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Emotional Intelligence Training in Pre-Service Early Childhood Teachers: A Mixed-Methods Pilot Evaluation of the INTEMO Programme

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Abstract

Emotional competence is central to teacher well-being and classroom practice, yet intervention research in initial teacher education remains limited. This pilot study evaluated an eight-session university adaptation of INTEMO using a convergent mixed-methods design with 38 first-year Early Childhood Education students (control $n = 20$; intervention $n = 18$). Perceived emotional attention, clarity, and repair were assessed pre–post with the TMMS-24, and intervention participants completed repeated open-ended reflections. Three 2 × 2 mixed ANOVAs were used as exploratory individual-level comparisons of change, while inductive reflexive thematic analysis was used for the qualitative strand; both strands were integrated through a joint display. None of the three Group × Time interactions was statistically significant. Descriptively, the intervention group increased in attention (+2.33), clarity (+2.78), and repair (+1.78), while the control group was stable or declined slightly. Five qualitative themes reflected perceived emotional learning, experiential learning, anticipated application to future teaching, and personal well-being/stress management. The findings do not establish efficacy or demonstrated emotional ability, but identify learning processes and design priorities for a larger, preregistered multi-class longitudinal evaluation.

Keywords: emotional intelligence; pre-service teachers; early childhood education; teacher education; mixed methods; INTEMO; programme evaluation

1. Introduction

Teaching is an emotionally demanding profession. Teachers are expected to interpret pupils' emotional cues, regulate their own responses during conflict, sustain supportive relationships, and create classroom climates that enable learning. The Prosocial Classroom model positions teachers' social and emotional competence and well-being as central antecedents of teacher–student relationships, classroom management, and the effective implementation of social–emotional learning (Jennings & Greenberg, 2009). More recent work similarly shows that teachers' emotions and regulation strategies shape instructional behaviour and students' emotional experiences (Frenzel et al., 2021). These demands begin before professional entry: pre-service teachers must learn to manage the simultaneous pressures of university study, practicum preparation, identity

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development, and anticipated classroom responsibility. Related research with university students has also linked social skills and creative self-efficacy with self-esteem and life satisfaction, underscoring the broader relevance of personal and social competencies during higher education (González Moreno et al., 2024). Emotional intelligence has likewise been associated with academic self-efficacy and psychological well-being in university students (García-Álvarez et al., 2021).

Emotional intelligence offers a coherent framework for addressing these demands. Within the ability model, emotional intelligence comprises the capacity to perceive emotions accurately, use emotion to facilitate thinking, understand emotional meanings and transitions, and regulate emotions in oneself and others (Mayer & Salovey, 1997). Although the present study assesses perceived rather than performance-based emotional intelligence, the same four-branch framework guided the intervention. Perceived emotional intelligence is commonly operationalised through emotional attention, clarity, and repair: the extent to which individuals attend to feelings, understand them, and believe they can regulate negative states and maintain positive ones (Salovey et al., 1995). More broadly, emotion regulation involves the processes through which individuals influence the emotions they experience and how these emotions are expressed (Gross, 1998).

Evidence indicates that emotional competencies are malleable. University interventions grounded in emotional intelligence have produced improvements in emotion identification, management, emotional self-efficacy, and related outcomes (Nelis et al., 2009; Pool & Qualter, 2012). In teacher education, targeted programmes have also generated encouraging results. Vesely et al. (2014) reported benefits of focused emotional intelligence training for pre-service teacher well-being, while Schelhorn et al. (2023) found that a controlled emotional competence training improved selected self-reported and objectively assessed regulation outcomes. A recent mixed-methods study with 73 pre-service primary teachers found that a ten-week programme integrated into coursework improved emotional intelligence and was positively evaluated by participants (Özdemir Cihan & Dilekmen, 2024). Larger and multi-context studies have likewise shown that emotion regulation programmes can strengthen coping self-efficacy, even when broader well-being indicators do not change over the same period (Wang et al., 2026). Complementary observational evidence has also associated emotional intelligence with healthier psychosocial and behavioural profiles in adolescent educational contexts (González Moreno & Molero Jurado, 2024).

Despite this growing literature, three gaps remain. First, emotional intelligence training is still inconsistently embedded in initial teacher education, despite evidence that pre-service teachers' well-being and emotional learning warrant explicit curricular attention (Corcoran & O'Flaherty, 2022). Second, interventions developed for adolescents or general university populations cannot be assumed to transfer unchanged to teacher education. Adaptation must preserve theoretical mechanisms while addressing programme dosage, curricular constraints, developmental characteristics, and professional relevance. Third, many evaluations privilege standardised outcomes and provide limited information about the processes through which participants interpret, practise, and transfer emotional learning.

The INTEMO programme is a well-established Spanish intervention based on the Mayer–Salovey ability model. In adolescent samples, INTEMO has been associated with improved psychosocial adjustment and mental health (Ruiz-Aranda et al., 2012a, 2012b). Its sequence of emotional perception, facilitation, understanding, and regulation provides a strong theoretical basis for adaptation. However, the original programme was designed for secondary-school populations. Applying it to first-year university students preparing for Early Childhood Education required changes in language, examples, activities, and

scheduling, as well as an explicit connection to teachers' role as emotional models and co-regulators.

A mixed-methods design is especially useful when evaluating such an adaptation. Quantitative measures can estimate the direction and magnitude of change, while qualitative evidence can reveal proximal learning, perceived mechanisms, participant-reported usefulness and engagement, and anticipated professional application. Integration is not achieved merely by presenting two parallel sets of results; it requires examining where findings converge, complement one another, or differ in construct coverage (Fetters et al., 2013). Joint displays can make these relationships explicit and support meta-inferences that extend beyond either strand alone (Guetterman et al., 2015). This is particularly important in a small pilot study, where outcome estimates are imprecise and should not be treated as definitive tests of efficacy (Eldridge et al., 2016).

Accordingly, the original pilot evaluation was designed to collect both quantitative pre-test/post-test data and repeated qualitative reflections during the same intervention period. The present manuscript explicitly integrates these two planned strands within a convergent mixed-methods framework. The study addressed three research questions: (RQ1) What preliminary between-group patterns of change are observed in perceived emotional attention, clarity, and repair? (RQ2) What emotional learning, personal changes, and anticipated professional applications do participants describe? (RQ3) How do the quantitative and qualitative findings converge, complement one another, or differ in construct coverage when interpreted together?

2. Materials and Methods

2.1. Design and Study Context

The study used a convergent mixed-methods pilot design planned as part of the original programme evaluation (Creswell & Plano Clark, 2018). The quantitative strand followed a non-randomised pre-test–post-test control-group design, while the qualitative strand examined repeated written reflections from the intervention group. Both strands addressed the same intervention period, were analysed separately, and were integrated during interpretation. The design was exploratory: the quantitative analyses described preliminary between-group patterns and effect-size magnitudes, whereas the qualitative analysis examined perceived learning processes and anticipated application.

Participants were drawn from two intact first-year Early Childhood Education classes at a Spanish public university. Allocation followed the existing teaching organisation rather than randomisation, resulting in a quasi-experimental design. The control group continued its usual academic activities and did not receive structured emotional-intelligence training, although incidental exposure to related content in other coursework was not systematically assessed. Because both groups belonged to the same degree programme, informal interaction and potential contamination could not be ruled out. Moreover, each condition corresponded to a single intact class, so intervention condition and class membership were completely confounded. Group × Time comparisons were therefore interpreted as exploratory between-group patterns rather than causal estimates of INTEMO efficacy.

2.2. Participants

The analytic sample comprised 38 students aged 18 to 24 years ($M = 20.07$, $SD = 1.76$). The intervention group included 18 students and the control group 20 students (Figure 1). Thirty-seven participants were women and one was a man; the control group consisted entirely of women, and the only man was in the intervention group. This distribution

reflects the marked feminisation of Early Childhood Education programmes but limits examination of gender-related variation.

Participants were recruited through non-probability convenience sampling. The study archive contains 38 enrolled participants from the two participating intact classes, and all 38 provided complete pre-test and post-test TMMS-24 data; no quantitative cases were excluded for incomplete longitudinal data. A separate screening log of students who were eligible or approached but did not enrol was not retained, so those numbers cannot be reconstructed retrospectively. Pre-test and post-test responses were linked using a participant-specific assigned study code that did not contain the participant's name. Pairing was verified by group and assigned code before analysis, yielding 18 matched intervention pairs and 20 matched control pairs. Seventeen of the 18 intervention participants contributed qualitative data. Across five scheduled reflection points (four phase-specific reflections and one final reflection), 77 of 90 possible reflection sets were completed (85.6%): nine participants completed all five reflection points, eight completed four, and one intervention participant provided no qualitative reflections.

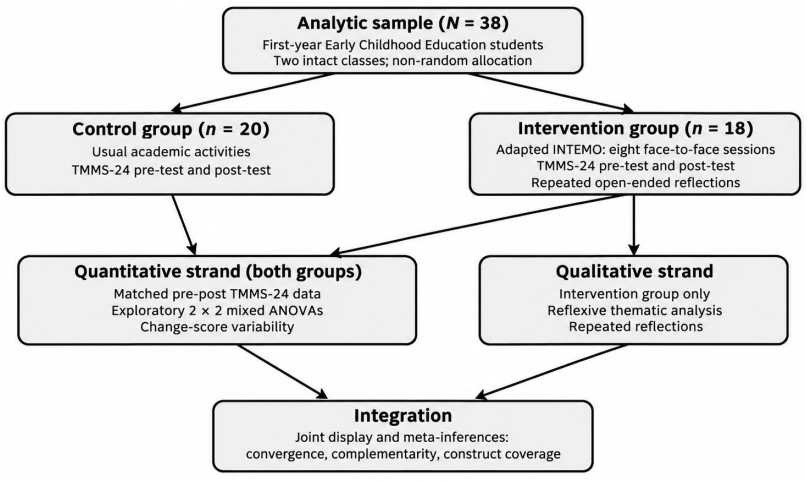


Figure 1. Design, groups, data sources, and integration strategy. Both groups contributed to the quantitative strand; only the intervention group contributed repeated qualitative reflections.

2.3. Adaptation and Delivery of the INTEMO Programmed

INTEMO was selected because it is theoretically grounded in the four-branch ability model and has shown beneficial outcomes in Spanish adolescents (Ruiz-Aranda et al., 2012a, 2012b). The original INTEMO programme comprises 12 sessions (10 obligatory sessions and 2 optional sessions) organised around emotional perception and expression, emotional facilitation, emotional understanding, and emotional regulation (Ruiz-Aranda et al., 2013). For the present university adaptation, all four branches and their original sequence were retained, but the programme was condensed to eight face-to-face sessions, with two sessions devoted to each branch. Activities were selected, reorganised or merged, and language and examples were reframed around university life, academic demands, and situations relevant to future Early Childhood teaching. Greater emphasis was placed on perspective-taking, teachers' emotional modelling, co-regulation, and possible classroom applications.

The eight-session format was chosen because of semester scheduling constraints. Homework tasks from the original programme were removed because first-year students already had substantial autonomous work associated with continuous assessment, and additional mandatory tasks were considered likely to increase burden and reduce compliance. Structured practice was therefore concentrated within the face-to-face sessions. Archived implementation materials specify activity-level durations; planned sessions

generally contained approximately 55–75 min of structured activities, with additional time for phase-specific written reflection and pre-/post-assessment where applicable. The archived reflections indicate an implementation period of approximately four weeks, corresponding to about two sessions per week (Table 1). The first author, a university lecturer/researcher in psychology (A.G.M.), coordinated the adaptation and classroom delivery. The sessions combined role-play, group problem solving, visual analysis, artistic expression, games, guided reflection, perspective-taking, body awareness, and regulation practice. Although these modifications improved curricular and professional fit, they reduced programme dosage and opportunities for between-session rehearsal; the intervention should therefore be considered an adaptation rather than an equivalent replication of the original INTEMO programme.

Table 1. Content and intended mechanisms of the adapted eight-session programme.

Phase	Sessions	Illustrative Activities	Targeted Competencies
Perception and expression	1–2	What is your body saying? What are they feeling? Find your match. The wax museum. An emotional artist	Identifying and expressing emotions; recognising emotions in others; emotional creativity; complex emotions
Emotional facilitation	3–4	Emotion-Filled memories. Matching each emotion to a situation. Tell me how you feel and I will tell you how you think	Influence of emotion on memory, attention, thought, creativity, and adaptive action
Emotional understanding	5–6	The emotions party. The balloon journey. I think, Therefore I feel. Changing roles	Emotional vocabulary; links among situations, appraisals, and emotions; empathy and perspective-taking
Emotional regulation	7–8	What do we do when we feel…? What makes me feel…? Know your body. Managing others' emotions. Observe, enact, understand, and evaluate	Intrapersonal and interpersonal regulation; coping strategies; body awareness; emotion-informed decision-making

Note: Table 1 summarises the planned content of the adapted eight-session programme. Attendance, exact participant exposure to each activity, and session-by-session delivery fidelity were not systematically recorded; therefore, the table should not be interpreted as a fidelity-verified record of implementation.

2.4. Measures

2.4.1. Perceived Emotional Intelligence

Perceived emotional intelligence was assessed with the Spanish 24-item Trait Meta-Mood Scale (TMMS-24), adapted and validated from the original Trait Meta-Mood Scale (Salovey et al., 1995; Fernández-Berrocal et al., 2004). Items are rated from 1 (strongly disagree) to 5 (strongly agree) and form three eight-item subscales: Emotional Attention, Emotional Clarity, and Emotional Repair. Subscale scores range from 8 to 40, with higher values indicating greater perceived attention, understanding, or regulation, respectively.

Internal consistency in the present sample was adequate, although the estimates should be interpreted cautiously given the small pilot sample: alpha = 0.80 for Attention, 0.88 for Clarity, and 0.85 for Repair. The TMMS-24 assesses self-perceived meta-emotional functioning rather than performance on emotion-processing tasks. This distinction was considered when integrating quantitative and qualitative findings.

2.4.2. Open-Ended Reflective Questionnaire

The intervention group completed open-ended digital reflections at the end of each of the four programme phases and a final reflection after session eight. At each phase, three prompts addressed: (a) the emotional-intelligence skills and activities experienced and what participants understood from them; (b) perceived learning about managing

their own and others' emotions and changes or reinforcement of prior knowledge; and (c) perceived usefulness for personal life or future Early Childhood teaching, with concrete examples. The final reflection contained four prompts addressing the most relevant learning, perceived influence in personal/academic/professional domains, anticipated contribution to future teaching, and overall usefulness and suggested improvements. The complete prompts are reproduced in Appendix A.

Repeated collection across the intervention provided process-sensitive evidence that could be compared with the more global pre–post TMMS-24 scores. The qualitative corpus comprised 77 completed reflection sets out of 90 possible sets (85.6%). Seventeen of the 18 intervention participants contributed qualitative data; nine completed all five scheduled reflection points, eight completed four, and one provided no reflections. Completed reflection sets contained an average of approximately 279 words (*SD* = 128; range = 79–689), excluding prompts and headings.

2.5. Procedure and Ethical Considerations

Before the intervention, both groups completed the TMMS-24 through a pseudonymised digital form using an assigned study code. The same code was used at post-test to link responses longitudinally without using names. The intervention group then participated in the eight adapted sessions. Open-ended reflections were collected after each programme phase, and both groups completed the TMMS-24 again immediately after the programme. The intervention group also completed the final qualitative evaluation. The qualitative reflections were submitted individually and were identifiable to the researcher at the point of collection; identifying information was removed before qualitative analysis and reporting.

All participants were adults and received information about the study objectives, voluntary participation, confidentiality, data processing, and the academic and research use of the collected data before providing digital informed consent. Participants were aware that the reflections formed part of the programme evaluation. Data were handled confidentially in accordance with Spanish data-protection legislation (Organic Law 3/2018). The study was conducted in accordance with the Declaration of Helsinki (World Medical Association, 2013) and received a favourable report from the Ethics Committee (reference CH-251030/FEB.PRY).

2.6. Data Analysis

2.6.1. Quantitative Analysis

Analyses were conducted in IBM SPSS Statistics version 32 and independently audited from the original participant-level dataset for the revision. Means and standard deviations were calculated by group and time. Independent-samples *t* tests examined baseline comparability, and Hedges' g described standardised baseline differences. Pre-test and post-test observations were matched using the assigned study code. Individual change scores (post-test minus pre-test) were calculated for Attention, Clarity, and Repair, and their mean and standard deviation are reported by group. Three 2 × 2 mixed analyses of variance were then conducted, with Group (control vs. intervention) as the between-participant factor and Time (pre-test vs. post-test) as the within-participant factor. Separate models were estimated for Attention, Clarity, and Repair.

The Group-by-Time interaction was used to describe differential change between the two participating groups. Results are reported as $F(1,36)$, exact p values, and partial eta squared. Because each condition was represented by only one intact class, Group was completely confounded with class membership; the student-level models cannot distinguish programme exposure from class-specific influences and are therefore interpreted only as exploratory between-group comparisons, not as causal treatment-effect estimates.

Given the small sample and exploratory purpose, interpretation prioritised direction, magnitude, uncertainty, and consistency across methods rather than dichotomous claims based on $p < .05$.

2.6.2. Qualitative Analysis

The written responses were analysed using inductive reflexive thematic analysis following Braun and Clarke's six-phase process (Braun & Clarke, 2006, 2021): familiarisation, initial coding, generation of candidate themes, review of themes against the coded extracts and full dataset, definition and naming of themes, and analytic writing. Coding focused on emotional learning, perceived personal change, anticipated application to future teaching, and features of the learning process. Consistent with qualitative evaluation principles, the analysis sought to preserve participants' perspectives and contextualise variation across accounts (Patton, 2015).

The qualitative analysis was conducted collaboratively by the authors. The first author (A.G.M.) was also involved in programme adaptation and classroom delivery. This insider position provided contextual familiarity but created the possibility that positive expectations about the programme could shape interpretation. Reflexivity was therefore treated as part of the analytic process: candidate themes were repeatedly compared with the complete corpus, alternative and less affirmative accounts were actively examined, and qualitative interpretations were considered alongside the non-significant quantitative findings. Consistent with reflexive thematic analysis, inter-rater agreement was not calculated; quality was pursued through iterative comparison of codes and themes with the full dataset, transparent theme definitions, and representative extracts. For revised reporting, names were replaced with participant codes (P01-P18) while retaining collection phase. Quotations were originally written in Spanish and were translated into English for publication, with translations checked against the Spanish source text to preserve semantic meaning.

2.6.3. Mixed-Methods Integration

Integration occurred through comparison and joint display. For each TMMS-24 dimension, three features were considered separately: (a) the direction of descriptive quantitative change; (b) the statistical uncertainty surrounding the between-group difference in change; and (c) the degree of conceptual correspondence between the TMMS-24 construct and participants' qualitative accounts. Findings were described as convergent when conceptually comparable evidence from both strands pointed in the same direction, partially convergent when they showed directional correspondence but differed in strength or construct coverage, and complementary when the qualitative strand addressed an outcome not measured quantitatively. Statistical non-significance alone was not treated as divergence. The integrated analysis generated cautious meta-inferences about perceived learning, construct coverage, and priorities for future measurement.

3. Results

3.1. Baseline Comparability and Descriptive Change

The two groups did not differ significantly at baseline. Recalculated independent-samples comparisons based on the pre-test data yielded: Attention, $t(36) = 0.77$, $p = .445$, Hedges' $g = 0.25$; Clarity, $t(36) = 0.33$, $p = .741$, $g = 0.11$; and Repair, $t(36) = -0.59$, $p = .562$, $g = -0.19$. These small baseline differences do not remove the limitations of non-random assignment, but they indicate no marked initial imbalance on the three outcomes.

Descriptively, the control group was stable in Attention and declined slightly in Clarity and Repair. The intervention group increased in all three dimensions, with the largest

raw change in Clarity. Table 2 reports pre-test and post-test values together with the mean and standard deviation of individual change scores.

Table 2. Pre-test and post-test TMMS-24 scores by group.

Dimension	Group	Pre-Test *M* (*SD*)	Post-Test *M* (*SD*)	Change *M* (*SD*)
Attention	Control (n = 20)	28.60 (5.35)	28.65 (6.56)	+0.05 (9.65)
	Intervention (n = 18)	27.00 (7.36)	29.33 (7.12)	+2.33 (8.94)
Clarity	Control (n = 20)	25.30 (5.37)	24.80 (5.71)	−0.50 (8.28)
	Intervention (n = 18)	24.61 (7.37)	27.39 (7.49)	+2.78 (9.09)
Repair	Control (n = 20)	24.75 (7.03)	24.40 (6.12)	−0.35 (11.12)
	Intervention (n = 18)	26.11 (7.30)	27.89 (7.96)	+1.78 (9.15)

Note: Change = post-test minus pre-test. The change column reports the mean and standard deviation of individual change scores. Higher scores indicate higher perceived emotional attention, clarity, or repair.

3.2. Preliminary Quantitative Outcomes

The audited mixed ANOVAs did not identify a statistically significant Group-by-Time interaction for any dimension. The interaction for Attention was $F(1,36) = 0.57$, $p = .456$, partial eta squared = 0.016; for Clarity, $F(1,36) = 1.35$, $p = .252$, partial eta squared = 0.036; and for Repair, $F(1,36) = 0.41$, $p = .526$, partial eta squared = 0.011. Clarity showed the largest interaction estimate, but all estimates were small and imprecise. Because intervention condition coincided with membership in a single intact class, these values describe exploratory differential change between the two groups and cannot be interpreted as causal programme effects.

Neither the main effect of Group nor the main effect of Time was statistically significant for any outcome (Table 3). The quantitative results therefore do not demonstrate short-term efficacy. They do, however, show descriptive increases in the intervention group while the control group remained stable or declined slightly. These descriptive patterns are reported to inform future study design rather than as evidence of a treatment effect.

Table 3. Mixed ANOVA results for perceived emotional intelligence.

Dimension	Effect	*F*(1,36)	*p*	Partial Eta Squared
Attention	Group	0.09	.765	0.003
	Time	0.62	.437	0.017
	Group × Time	0.57	.456	0.016
Clarity	Group	0.36	.550	0.010
	Time	0.65	.424	0.018
	Group × Time	1.35	.252	0.036
Repair	Group	2.30	.138	0.060
	Time	0.18	.670	0.005
	Group × Time	0.41	.526	0.011

Note: Group × Time describes differential change between the two participating intact groups. Because each condition corresponded to one class, these individual-level effect-size estimates cannot separate intervention exposure from class-specific influences and should be interpreted as exploratory.

3.3. Qualitative Findings

Five themes captured how participants interpreted the programme. The themes represented perceived intrapersonal learning, interpersonal understanding, experiential engagement, anticipated professional application, and perceived well-being-related strategy

use. Participant codes and collection phases are shown with representative extracts in Table 4.

Table 4. Themes and representative participant reflections.

Theme	Central Meaning	Illustrative Extract
1. Validating all emotions	Moving from a good/bad dichotomy towards understanding emotions as functional signals that can be recognised and expressed without suppression.	"Fear protects us, and anger alerts us to a boundary; managing them is not about repressing them but expressing them appropriately." (P01, Phase 3)
2. Empathy and understanding others	Greater attention to facial, bodily, and contextual cues; perspective-taking; reduced personalisation of others' reactions.	"Two people can experience the same situation but feel completely different things; changing perspective is the only way to truly understand the other person." (P01, Phase 3)
3. Experiential learning through play	Games, role-play, artistic activities, and first-person experience made abstract emotional concepts concrete and memorable.	"Learning took place through play and personal experience, which is when learning becomes more real." (P05, Final Reflection)
4. Anticipated application to future teaching	Recognition of the teacher as an emotional model and anticipated use of play, visual resources, and calm co-regulation in future classrooms.	"I learned that my own calmness, gestures, and tone of voice influence children… through imitation they can return to calm." (P05, Final Reflection)
5. Personal well-being and stress management	Perceived pausing before reacting, reduced impulsivity, management of frustration, and use of regulation strategies during academic pressure.	"During this month with so much stress, I have tried to stop and think and replace negativity with much calmer responses." (P05, Final Reflection)

3.3.1. Validating All Emotions

Participants described a shift from classifying emotions as intrinsically positive or negative to recognising their adaptive and communicative functions. Sadness was reframed as a legitimate response rather than a failure to remain positive, while fear and anger were understood as signals of danger, need, or boundary violation. Regulation was therefore interpreted less as suppression and more as recognising, accepting, and expressing emotion appropriately.

This theme indicates conceptual change in emotional beliefs. Students did not simply learn labels; they reconsidered culturally familiar messages such as "do not cry" or "always be happy". The programme appeared to legitimise a wider emotional repertoire and to establish acceptance as a precondition for regulation.

3.3.2. Developing Empathy and Emotional Understanding

Students reported greater attention to non-verbal cues, including eyebrows, eyes, mouth, posture, and tone of voice. They also emphasised that the same situation can elicit different emotional responses depending on prior experiences, appraisals, and needs. Perspective-taking was described as a way to understand behaviour without immediately personalising it.

The theme combined perceptual learning with relational change. Participants linked better emotion recognition to listening, reduced reactivity, and more respectful responses. These accounts are professionally relevant because early childhood teachers routinely infer emotional states that young children may not yet be able to verbalise.

3.3.3. Learning Through Play and Experience

Participants consistently valued the active methodology. Role-play, group games, images, music, artistic representation, and embodied exercises were described as more

effective than receiving the same content through a lecture. Students considered first-person experience essential for understanding the four emotional abilities.

Play was not treated as entertainment separate from learning. Rather, it functioned as the mechanism through which emotional concepts were rehearsed, discussed, and connected to real situations. The methodology also modelled strategies that participants could later adapt for young children.

3.3.4. Anticipated Application to Future Early Childhood Teaching

Students described how they anticipated applying programme content in their future classrooms. They proposed emotion thermometers, visual resources, dramatization, and games to support children's recognition and regulation of emotion. More importantly, they recognised that a teacher's tone, facial expression, and behavioural calm may either escalate or de-escalate a group.

This theme reflects anticipated professional application rather than demonstrated transfer. Participants understood that emotional education may be communicated not only through planned activities but also through teachers' moment-to-moment modelling and co-regulation. Because participants had not yet been observed applying these competencies in teaching practice, their accounts should be interpreted as intended future use and developing professional identity rather than enacted classroom competence.

3.3.5. Personal Well-Being and Stress Management

Participants described using the programme to pause, reconsider appraisals, and choose calmer responses during a period of assignments and examinations. They linked the sessions to reduced impulsivity, better management of anger and frustration, and greater awareness of bodily tension.

These accounts should not be interpreted as clinical evidence of improved well-being. They indicate perceived use of proximal regulation strategies in everyday academic situations. The immediacy and specificity of these descriptions contrasted with the global nature of the TMMS-24 subscales. The salience of these stress-related accounts is consistent with broader educational evidence linking stress with resilience and other psychosocial resources in adolescent students (González Moreno & Molero Jurado, 2023).

Although most reflections were positive, perceived change was not uniform across participants. One participant stated that "my way of understanding and managing emotions has not changed much, although I have learned many new things that I will apply in my daily life and future profession" (P06, Final Reflection). The same participant described the four-week focus on emotions as "a little repetitive," while noting that the variety of activities reduced this feeling. These comments indicate variation in perceived personal change and reinforce the interpretation of the qualitative findings as individual accounts of learning rather than evidence of uniform programme-related improvement.

3.4. Integrated Mixed-Methods Findings

The joint display in Table 5 separates direction of descriptive change, statistical uncertainty, and construct coverage. All three intervention-group means increased descriptively. Emotional Attention therefore showed partial directional convergence rather than divergence: quantitative and qualitative findings pointed towards increased emotional noticing, but the TMMS-24 assesses the amount of self-reported attention whereas participants more often described selective observation of facial, bodily, and contextual cues. Emotional Clarity and Repair also showed partial convergence, although all quantitative comparisons remained uncertain. Anticipated application to future teaching and experiential learning were complementary outcomes because they were not measured by the TMMS-24.

Table 5. Joint display integrating quantitative and qualitative findings.

Domain	Quantitative Pattern	Related Qualitative Evidence	Integrated Meta-Inference
Emotional Attention	Intervention +2.33 (*SD* 8.94) vs. control +0.05 (*SD* 9.65); Group × Time partial eta squared = 0.016, *p* = .456.	Greater observation of facial and bodily cues; heightened awareness of one's own reactions.	Partial directional convergence with construct mismatch and high uncertainty. Both strands pointed towards increased emotional noticing, but the TMMS-24 measures self-reported amount of attention whereas qualitative accounts concerned selective observation and use of emotional cues.
Emotional Clarity	Intervention +2.78 (*SD* 9.09) vs. control −0.50 (*SD* 8.28); Group × Time partial eta squared = 0.036, *p* = .252.	Validation of all emotions; improved vocabulary; links among situations, thoughts, and feelings; perspective-taking.	Partial convergence under high uncertainty. The largest quantitative interaction estimate aligned directionally with richer emotional differentiation and understanding, but the between-group comparison cannot establish an intervention effect.
Emotional Repair	Intervention +1.78 (*SD* 9.15) vs. control −0.35 (*SD* 11.12); Group × Time partial eta squared = 0.011, *p* = .526.	Pausing before reacting; reduced impulsivity; calmer responses; strategies for stress, anger, and frustration.	Partial directional convergence under high uncertainty. Participants described regulation strategies consistent with the descriptive pattern, but the quantitative comparison does not demonstrate reliable programme-related change.
Anticipated application to future teaching practice	Not measured quantitatively.	Teacher calm as possible co-regulation; visual resources, role-play, games, and intended creation of safe classroom climates.	Complementarity. Participants generated intended future classroom applications outside the scope of the TMMS-24; these accounts do not constitute demonstrated professional transfer.
Experiential learning	Not measured quantitatively.	Play and first-person experience were described as the principal mechanisms of engagement and understanding.	Complementarity. The qualitative strand identifies a plausible implementation mechanism that can inform programme refinement.

4. Discussion

4.1. Principal Findings

This study integrated quantitative and qualitative evidence from an adapted INTEMO programme for pre-service Early Childhood teachers. The quantitative analyses did not show statistically significant differential changes in perceived emotional attention, clarity, or repair. Because the intervention and control conditions each corresponded to a single intact class, these quantitative comparisons cannot isolate an INTEMO effect from class-specific influences and should be treated as exploratory between-group patterns. Descriptively, the intervention group increased across all three dimensions while the control group was stable or declined slightly, with the largest Group-by-Time estimate for Clarity. The qualitative strand identified perceived learning in emotional validation, empathy, experiential learning, anticipated future teaching application, and personal regulation.

The central mixed-methods finding is therefore one of partial directional convergence and complementarity rather than confirmation. Quantitative estimates were uncertain and the design precludes causal attribution, while qualitative evidence described proximal perceived learning and intended application. The contribution of the pilot lies

less in demonstrating that INTEMO "worked" and more in specifying what participants reported learning, where descriptive quantitative patterns were observed, how measurement constructs differed, and how a future multi-class evaluation could be strengthened.

4.2. Interpreting the Quantitative Findings

The absence of significant interactions should be interpreted in the context of both the small sample and the design. The study included 38 participants distributed across two non-randomised intact groups, with one class per condition. Pilot estimates are imprecise, but more importantly, condition is completely confounded with class membership; inferential statistics at the student level cannot distinguish programme exposure from other class-specific influences. The appropriate conclusion is therefore not that INTEMO had no effect, nor that descriptive gains establish efficacy, but that these two groups showed uncertain and exploratory differences in change that can inform a more rigorous future evaluation.

The pattern for Emotional Clarity was the most notable. The intervention group increased by 2.78 points while the control group decreased by 0.50 points, producing the largest Group-by-Time estimate, partial eta squared = 0.036, $p = .252$. Qualitative accounts similarly emphasised greater emotional vocabulary, more differentiated understanding, and recognition of links among situations, thoughts, and feelings. This directional alignment is theoretically plausible because many programme activities explicitly required participants to distinguish emotions and explain their functions, but it remains exploratory and cannot be attributed uniquely to the programme.

Emotional Repair also showed a descriptive difference, but the audited interaction estimate was small and uncertain (partial eta squared = 0.011, $p = .526$). Participants described pausing, reducing impulsivity, and using calmer responses during academic stress. Regulation is a complex skill that typically requires repeated practice and transfer beyond the training setting. The removal of homework may have been particularly relevant because regulation strategies require repeated application across situations and over time; the absence of structured between-session rehearsal may have attenuated consolidation in this domain. Larger controlled studies of pre-service teacher interventions have found effects on specific regulation or coping outcomes, but not uniformly across broader well-being indicators (Schelhorn et al., 2023; Wang et al., 2026). The eight-session dosage and immediate post-test may also have limited detectable change.

Emotional Attention showed a descriptive increase in the intervention group (+2.33) relative to the control group (+0.05), but the Group-by-Time estimate remained small and uncertain (partial eta squared = 0.016, $p = .456$). This pattern is better understood as partial directional convergence with construct mismatch than as divergence. The TMMS-24 Attention subscale assesses the extent to which individuals attend to and think about their emotional states, not the accuracy, selectivity, flexibility, or contextual appropriateness of that attention. Greater emotional attention is not uniformly adaptive: research has linked high attention, particularly when not accompanied by sufficient clarity or repair, with rumination and poorer adjustment (Fernández-Berrocal & Extremera, 2006; Bueno-Cuadra et al., 2023). In teacher emotional competence, adaptive attention may therefore involve selectively noticing relevant internal and interpersonal cues while maintaining clarity and regulation rather than simply attending more. The qualitative accounts were consistent with this more selective form of attention, describing observation of facial, bodily, and situational information before responding. A performance-based emotional-perception measure would be better suited to testing such learning.

4.3. Emotional Learning and Professional Identity

The qualitative themes extend previous intervention research by showing how pre-service Early Childhood teachers connected perceived emotional learning with their developing professional identity. Emotional validation was especially salient. Participants moved away from suppressive or moralised views of sadness, fear, and anger towards a functional understanding of emotion. This conceptual shift is relevant because teachers' beliefs about emotion influence how they respond to children's expressions and whether classrooms become spaces of acknowledgement or invalidation.

Empathy and perspective-taking were also central. Participants learned to consider non-verbal cues and individual appraisals before interpreting behaviour. Early childhood classrooms place particular demands on this competence because children may communicate distress through behaviour rather than language. Research with pre-service teachers has linked emotion-related regulation and cognition to responses to children's emotions in early childhood settings (Swartz & McElwain, 2012). The present findings suggest that experiential activities may help future teachers rehearse this interpretive stance before practicum.

The strongest professional theme concerned anticipated modelling and co-regulation. Students recognised that shouting for calm can reproduce the arousal it seeks to reduce, whereas a regulated tone and posture may help children return to calm. This insight closely reflects theories that position teachers' emotional competence as a foundation for supportive relationships and classroom management (Jennings & Greenberg, 2009). However, participants described intended future application rather than demonstrated transfer; no classroom observation or practicum outcome was collected.

4.4. What Integration Adds

Had the study reported only the quantitative strand, the conclusion would have been limited to uncertain, non-significant between-group pre–post patterns that cannot be separated from class effects. Had it reported only the qualitative strand, the strongly positive reflections might have encouraged overstatement of impact. Integration provides a more defensible account: participants described meaningful and professionally relevant perceived learning, but the standardised self-report outcomes and study design do not establish reliable or causal short-term change.

The joint display also clarifies that the two strands addressed partly different levels of outcome. The TMMS-24 assessed broad self-perceptions, whereas the reflections captured specific knowledge, strategy use, pedagogical ideas, and meaning-making. These are not interchangeable. Qualitative evidence can identify early mechanisms and implementation targets, but it cannot substitute for controlled outcome evidence. Conversely, a global self-report may miss changes that are context-specific, emerging, or outside its construct coverage.

This distinction has practical implications for future evaluation. A definitive study should retain perceived emotional intelligence while adding performance-based emotional ability measures, behavioural indicators during simulated classroom situations, stress or coping outcomes, and observation during practicum. Such a multimethod battery would better test whether conceptual learning develops into enacted professional competence.

4.5. Implications for Programme Redesign and Teacher Education

Participants' accounts support retaining the programme's experiential and play-based core in future testing. Role-play, visual resources, games, artistic expression, and embodied activities were frequently identified as helpful for understanding. This is consistent with other university emotional-intelligence programmes that combine brief

instruction with rehearsal, reflection, and applied tasks (Nelis et al., 2009; Pool & Qualter, 2012; Özdemir Cihan & Dilekmen, 2024). Because formal acceptability measures and systematic fidelity data were not collected, these reflections should be interpreted as perceived usefulness and engagement rather than evidence of established acceptability or feasibility.

However, the adaptation should be strengthened before a larger trial. First, between-session practice should be reintroduced in a low-burden format, such as brief reflective logs, optional micro-practices, or structured application during practicum. Second, the programme should include explicit rehearsal of teacher-specific scenarios: child dysregulation, family communication, peer conflict, classroom overload, and emotionally challenging feedback. Third, follow-up booster sessions may help consolidate repair strategies. Fourth, intervention fidelity, attendance, and acceptability should be recorded systematically rather than inferred from positive reflections.

At curriculum level, emotional education should be connected to classroom management, inclusive practice, communication, and practicum supervision rather than positioned as an isolated wellness workshop. The programme's dual focus—supporting current student well-being and future co-regulation of children—is consistent with contemporary work calling for social–emotional learning within teacher preparation (Corcoran & O'Flaherty, 2022) and with evidence that emotional intelligence development can support future teachers' academic and professional outcomes (Poveda-Brotons et al., 2024).

4.6. Strengths and Limitations

The study has several strengths. It evaluates a theoretically grounded adaptation in an authentic university context, includes a control group, reports null findings transparently, integrates repeated qualitative reflections with quantitative outcomes, and uses a joint display to distinguish directional convergence, complementarity, statistical uncertainty, and differences in construct coverage. The focus on pre-service Early Childhood teachers also addresses a population whose future work is inherently relational and emotion-intensive.

The limitations are substantial. The sample was small, convenience-based, drawn from a single institution and degree programme, and almost entirely female. Gender differences in emotional-intelligence indicators have been reported in large pre-service teacher samples, with women sometimes scoring higher on emotional-intelligence dimensions (García-Martínez et al., 2021), although evidence that gender moderates training effects remains limited. With 37 women and one man, the present study could not examine gender-related variation and should be generalised cautiously to more gender-diverse cohorts. A particularly important design limitation is that only two intact classes participated, with one class per condition. Intervention status was therefore perfectly confounded with class membership. Student-level analyses cannot separate programme exposure from classroom, peer, instructional, or other class-specific influences, even when baseline outcome scores appear similar. The control condition also did not control for attention or expectancy; concurrent coursework was not systematically audited for incidental emotional content, and informal interaction between groups was possible, so contamination cannot be excluded. The condensed intervention differed from the original INTEMO programme, and attendance, fidelity, exact delivered dose, engagement, and adverse or unintended effects were not systematically quantified.

The quantitative strand relied on self-perceived emotional intelligence and immediate post-test assessment, with no performance-based outcome or follow-up. The study was not powered to estimate efficacy precisely, and the three outcome analyses increase the possibility of unstable estimates. The qualitative data were written rather than interview-based. Reflections were identifiable to the researcher when submitted, although

names were removed before analysis and reporting. This may have increased demand characteristics and socially desirable responding: participants knew they were taking part in an emotional-intelligence programme and may have foregrounded expected learning, professionally desirable applications, or positive evaluations, particularly when discussing future teaching and personal well-being. These themes therefore represent perceived learning and meaning-making rather than independent evidence of behavioural change or efficacy. The first author's dual role in delivery and analysis also created interpretive proximity, which was addressed through reflexive discussion and attention to less affirmative accounts but cannot be eliminated. Finally, incomplete reflection trajectories for some participants limit longitudinal qualitative interpretation.

4.7. Future Research

A subsequent study should be preregistered and conducted across multiple cohorts or institutions with randomisation at the class level where feasible. Sample-size planning should be based on a clearly defined primary outcome and a theoretically meaningful effect rather than on the unstable effect estimate from this pilot. Assessment should include at least one delayed follow-up and should document recruitment, retention, attendance, fidelity, acceptability, and contamination.

Future work should test whether the anticipated professional applications described here are demonstrably transferred. Simulated classroom tasks, video-based coding, practicum observations, and mentor ratings could examine whether participants apply emotion recognition and regulation under authentic pressure. Qualitative interviews could then explore why transfer succeeds or fails. This would move the evidence from perceived learning and intended future application towards observable pedagogical behaviour and child-relevant classroom processes.

5. Conclusions

This pilot study compared patterns of change in perceived emotional attention, clarity, and repair across two intact first-year Early Childhood Education groups, one of which received an eight-session adaptation of INTEMO. No Group-by-Time interaction was statistically significant. Because class membership was completely confounded with intervention condition, the quantitative findings cannot establish a causal programme effect and should be interpreted as exploratory between-group patterns.

The qualitative findings identified perceived learning and meaning-making beyond the TMMS-24. Participants described emotional validation, perspective-taking, regulation strategies, experiential learning, and anticipated applications in future Early Childhood classrooms. These accounts provide information about perceived usefulness and developing professional ideas, but they do not demonstrate improved emotional ability, formal programme acceptability, or enacted professional transfer.

The most defensible conclusion is that the pilot identifies potentially useful content, learning processes, implementation issues, and measurement priorities rather than evidence that the adapted programme is effective. A larger, preregistered, longitudinal, multimethod, and multi-class trial—with randomisation at the class level where feasible and systematic assessment of recruitment, attendance, fidelity, acceptability, contamination, and delayed outcomes—is required before efficacy or professional transfer can be established.

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Data Availability Statement: De-identified quantitative data supporting the findings of this study, including pre-test and post-test TMMS-24 scores, are available from the corresponding author upon reasonable request, subject to applicable ethical and data-protection requirements. The qualitative dataset is not publicly available because open-ended reflections may contain contextual details that could compromise participant anonymity.

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Appendix A. Open-Ended Reflection Prompts

Phase-specific prompts (administered after each of the four programme phases):

1. 1.What emotional-intelligence skills did you work on in each session of this phase? In which specific activities were they developed, and what did you understand about each of them?
2. What did you learn in each session about managing your own emotions and those of others? How did your previous knowledge change or become reinforced throughout the phase?
3. In what ways do you consider the emotional skills addressed in this phase useful in your personal life or in your future professional work as an Early Childhood teacher? Can you provide concrete examples?

Final programme reflection:

1. What have been the most relevant lessons about emotional intelligence that you acquired throughout the programme? Why do you consider them important?
2. How has the programme influenced the way you understand, manage, and apply emotions in personal, academic, and professional domains?
3. To what extent do you consider that the emotional skills developed during the programme may contribute to your future practice as an Early Childhood teacher? What concrete examples can you provide?
4. How do you evaluate the overall usefulness of the programme? Which aspects most supported your learning, and which do you think should be improved? Why?

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