP | .150 | .32 | .036 | 4.133 | *** |
| SEPA - SEPB | .132 | .34 | .031 | 4.324 | *** |
| SECRP - SEPB | .139 | .37 | .031 | 4.554 | *** |
| SERA - TP | .204 | .47 | .036 | 5.618 | *** |
| SEPA - TP | .055 | .16 | .025 | 2.164 | .030 |
| SECRP - TP | .042 | .12 | .025 | 1.710 | .087 |
| SEPB - TP | .031 | .11 | .021 | 1.490 | .136 |

Notes: S.E – Standard Error; C.R – Critical Ratio; SERA - Self-efficacy for reactive actions; SEPA - Self-efficacy for proactive actions; SEPB - self-efficacy for improving the prosocial behaviour of students; SECRP - Self-efficacy for enforcing classroom rules and procedures; TP – Teacher Perceptions

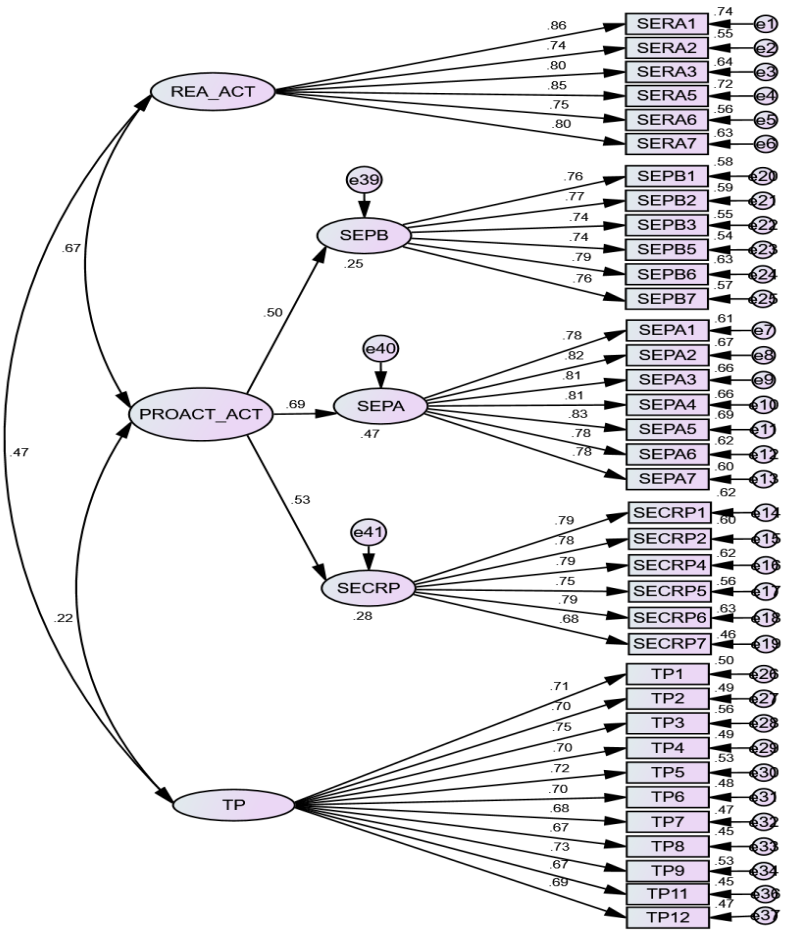


Figure 4. Measurement Model 5

Notes: SERA - Self-efficacy for reactive actions; SEPA - Self-efficacy for proactive actions; SEPB - self-efficacy for improving the prosocial behaviour of students; SECRP - Self-efficacy for enforcing classroom rules and procedures, TP – Teacher Perceptions, REA_ACT – Reactive Actions, PROACT_ACT – Proactive Actions.

*4.4 Validity and Reliability of the TICMSE and TPTTC Scales*

The validity and reliability of these two scales were established using the estimates of composite reliability (CR) and construct validity. The CR is generally evaluated using Jöreskog's (1971) estimates. The present study found the CR for SERA .89, SEPA .92, SEPB .89, and SECRP .91, ranging between .70 and .90 thresholds, suggesting satisfactory to good levels (Hair et al., 2022). Construct validity involves both convergent and discriminant validity. Convergent validity, a measure that assesses to what extent the scale's latent factor converges its indicators by explaining the items' variance, is estimated by AVE (Sarstedt, Ringle & Hair, 2017).

The present study found AVE values of .58 for SERA and SEPB and .64 for SEPA and SECRP, exceeding the threshold of .50, indicating that each latent factor, on average, explains more than 50% of the variance of its items, suggesting an acceptable level of convergent validity (Hair et al., 2019).

Finally, a discriminant validity assessment was conducted to estimate to what extent the latent factors were empirically distinct, concerning how much individual factors correlate with the remaining factors and how distinctly the observed variables represent this single factor. The discriminant validity of the four-factor ICMSE construct was assessed by the Heterotrait-Monotrait (HTMT) ratio, a measure more reliable than traditional methods like the Fornell-Larcker criterion or cross-loadings (Henseler, Ringle & Sarstedt, 2015). The HTMT is calculated (see Table 8) for each pair of factors by comparing the average correlations of indicators across factors (heterotrait-hetero method correlations) with the average correlations of observed variables within the same factor (monotrait-hetero method correlations) (Sarstedt et al., 2017).

Table 8. Heterotrait-Monotrait Ratios between the latent factors

| Latent Factors | SECRP | SEPB | SEPA | SERA | TP |
|---|---|---|---|---|---|
| SECRP | -- | | | | |
| SEPB | .37 | -- | | | |
| SEPA | .35 | .37 | -- | | |
| SERA | .35 | .30 | .30 | -- | |
| TP | .12 | .12 | .16 | .47 | -- |

Notes: SERA - Self-efficacy for reactive actions; SEPA - Self-efficacy for proactive actions; SEPB - self-efficacy for improving the prosocial behaviour of students; SECRP - Self-efficacy for enforcing classroom rules and procedures; TP – Teacher Perceptions.

The HTMT values for the final measurement model containing five latent factors of the TICMSE and TPTTC scales are as follows: 0.37 between SECRP and SEPB, 0.35 between SECRP and SEPA, 0.35 between SECRP and SERA, 0.37 between SEPB and SEPA, 0.30 between SEPB and SERA, 0.30 between SEPA and SERA, 0.12 between TP and SECRP, 0.12 between TP and SEPB, 0.16 between TP and SEPA, and 0.47 between TP and SERA. All these values are below the threshold of 0.85, indicating that discriminant validity is established for the scale scores obtained from the five latent factors (Kline, 2011).

*4.5 Results of the Path Analysis*

Two full structural models were generated to test the proposed hypotheses by employing the SEM technique using the IBM-SPSS-AMOS (version 23). The first structural model (SM1) included four latent factors: SERA, SEPA, SEPB, and SECRP of the ICMSE construct, as endogenous variables, and TP as an exogenous variable. The second structural model (SM2) specified the effect of TP on two latent factors, REA_ACT and PROACT_ACT, which included the SEPA, SEPB, and SECRP domains.

SM1 had a bad fit to the data with fit indices, including a significant chi-square value ($\chi^2$ (590) = 833.680, $p < .001$), CMIN/df = 1.413, CFI = .951, TLI = .947, (close but below the threshold of .95), RMSEA = .041, and SRMR = .126, (exceeded the threshold of .08) (Table 9) (Hu & Bentler, 1999).

Table 9. Model fit indices for the full structural models

| Models | $\chi^2$ | df | *p* | CMIN/df | TLI | CFI | RMSEA | SRMR |
|---|---|---|---|---|---|---|---|---|
| Full SM 1 | 833.680 | 590 | .000 | 1.413 | .947 | .951 | .041 | .1260 |
| Full SM 2 | 739.446 | 587 | .000 | 1.260 | .967 | .969 | .033 | .0984 |

Notes. TLI – Tucker Lewis Index; CFI-Comparative Fit Index, SRMR-Standardized Root Mean Residual, RMSEA-Root Mean Square Error of Approximation, SM - Structural Model

SM2 (Figure 5) had a good fit to the data with indices: a significant chi-square value ($\chi^2$ (587) = 739.446, p < .001), CMIN/df = 1.26, CFI = .969, TLI = .967, and RMSEA = .033, which all met the thresholds satisfactorily except for SRMR, which had a slightly elevated value (.0984) (Table 9). When SRMR is slightly above the recommended threshold while all other indices are well within acceptable ranges, it may be reasonable to consider the model to be accepted, particularly if it is theoretically sound (Hu & Bentler, 1999).

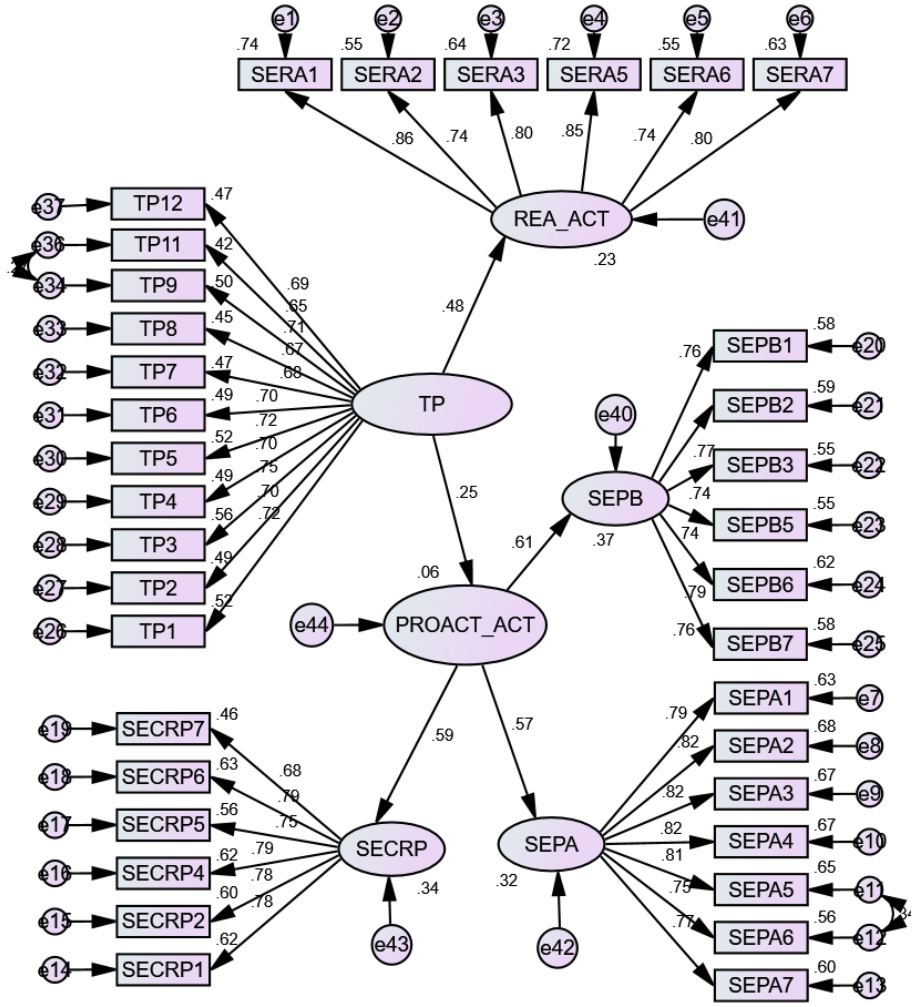


Figure 5. Full Structural Model 2

Notes: SERA - Self-efficacy for reactive actions; SEPA - Self-efficacy for proactive actions; SEPB - self-efficacy for improving the prosocial behaviour of students; SECRP - Self-efficacy for enforcing classroom rules and procedures; TP – Teacher Perceptions; REA_ACT – Reactive Actions; PROACT_ACT – Proactive Actions.

Table 10. Results of the Hypotheses tests

| Latent Factors | Unstd. estimates | β | S.E | C.R | p | Variance (%) |
|---|---|---|---|---|---|---|
| | | Full SM 1 | | | | |
| SERA<---TP | .80 | .48 | .117 | 6.871 | *** | 23 |
| SEPA<---TP | .25 | .18 | .093 | 2.742 | .009 | 03 |
| SEPB<---TP | .14 | .13 | .077 | 1.859 | .069 | 02 |
| SECRP<---TP | .19 | .15 | .093 | 2.115 | .039 | 02 |
| | | Full SM 2 | | | | |
| PROACT-ACT<---TP | .164 | .247 | .063 | 2.596 | .009 | 06 |
| REA_ACT<---TP | .788 | .475 | .119 | 6.607 | *** | 23 |

Notes: SERA - Self-efficacy for reactive actions; SEPA - Self-efficacy for proactive actions; SEPB - self-efficacy for

improving the prosocial behaviour of students; SECRP - Self-efficacy for enforcing classroom rules and procedures; TP – Teacher Perceptions; REA_ACT – Reactive Actions; PROACT_ACT – Proactive Actions.

The standardized and unstandardized regression coefficients with probability, exhibiting the effect of TP on the SERA, SEPA, SEPB, and SECRP dimensions are presented in Table 10. Accordingly, TP had a statistically significant positive effect on the SERA ($\beta = .48$, $p < .001$), with the largest effect, followed by SEPA ($\beta = .18$, $p < .05$), and SECRP ($\beta = .15$, $p < .05$) dimensions, except for the SEPB, which had an insignificant beta value ($\beta = .13$, $p > .05$), suggesting accepting hypotheses H1, H2, and H4 while rejecting the H3.

The redefined structural model (SM 2) had a positively significant larger effect of TP on REA_ACT ($\beta = .48$, $p \leq .001$), indicating that higher scores on TP are associated with higher scores on REA_ACT, with 23% of the variance, while a positive moderate effect on PROACT_ACT ($\beta = .25$, $p \leq .05$), with 6% of the variance.

The present study investigated, using the SEM, how perceptions of teacher preparation courses (either a stand-alone course or embedded the CM component in the curriculum or both) predict the CMSE of PSTs who work in inclusive classrooms. More specifically, the author-developed, four-dimensional, validated TICMSE scale was applied to examine if TPs impact the SERA, SEPA, SEPB, and SECRP domains of the ICMSE construct. As part of a previous study that attempted to develop and validate the Tamil Inclusive Classroom Management Self-efficacy scale, the present study, using a different sample set, intended to examine the effect of teacher perceptions on these four factors of the ICMSE (Yogaranee, in press). The literature asserted that different samples should be employed to validate a scale and test hypotheses to avoid methodological issues (Field, 2013; Kline, 2015). Hence, this study tested the hypotheses to ensure that the TICMSE scale performs consistently across various data sets.

Effective CM does not occur if teachers doubt their capabilities to implement it successfully despite adequate competencies in CM. Therefore, studies that exclusively focus on CMSE are important in contributing to the effective implementation of CM rather than investigating CM skill sets alone. Likewise, teacher efficacy is subject- and context-specific and hardly considered a global construct (Bandura, 1997; Pajares, 1996; Tschannen-Moran & Woolfolk Hoy, 2001). This insight can also be applied to the ICMSE construct (Brouwers & Tomic, 2000). Many previous studies assess this construct as part of teaching efficacy and name it as ‘classroom management’ and or ‘discipline’ (Brouwers & Tomic, 2000; Sharma, Loreman & Forlin, 2011; Skaalvik & Skaalvik, 2007; Tschannen-Moran & Woolfolk Hoy, 2001). Very few studies have considered this construct to be unidimensional/single domain, and this is reflected in the instruments they used (for example, Betoret, 2009). Main and Hammond’s (2008) Behaviour Management Self-efficacy scale is an extension of this.

Teachers may exhibit confidence in their overall CM abilities. However, this does not guarantee consistent CMSE across different CM domains. Like self-efficacy, these beliefs may vary based on the demands of various CM tasks and contexts. For instance, teachers' judgments may differ when implementing reactive versus preventive strategies, as highlighted in earlier studies (Oliver et al., 2011; O’Neill & Stephenson, 2011a; Sugai & Horner, 2006). More recent research suggests that CM extends beyond reactive and proactive actions. It includes engaging students in learning by fostering prosocial behavior and establishing rules and procedures to regulate misbehaviour, among other strategies. Garrett further supports this, positing that CM is a “multi-faceted concept that includes the organization of the physical environment, the establishment of rules and routines, the development of effective relationships, and the prevention of and response to misbehavior.” (2008, p. 35).

PSTs must develop positive perceptions of their teacher training courses, particularly in developing their knowledge and skills in CM. This perception fosters their beliefs for effectively implementing CM in real classrooms. The findings of the present study provide evidence that TPs had a statistically significant positive effect on changing PST's CMSE, which is consistent with the previous studies, showing that PSTs had improved perceptions of their teacher training courses that included the content related to CM (Sokal et al., 2013). These results corroborate and extend Bandura's self-efficacy theory, which posits that positive perceptions from experiences enhance individuals' confidence in their capabilities.

Considering the mean subscale scores for SERA, SEPA, SPEB, and SECRP, the highest mean SERA subscale scores indicate that PSTs are more likely to implement reactive CM approaches than other strategies. Unsurprisingly, this is a common phenomenon among PSTs as they often hold preconceived notions that CM primarily involves controlling students’ disruptive behaviour. The literature supports that these naïve beliefs arise due to the tendency towards controlling students' immediate behavioural problems to maintain discipline, leaving an impression that managing behaviour equals reacting to students' disruptions rather than focusing on broader management strategies to foster students’ on-task behaviour and collaboration. This may be because PSTs may not adequately be exposed to other innovative, productive, and proactive management techniques during their preparatory training. An interesting point regarding variance is that SERA showed a very low variance, accounting for only 9% compared to the other domains, despite its high factor loadings and mean subscale scores. This could be explained by the possibility of homogeneous responses at the higher end of the response continuum, indicating that almost all participants strongly agreed with the statements related to SERA.

The magnitude of the standardized beta coefficients between TPs and the SERA, SEPA, SEPB, and SECRP further supports these findings. The SERA exhibited the highest value, followed by SEPA and SECRP, while SEPB showed no significant effect. This suggests that participants who held positive perceptions of their teacher training courses were more likely to develop higher self-efficacy in using reactive strategies to manage student misbehavior than other CM strategies.

Although reactive strategies; such as issuing warnings or punishing students for disruptive behavior—do not necessarily result in behavior change, teachers often resort to these approaches. This tendency may arise from insufficient knowledge about the effectiveness of alternative strategies and the broader scope of CM, which includes fostering social skills and promoting students' prosocial behavior. Furthermore, teachers may lack confidence in implementing proactive strategies effectively (Korpershoek et al., 2016; O'Neill & Stephenson, 2011a; Peters, 2012). Alternatively, their reliance on reactive strategies might reflect naïve beliefs shaped by their schooling experiences, cultural background, or family values.

The concept of CM embraces the principles of preventive actions for teachers to create an environment that fosters students' academic and social-emotional well-being (Lewis & Sugai, 1999). Research consistently posits that behavioural approaches alone will not facilitate creating positive relationships between and among students and staff; rather, schools must develop an environment that is trusted and respectful, whereby principals and staff need to model these behaviors and refuse to tolerate disrespectful behavior among students (Osher et al., 2007). For Mayer (1995), teachers' punitive disciplinary strategies, inconsistent classroom rules and procedures, and failure to meet the diverse needs of learners with SEN can be the causes for high rates of student anti-social behaviour.

Several longitudinal studies have supported the promotion of students' prosocial behaviour as a consideration when implementing effective CM strategies. These studies showed that students who were aggressive and demonstrated prosocial behaviour had reduced risk of unemployment in adulthood, increased levels of self-esteem, academic success, and high-quality relationships (Kokko & Pulkkinen, 2000; Van der Graaff, Branje, De Wied, Hawk & Meeus, 2018). Prosocial behaviour refers to voluntary actions that are expressed in ways that benefit others and society (Penner, Dovidio, Piliavin & Schroeder, 2005). Studies show that fostering students' prosocial behaviour enables inclusive classrooms to be more supportive and harmonious. In such an environment, students feel valued and included. Prosocial behaviour is fundamental for one to become a socially adapted person. Such behaviors can be manifested in a wide range of actions, from simple acts of kindness, such as offering a pencil to a fellow student who does not have a pencil or pen to write with, to acts of altruism, such as donating one's time or resources to charities (Batson & Powell, 2003). Prosocial behaviours, such as kindness, altruism, cooperation, empathy, and generosity, profoundly affect individual and societal well-being. The extent to which people choose to engage in prosocial actions depends on their personality traits, such as empathy, values, and morality; situational factors, such as social norms and peer influence; and contextual factors, such as cultural values, social institutions, and socioeconomic status (Caprara, Alessandri & Eisenberg, 2019; Feng, Han, & Zheng, 2022; Van der Graaff et al., 2018). Promoting prosocial behaviour among students in inclusive classrooms is critical for regular teachers to ensure that the classrooms are conducive to learning and achievement. This can be done using various strategies, including modelling behaviour, explicit instruction, positive reinforcements, collaborative learning activities, improving students' empathy and understanding, and creating a supportive classroom culture.

## 5. Conclusion

In conclusion, the hypothesis that teacher perceptions of initial teacher training courses that included CM content would predict self-efficacy for reactive and proactive classroom management actions of PSTs was supported, while the most potent effect was on self-efficacy towards reactive strategies. However, teacher perceptions did not significantly predict self-efficacy toward fostering students' prosocial behaviour. Compared to previous studies that established the link between different antecedents of CMSE of PSTs for working with children with SEN in inclusive classrooms, and often being treated the CMSE construct as unidimensional, this study provides a more nuanced understanding by focusing specifically on the relationships between TPs and various dimensions of the CMSE construct. It highlights the need to consider multiple dimensions of this construct when assessing the impact of different exogenous variables.

This finding has important implications for initial teacher training programs in that it supports the previous studies undertaken for the past four decades that the presence of CM content in initial teacher education programs, and affirmed that due to lack of exposure to various CM approaches, except for disciplinary actions, PSTs face several problems related to student misbehaviour in their classrooms. Most importantly, PSTs must be trained in CM approaches grounded on psychological principles rather than physical aspects of the classroom, in which more emphasis should be on PSTs' proactive actions. Given the significant impact of teacher perceptions on self-efficacy for reactive actions to address student disruptive behaviours, specifically with low effect on self-efficacy for proactive actions, improving students' prosocial behaviour, and enacting classroom rules and procedures, these areas should be prioritized in teacher education curricula. Professional development workshops focusing on enhancing these areas through evidence-based studies could be instrumental in boosting CMSE.

## 6. Limitations and Recommendations

While the findings of this study are robust, some limitations warrant consideration. First, the study's cross-sectional type precludes the ability to draw causal conclusions. In addition, the findings of this study should be treated with caution, as teacher perceptions and classroom management self-efficacy are domain- and context-specific and subject to change when teachers gain more experiences in CM practices in inclusive classrooms in later years. Hence, future research that could employ longitudinal designs is suggested to examine how changes in teacher perceptions over time impact CMSE. Second, although the construct of CMSE was considered multidimensional, the different dimensions may not be mutually exclusive; for instance, some may fit into more than one. Therefore, the differential effects of various types of domains of the CMSE construct should be further investigated to assess their stronger effects. Finally, while the study mainly focused on the link between perceptions and self-efficacy for CM, it is recommended to have studies that could explore the impact of various predictors, mediators, and moderators, such as training type, teachers' beliefs, or student characteristics to provide a more comprehensive understanding of what influences CMSE of PSTs.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

**Data sharing statement**

No additional data are available.



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