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Effect of the meta-emotions program on enhancing emotional and meta-emotional intelligence in teachers: a pilot study

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Introduction: This pilot study examines the effects of the Meta-Emotions Program, a structured training designed to enhance emotional intelligence and meta-emotional intelligence in teachers. Meta-emotional intelligence is a multi-dimensional construct, grounded in meta-cognition theory and EI theory, which takes into account beliefs about emotions, self-perceptions and self-evaluations about one's own emotional functioning.

Method: Based on the ability EI model and the SEL framework, the program consists of seven sessions (21 h total) integrating theoretical discussions, experiential learning, and reflective practices. A key feature of the intervention is the meta-emotional diary, a digital tool that facilitates continuous self-monitoring of emotional experiences. A quasi-experimental pre-post design was employed, involving 46 teachers, who were divided into an intervention group ($n = 24$) and a control group ($n = 22$). Emotional abilities were assessed using the MSCEIT, while meta-emotional dimensions were measured through the IE-ACCME Test scales.

Results: Results revealed no significant improvements in emotional abilities; however, meta-emotional intelligence significantly increased, with notable changes in meta-emotional beliefs and meta-emotional self-evaluation. Participants in the intervention group exhibited a reduction in the discrepancy between self-perceived and actual emotional abilities, indicating enhanced self-awareness. Additionally, teachers demonstrated a reduced tendency to underestimate their emotional abilities.

Discussion: These findings suggest that short-term, targeted interventions for teachers may effectively improve meta-emotional dimensions but might not be sufficient to enhance emotional intelligence abilities.

KEYWORDS

emotional intelligence, metacognition, meta-emotional intelligence, SEL program, social-emotional learning, teachers, training

1 Introduction

Since its foundation in 1994, the Collaborative for Academic, Social, and Emotional Learning (CASEL) has played a critical role in implementing social and emotional learning (SEL) in education, fostering the development of evidence-based practices, and influencing education policies (Durlak et al., 2011; Weissberg et al., 2015). SEL involves «the processes through which individuals acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage their emotions, feel and show empathy for others,

establish and achieve positive goals, develop and maintain positive relationships, and make responsible decisions» (Schonert-Reichl, et al., 2017, p. 5). In particular, SEL focuses on five interrelated competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Schonert-Reichl et al., 2017; Weissberg et al., 2015). The positive impact of SEL interventions on students' social and emotional competencies (SEC), academic achievement, and classroom behaviors has been consistently documented (Cipriano et al., 2023; Durlak et al., 2011; Mahoney et al., 2018; Taylor et al., 2017), leading to substantial changes in school practices and policies over the years. Until now, the majority of efforts to cultivate SEC and foster positive school environments have been centered on students (Jones et al., 2013; Schonert-Reichl, 2017; Schonert-Reichl et al., 2017). Teachers, by contrast, often receive minimal training and fewer opportunities are provided for the development of educators' own SEC (Greenberg et al., 2016). Teachers are recognized as the driving force behind every SEL program; however, they may lack the knowledge and the competence needed to effectively support students' social and emotional growth (Gimbert et al., 2023; Greenberg et al., 2016; Schonert-Reichl et al., 2017). However, there is an increasing recognition of this gap, and support for teachers' SEL in this area is steadily expanding (Gimbert et al., 2023; Oliveira et al., 2021).

2 Why is there a need for teachers' SEC training?

Teachers hold a vital position in shaping the lives of children, going beyond their role as facilitators of learning to significantly impact students' social and emotional growth (Greenberg et al., 2016; Schonert-Reichl, 2017). Teachers' SEC are a foundational element of successful education systems as they enable educators to foster positive relationships, manage classrooms effectively, and support student growth (Jones et al., 2013; Schonert-Reichl et al., 2017). However, teachers' stress poses a significant barrier to leveraging these benefits (Greenberg et al., 2016). Teaching is an emotionally demanding profession that requires educators to manage their own emotions while navigating complex interactions with students, colleagues, and parents (Chang, 2009). Educators often face high levels of stress which are caused mostly by the relational and emotional nature of their work (Hakanen et al., 2006; Näring et al., 2006). The COVID-19 pandemic, along with its confinement measures, has amplified these challenges, increasing workloads and stress levels (Ozamiz-Etxebarria et al., 2023; Shimony et al., 2022) while also accelerating the need for new teaching competences to address post-pandemic educational demands (Reimers et al., 2022; Zhao and Watterston, 2021). Increasing pressures and chronic stress can erode teachers' ability to build relationships and manage classrooms effectively (Hakanen et al., 2006; Jennings and Greenberg, 2009). Teachers' emotional experiences have significant implications for their well-being, teaching efficacy, and classroom dynamics (Frenzel et al., 2021; Spilt et al., 2011). To address these challenges, it is essential to provide targeted support for teachers' SEC (Jennings and Greenberg, 2009; Schonert-Reichl et al., 2017) which are collectively encapsulated in the construct of emotional intelligence (EI). Defined as «the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand

emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth» (Mayer and Salovey, 1997, p. 10), teachers' EI has emerged as a critical factor in promoting well-being and instructional efficacy (Jennings and Greenberg, 2009; Mérida-López and Extremera, 2017; Puertas Molero et al., 2019; Wang and Wang, 2022) and predicting students' academic achievement (Curci et al., 2014).

2.1 School-based EI programs

Alongside an increase in the literature on the beneficial effects of EI, a body of research has developed on programs aimed at fostering these abilities, showing that EI can be effectively trained (Hodzic et al., 2018; Kotsou et al., 2019; Mattingly and Kraiger, 2019; Schutte et al., 2013). There are numerous examples of programs within the SEL framework that focus on promoting EI in school settings. The INTEMO program was developed in Spain (Ruiz-Aranda et al., 2013) and it consists of 12 sessions divided into four phases based on the ability model of EI (Mayer et al., 2016; Mayer and Salovey, 1997): perception and expression of emotions, facilitation of emotions, understanding of emotions, and regulation of emotions. The program has demonstrated effectiveness in improving adaptation, mental health, and social behaviors (Castillo et al., 2013b; Ruiz-Aranda et al., 2012a, 2012b). Another SEL evidence-based program is RULER (Recognizing, Understanding, Labeling, Expressing, and Regulating emotions; Nathanson et al., 2016), developed in the USA, it is grounded in the ability EI model (Mayer et al., 2016; Mayer and Salovey, 1997) and it aims at developing five main abilities which are included in the acronym: recognizing emotions, understanding emotions, labeling emotions, expressing emotions, and regulating emotions. Results showed that RULER had positive effect on student's, adjustment and academic performance (Brackett et al., 2012; Nathanson et al., 2016; Rivers et al., 2013), teacher engagement, burn-out, and teacher-student interaction (Castillo et al., 2013a). Recent evidence also highlights the importance of strengthening emotional skills during initial teacher education. There are examples of training programs based on Bar-On's (2006) model in which interventions delivered to pre-service teachers have shown consistent improvements in EI (Gilar-Corbi et al., 2018; Özdemir Cihan and Dilekmen, 2024). These findings underscore not only the value of providing EI training to in-service teachers, but also the growing need to develop such competencies before teachers enter the school system.

In the Italian context, it was developed Meta-Emotions (D'Amico, 2018), a program grounded also on the ability EI model (Mayer and Salovey, 1997) and SEL framework, that aims at developing five main emotional abilities: recognition and non-verbal expression of emotions, emotional synesthesia, understanding emotions, emotional regulation, and use of emotions. While maintaining its main theoretical framework, the program is designed in two distinct versions based on its target audience and objectives: Meta-Emotions Test and Training, intended for psychoeducational and psychotherapy contexts, and Meta-Emotions at School, aimed at fostering EI and meta-emotional intelligence (MEI) in educational settings (D'Amico, 2018). While the Meta-Emotions at School program has primarily been applied to students and, more broadly, the school system, this study focuses on the application and evaluation of the Meta-Emotions Test and Training program exclusively for teachers. Meta-Emotions at School is conceived specifically for the school context and adopts a train-the-trainers approach in which teachers become facilitators of

emotional literacy activities with their students. Unlike the Test and Training version, it does not typically include assessment and structured training phases; instead, teachers attend an 8-h experiential workshop and are then provided with online materials, activities, and guidelines to promote emotional awareness and create emotionally inclusive learning environments. The program emphasizes classroom-based activities, peer tutoring, and the integration of emotional competencies into everyday teaching practices, supporting teachers in becoming ambassadors of EI within their schools (D'Amico and Geraci, 2022a). Meta-Emotions Test and Training is an integrated program aimed primarily at developing and strengthening EI abilities and the awareness of those abilities. It usually includes an assessment phase of emotional abilities, followed by structured training sessions targeting the different abilities outlined in the Mayer and Salovey (1997) model, and concludes with a final focus-group session in which participants reflect on the process and evaluate the activities carried out. Additionally, a central component of the training program concerns the development of MEI abilities, defined as the awareness of one's emotional abilities and measured using the IE-ACCME test (D'Amico, 2013). In particular, MEI is a multidimensional construct that is grounded in meta-cognition theory (Flavell, 1979) and EI theory (Mayer et al., 2016; Mayer and Salovey, 1997) and that takes into account beliefs about emotions, self-perceptions and self-evaluations about one's own emotional functioning, and actual emotional abilities (D'Amico, 2013, 2018; D'Amico and Geraci, 2023). The awareness is critical because it may influence how individuals apply effectively their emotional abilities, as self-perceptions and actual abilities do not always correspond (Brackett et al., 2006; D'Amico and Geraci, 2023). Recent research on pre-adolescents (D'Amico and Geraci, 2021) has shown that a lack of awareness of one's emotional abilities is associated with higher levels of peer rejection in the sociogram. Additionally, another study (D'Amico and Geraci, 2022b), consistent with research on gender differences in the field of EI, revealed also gender differences in MEI, with girls generally underestimating their emotional abilities and boys tending to overestimate them. Finally, findings from the first application of the training program demonstrated that, overall, MEI abilities can be improved as pupils who participated in the program exhibited a reduced tendency to overestimate their emotional abilities (D'Amico and Geraci, 2022a).

2.2 The present study

Given the crucial role of teachers' EI in fostering students' social and emotional growth, as well as managing the demands of the teaching profession, the need for targeted training programs for educators is increasingly evident. While numerous interventions within the SEL framework have focused on students' EI and SEC, teachers have received comparatively less attention, despite their pivotal role in shaping classroom environments and student outcomes (Greenberg et al., 2016; Schonert-Reichl et al., 2017). To address this gap, the present pilot study investigates the effects of the Meta-Emotions program on enhancing EI and MEI in teachers. The program was adapted and tested for application in a teacher population. It was hypothesized that Meta-Emotions program would improve: 1) emotional abilities and 2) meta-emotional abilities. Specifically, for point 2, it was hypothesized that participants in the intervention group would increase their meta-emotional beliefs, meta-emotional knowledge, and self-evaluation by reducing the discrepancy scores between participants' self-perceptions of abilities and actual abilities.

3 Materials and methods

3.1 Participants

The study included a total of 46 teachers (44 females, 2 males) with age ranging from 32 to 63 years ($M = 49.67$, $SD = 7.48$). In terms of roles, 54.3% were subject teachers, while 45.7% were special education teachers. Regarding the educational level, most participants taught at the primary school level (47.8%), followed by 23.9% at the middle school level, 21.7% at the high school level, and 6.5% at the preschool level. Participants were divided into two groups: the intervention group ($n = 24$) and the control group ($n = 22$). The experimental group consisted entirely of female teachers, with an age range between 38 and 59 years ($M = 49.08$, $SD = 5.24$). In terms of teaching roles, 54.2% were special education teachers, and 45.8% were subject teachers. Most participants in this group taught at the primary school level (50%), followed by 25% at the high school level, 16.7% at the middle school level, and 8.3% at the preschool level. The control group included 20 females and 2 males teachers, with an age range between 32 and 63 years ($M = 50.32$, $SD = 9.43$). Regarding teaching roles, 63.6% of the control group were subject teachers, and 36.4% were special education teachers. In terms of school levels, 45.5% of the control group taught at the primary school level, 31.8% at the middle school level, 18.2% at the high school level, and 4.5% at the preschool level. All participants were teachers employed in public urban schools.

3.2 Instruments

As above mentioned, the dedicated instrument for measuring MEI is the IE-ACCME test (D'Amico, 2013), a multi-method tool designed to assess emotional and meta-emotional abilities in adolescents. The test assumes the theoretical model of EI proposed by (Mayer et al., 2016; Mayer and Salovey, 1997) but utilizes various methodologies for capturing different aspects of emotional sphere. Specifically, the IE-ACCME test measures meta-emotional beliefs through the Meta-Emotional Belief Scale (CE), self-reported emotional abilities through the Emotional Self-Concept Scale (CME), emotional abilities through the Emotional Ability Test (AE), and self-evaluation of performance on the ability test through the Self-Rating of Performance Scale (AV). All the scales were developed by closely following the theoretical framework and structural organization of the Mayer and Salovey (1997) ability model of EI, and their validation resulted in the same latent EI dimensions. This allows to compare standardized scores obtained by adolescents in the four scales in order to obtain two additional meta-emotional scores: meta-emotional knowledge and meta-emotional self-evaluation (D'Amico and Geraci, 2023). The meta-emotional knowledge score (CMeta) represents the discrepancy between the standard scores obtained on the Emotional Self-Concept Scale (CME) and the Emotional Ability Test (AE). This score reflects the degree to which individuals' emotional abilities correspond to their self-perceptions of these abilities in daily life ($CMeta = CME - AE$). The meta-emotional self-evaluation score (AVMeta) represents the discrepancy between the standard scores obtained on the Self-Rating of Performance Scale (AV) and the Emotional Ability Test (AE). It reflects the extent to which individuals' emotional abilities align with their self-perception of performance in the ability test ($AVMeta = AV - AE$). Meta-emotional scores are expressed in absolute and relative values, providing different types of information. The absolute score indicates the overall discrepancy

between self-perceptions and actual abilities, with higher scores reflecting greater discrepancies. Conversely, the relative scores reveal the direction of the discrepancy: negative values indicate a tendency to underestimate abilities ($CME < AE$; $AV < AE$), while positive values indicate a tendency to overestimate abilities ($CME > AE$; $AV > AE$).

Since the original IE-ACCME test was calibrated and standardized for adolescent samples and the items in AE test are not suitable for use with adults, we developed for the present study a new protocol by combining three scales drawn from the IE-ACCME test (CE, CME, and AV) with the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2002), created for adult populations, and also validated in Italian population (Damico and Curci, 2010).

The CE, CME, and AV scales from the IE-ACCME test use wording and questions that may be also applied to adult population. However, as described above, we preliminarily ensured that they maintain the same structural organization of the Mayer and Salovey (1997) theoretical framework shared by the MSCEIT (Mayer et al., 2002). Therefore, the four scales used in our protocol for measuring MEI in adults are theoretically and structurally aligned with the original Mayer and Salovey (1997) theoretical framework.

In particular, the Meta-Emotional Beliefs Scale (CE; D'Amico, 2013) is a 16-item questionnaire that explores beliefs regarding the ability to perceive emotions from non-verbal and sensory stimuli, as well as the ability to understand, regulate, and use emotions to facilitate thought. Responses are rated on a five-point Likert scale ranging from 0 (not true) to 4 (definitely true). Higher scores indicate stronger meta-emotional beliefs. The adult adaptation of the scale, validated through exploratory and confirmatory factor analyses, confirmed the four-branch structural model ($\chi^2_{(164)} = 22.2$, $p = 0.075$, CFI = 0.99, TLI = 0.99, SRMR = 0.02, RMSEA = 0.03, 90% CI [0.00, 0.04]). The normative sample consists of 963 adults (805 females, 158 males). The reliability coefficients (Cronbach's α) for the scales at pre-test and post-test were as follows: EA = 0.69, 0.73; SA = 0.71, 0.70; Total = 0.70, 0.71.

The Emotional Self-Concept Scale (CME; D'Amico, 2013) is a 20-item self-report measure that assesses self-perceived abilities in recognizing, facilitating, understanding, and regulating emotions. Responses are rated on a five-point Likert scale ranging from 0 (not true) to 4 (definitely true). Higher scores reflect greater self-perceived emotional abilities. The CME scale evaluates individuals' perceptions of their emotional capabilities in daily life. The adult adaptation confirmed the four-branch structure of the model ($\chi^2_{(164)} = 38.4$, $p < 0.001$, CFI = 0.98, TLI = 0.97, SRMR = 0.02, RMSEA = 0.04, 90% CI [0.03, 0.06]). The normative adult sample included 963 participants (805 females, 158 males). The reliability coefficients (Cronbach's α) for the CME scales at pre-test and post-test were: EA = 0.79, 0.67; SA = 0.68, 0.64; Total = 0.74, 0.79.

The Self-Rating of Performance (AV; D'Amico, 2013) is an 8-item scale that assesses individuals' self-rated performance on the ability test. At the end of each task or section in the ability test, respondents are asked to evaluate their performance in solving the task by selecting a score on a six-point Likert scale ranging from 0 (not good at all) to 5 (very good). The reliability coefficients (Cronbach's α) for the AV scales at pre-test and post-test were: EA = 0.88, 0.89; SA = 0.92, 0.86; Total = 0.92, 0.93.

The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2002) is a performance-based test comprising 141 items divided into eight tasks, which assess four key EI abilities: perceiving emotions, using emotions to facilitate thought, understanding

emotions, and managing emotions. Scores are calculated using the consensus scoring method (Mayer et al., 2002), specifically using the general consensus score computed on the normative sample of 3,185 adults (1,718 females, 1,487 males). The reliability coefficients (Cronbach's α) for the MSCEIT area and total scores at pre-test and post-test were: EA = 0.68, 0.70; SA = 0.69, 0.74; Total = 0.73, 0.69.

All CE, CME, AV, and MSCEIT scores are expressed as standardized scores with a mean of 100 and a standard deviation of 15. Since the study involved group comparisons, individual differences in ability EI were accounted for by weighting the differences between CME, AV, and AE scores based on the AE score. Accordingly, meta-emotional knowledge scores in absolute and relative values (CMeta_Abs and CMeta_Rel) were calculated as $[(CME - AE)/AE]$. Similarly, meta-emotional self-evaluation ability scores in absolute (AVMeta_Abs) and relative (AVMeta_Rel) values were computed as $[(AV - AE)/AE]$.

3.3 Procedure

The present study used a quasi-experimental pre-post design with one intervention group and one comparison group. Group assignment was based on voluntary participation in the training program. Teachers who enrolled in the intervention group were recruited online through an announcement shared on social media. To form the comparison group, teachers in the intervention group were asked to invite colleagues with similar professional characteristics. Overall, the activities took place from February to April 2024, and pre-test data were collected from both the experimental and control groups before the actual training began. Specifically, pre-test data were collected one week before the beginning of the first session of the training, whereas post-test data were collected from both groups one week after the end of the intervention. Both assessments were administered through the Giunti Testing online platform. The administration followed the structure of the IE-ACCME test, with the CE scale administered first, followed by the CME scale and then the ability test (i.e., MSCEIT). The AV scale was administered together with the MSCEIT, as participants were asked to self-rate their performance at the end of each of the eight MSCEIT tasks. The training sessions were conducted outside the school context and working hours and were held in the Department spaces at the University. All participants provided informed consent. The study was approved by the local ethics committee (Protocol No: 135883-28/22).

3.3.1 Intervention activities: the Meta-emotions program

The Meta-Emotions Program is a structured training designed to enhance EI and MEI through a combination of theoretical discussion, experiential learning, and reflective practices. The Meta-Emotions Program was designed and implemented by researchers with expertise in EI and MEI (D'Amico, 2018). The intervention activities were conducted by two psychologists with expertise in emotional and meta-emotional intelligence, both of whom were specifically trained in the Meta-Emotions Program.

The program consists of seven sessions, each lasting three hours, for a total of 21 h. The sessions follow a progressive structure based on the ability EI model (Mayer et al., 2016), introducing key concepts related to emotional awareness, expression, regulation, and monitoring while integrating experiential activities and collective reflection. Table 1 presents an overview of the sessions structure and content.

TABLE 1 Overview of training sessions in the Meta-Emotions Program.

Session	Training content	Hours
1	• Informative session on emotional and meta-emotional intelligence	3
	• Introduction to the meta-emotional diary	
2	• Discussion on emotion monitoring	3
	• Perception and non-verbal expression of emotions	
	o Experiential activities	
	o Individual and collective reflection	
3	• Discussion on emotion monitoring	3
	• Emotional synesthesia: relationship between sensory channels and emotions	
	o Experiential activities	
	o Individual and collective reflection	
4	• Discussion on emotion monitoring	3
	• Understanding emotions and emotional literacy	
	o Experiential activities	
	o Individual and collective reflection	
5	• Discussion on emotion monitoring	3
	• Emotion management and regulation	
	o Experiential activities	
	o Individual and collective reflection	
6	• Discussion on emotion monitoring	3
	• Use of emotions	
	o Experiential activities	
	o Individual and collective reflection	
7	• Discussion on emotion monitoring	3
	• Individual and collective reflection on the experience	

The first session provides an introduction to emotions, EI, and MEI constructs and models. Rather than a traditional theoretical lecture, this session is structured as an informative discussion aimed at familiarizing participants with key constructs and the broader framework of EI. Participants are encouraged to share their initial perceptions, followed by a group discussion on their expectations and prior experiences. In addition, participants are introduced to the meta-emotional diary, a key tool of the program. The diary is accessed through a web app installed on their smartphones, where participants receive notifications prompting them to report their emotional state three times a day: in the morning, afternoon, and evening. Each time, they are asked to rate their activation level (low energy = 0–4; high energy = 6–10) and valence (unpleasant = 0–4; pleasant = 6–10) on a scale from 0 to 10. The aim of this practice is to encourage participants to pause and reflect on their emotional state throughout the day. In addition to providing numerical ratings, they are required to describe their emotions using a single word. This process is designed to train them to become more aware of their emotional experiences by focusing on bodily sensations and emotional states. Each session begins with a collective discussion on participants' weekly diary entries.

The second session focuses on the perception and non-verbal expression of emotions, helping participants identify emotional cues in themselves and others. Through experiential activities, participants

engage in exercises designed to enhance their ability to interpret non-verbal communication, followed by a reflective discussion.

In the third session, participants explore emotional synesthesia, examining the relationship between sensory channels and emotional experiences. This session highlights how emotions can be linked to sensory modalities such as sounds, colors, and textures. Experiential exercises guide participants in recognizing these connections, and collective reflections help integrate their insights into their understanding of emotional perception.

The fourth session is dedicated to understanding emotions and emotional literacy. Special attention is given to the role of language in shaping emotional awareness. Participants discuss how emotions are labeled, communicated, and interpreted, engaging in exercises designed to expand their emotional vocabulary and improve their ability to articulate emotional states accurately.

Emotion management and regulation are the focus of the fifth session. Participants explore different regulation strategies, learning to recognize their habitual responses to emotional experiences and developing more adaptive approaches. Through experiential exercises, they apply regulation techniques in simulated scenarios, reinforcing emotional flexibility and resilience.

The sixth session shifts attention to the functional use of emotions. Discussions center on how emotions influence

decision-making, motivation, and social interactions. Participants engage in activities that highlight the constructive role of emotions in everyday life, with reflections on how they can be used in both personal and professional contexts.

The final session provides a space for comprehensive reflection on the entire training journey. Participants engage in an individual and collective review of their experiences, discussing personal insights and the impact of the training on their emotional awareness and regulation. The discussion also revisits the concept of emotion monitoring, encouraging participants to assess changes in their ability to recognize and manage emotions over the course of the program.

3.4 Data analysis

Prior to hypothesis testing, preliminary data screening was conducted to examine the distributions of the study variables using descriptive statistics and normality testing. These preliminary analyses indicated deviations from normality for several outcome variables. Based on these considerations and relatively small sample size, non-parametric statistical analyses were adopted. First, baseline differences between the intervention and comparison groups were examined using Mann–Whitney U tests to assess pre-test equivalence between intervention and comparison groups. Subsequently, intervention

effects were evaluated by computing time change scores ($\Delta = \text{post-test} - \text{pre-test}$) for each outcome variable in both groups. Differences in change scores between groups were then analyzed using Mann–Whitney U tests. Effect sizes were calculated using the rank-biserial correlation (r_{rb}), with values of 0.10, 0.30, and 0.50 interpreted as small, medium, and large effects, respectively, according to common guidelines like Cohen's criteria for effect size (Cohen, 1992).

4 Results

Table 2 reports the means and standard deviations for each outcome in the intervention and comparison groups at pre-test and post-test.

Mann–Whitney U tests that were conducted to compare the intervention and comparison groups on all study variables at pre-test. The results indicated no statistically significant differences between groups on the majority of measures, including meta-emotional beliefs (CE), emotional self-concept (CME), overall EI abilities (MSCEIT), and meta-emotional dimensions (CMeta and AVMeta), both in relative and absolute values. However, a significant difference was observed for the strategic area of EI abilities

TABLE 2 Means and standard deviations for the intervention and comparison groups at pre-test and post-test.

Measures	Intervention group (N = 24)				Comparison group (N = 22)			
	Pre-test		Post-test		Pre-test		Post-test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CE_EA	102.99	7.33	104.89	5.61	103.89	5.73	102.15	6.18
CE_SA	100.42	9.64	97.87	8.17	98.32	7.90	99.40	8.30
CE_Tot	101.70	7.12	101.38	4.86	101.11	6.17	100.77	6.45
CME_EA	102.21	10.00	97.68	8.90	100.97	8.68	101.54	9.27
CME_SA	102.62	6.48	99.05	6.70	104.11	7.21	103.43	6.40
CME_Tot	102.42	5.96	98.36	7.21	102.15	6.86	102.48	7.05
MSCEIT_EA	100.62	11.39	102.92	15.05	102.45	8.95	105.05	11.16
MSCEIT_SA	99.54	11.74	102.33	14.96	107.23	11.02	109.55	9.74
MSCEIT_Tot	100.38	11.90	103.54	13.85	104.84	7.49	107.30	8.76
CMeta_EA_Rel	0.03	0.15	−0.03	0.17	−0.01	0.12	−0.02	0.14
CMeta_SA_Rel	0.04	0.13	−0.01	0.16	−0.02	0.11	−0.05	0.09
CMeta_Tot_Rel	0.03	0.13	−0.03	0.14	−0.02	0.08	−0.04	0.10
CMeta_EA_Abs	0.13	0.09	0.13	0.11	0.10	0.07	0.11	0.09
CMeta_SA_Abs	0.11	0.07	0.12	0.10	0.09	0.06	0.09	0.05
CMeta_Tot_Abs	0.12	0.07	0.12	0.09	0.08	0.04	0.10	0.05
AVMeta_EA_Rel	−0.21	0.11	−0.08	0.17	−0.10	0.18	−0.12	0.19
AVMeta_SA_Rel	−0.21	0.11	−0.09	0.15	−0.16	0.16	−0.19	0.16
AVMeta_Tot_Rel	−0.21	0.11	−0.10	0.15	−0.13	0.16	−0.16	0.17
AVMeta_EA_Abs	0.22	0.10	0.14	0.12	0.16	0.12	0.18	0.14
AVMeta_SA_Abs	0.23	0.08	0.15	0.09	0.18	0.13	0.21	0.13
AVMeta_Tot_Abs	0.22	0.08	0.15	0.09	0.16	0.12	0.19	0.13

AVMeta_Abs, Meta-Emotional Self-Evaluation in Absolute Values; AVMeta_Rel, Meta-Emotional Self-Evaluation in Relative Values; CE, Meta-Emotional Beliefs Scale; CME, Emotional Self-Concept Scale; CMeta_Abs, Meta-Emotional Knowledge Score in Absolute Values; CMeta_Rel, Meta-Emotional Knowledge Score in Relative Values; EA, Experiential Area; MSCEIT, Mayer-Salovey-Caruso Emotional Intelligence Test; SA, Strategic Area.

(MSCEIT_SA: $U = 161, p = 0.023, r_{rb} = -0.39$) with the comparison group showing higher scores ($M_c = 107.23, SD_c = 11.02$) than the intervention group ($M_e = 99.54, SD_e = 11.74$) at baseline. In addition, a significant group difference was found for the absolute meta-emotional knowledge total score (CMeta_TOT_Abs: $U = 162, p = 0.025, r_{rb} = 0.39$), with the intervention group showing lower levels of meta-emotional knowledge ($M_e = 0.12, SD_e = 0.07$) than the comparison group ($M_c = 0.08, SD_c = 0.04$) at the baseline, as well as for the relative meta-emotional self-evaluation in the experiential area (AVMeta_EA_Rel: $U = 165, p = 0.030, r_{rb} = -0.38$), with the intervention group showing higher tendency to underestimation about their performance in the ability test ($M_e = -0.21, SD_e = 0.11$) compared to the comparison group ($M_c = -0.10, SD_c = 0.18$) at the baseline.

Table 3 presents the means and standard deviations of the change scores ($\Delta = \text{post-test} - \text{pre-test}$) for the intervention and comparison groups, along with the results of the Mann-Whitney U tests and corresponding effect sizes (r_{rb}). Group differences in change scores ($\Delta = \text{post-test} - \text{pre-test}$) were examined also using Mann-Whitney U tests. With respect to meta-emotional beliefs (CE), a significant group difference emerged for the experiential area (Δ_{CE_EA} : $U = 171, p = 0.040, r_{rb} = 0.35$), with the intervention group showing an increase ($M = 1.90, SD = 7.07$) compared to a decrease in the comparison group ($M = -1.74, SD = 4.22$). No significant differences were

observed for the strategic area (Δ_{CE_SA}) or the total score (Δ_{CE_TOT}).

Regarding emotional self-concept (CME), significant group differences were found across all domains, with the intervention group showing a larger decrease in self-perceived emotional abilities than the comparison group in the experiential area (Δ_{CME_EA} : $M_e = -4.54, SD_e = 11.09$ vs. $M_c = 0.57, SD_c = 5.14$; $U = 170, p = 0.035, r_{rb} = -0.36$), the strategic area (Δ_{CME_SA} : $M_e = -3.57, SD_e = 8.23$ vs. $M_c = -0.68, SD_c = 4.58$; $U = 147, p = 0.010, r_{rb} = -0.44$), and the total score (Δ_{CME_TOT} : $M_e = -4.05, SD_e = 8.07$ vs. $M_c = 0.33, SD_c = 4.52$; $U = 161, p = 0.023, r_{rb} = -0.39$). No significant between-group differences were found for changes in emotional intelligence abilities as measured by the MSCEIT, with both groups showing small and comparable increases over time. Similarly, no significant group differences were observed for changes in meta-emotional knowledge (CMeta), either in relative or absolute values across experiential, strategic, and total scores. In contrast, strong and consistent group differences emerged for meta-emotional self-evaluation (AVMeta). For relative scores, the intervention group showed a marked reduction in the tendency to underestimate emotional abilities, shifting toward greater accuracy, compared to the comparison group, which showed an increased tendency to underestimate abilities in the experiential area ($\Delta_{AVMeta_EA_Rel}$: $M_e = 0.13, SD_e = 0.16$ vs. $M_c = -0.02, SD_c = 0.13$; $U = 121, p = 0.002, r_{rb} = 0.54$), the strategic area ($\Delta_{AVMeta_SA_Rel}$: $M_e = 0.12, SD_e = 0.18$ vs. $M_c = -0.03, SD_c = 0.09$;

TABLE 3 Means and standard deviations of time change scores (Δ , post-test-pre-test) and between-group comparisons with Mann-Whitney U-tests.

Measures	Intervention group (N = 24)		Comparison group (N = 22)		Group differences		
	Mean	SD	Mean	SD	Mann-Whitney U	p-value	r_{rb}
Δ_{CE_EA}	1.90	7.07	-1.74	4.22	171	0.040	0.35
Δ_{CE_SA}	-2.55	11.65	1.08	4.50	259	0.920	-0.02
Δ_{CE_TOT}	-0.33	6.19	-0.33	3.51	256	0.868	0.03
Δ_{CME_EA}	-4.54	11.09	0.57	5.14	170	0.035	-0.36
Δ_{CME_SA}	-3.57	8.23	-0.68	4.58	147	0.010	-0.44
Δ_{CME_TOT}	-4.06	8.07	0.33	4.52	161	0.023	-0.39
Δ_{MSCEIT_EA}	2.29	10.85	2.59	9.58	243	0.649	0.08
Δ_{MSCEIT_SA}	2.79	10.43	2.32	6.61	253	0.813	0.04
Δ_{MSCEIT_TOT}	3.17	8.31	2.46	6.88	255	0.849	0.03
$\Delta_{CMeta_EA_Rel}$	-0.06	0.15	-0.02	0.11	192	0.113	-0.27
$\Delta_{CMeta_SA_Rel}$	-0.06	0.15	-0.03	0.08	193	0.119	-0.27
$\Delta_{CMeta_TOT_Rel}$	-0.07	0.12	-0.02	0.08	188	0.095	-0.29
$\Delta_{CMeta_EA_Abs}$	0.00	0.12	0.01	0.09	247	0.715	0.06
$\Delta_{CMeta_SA_Abs}$	0.01	0.12	-0.01	0.05	228	0.433	0.14
$\Delta_{CMeta_TOT_Abs}$	0.00	0.08	0.02	0.07	240	0.603	-0.09
$\Delta_{AVMeta_EA_Rel}$	0.13	0.16	-0.02	0.13	121	0.002	0.54
$\Delta_{AVMeta_SA_Rel}$	0.12	0.18	-0.03	0.09	107	< 0.001	0.60
$\Delta_{AVMeta_TOT_Rel}$	0.12	0.15	-0.02	0.10	96	< 0.001	0.64
$\Delta_{AVMeta_EA_Abs}$	-0.08	0.16	0.01	0.13	179	0.061	-0.32
$\Delta_{AVMeta_SA_Abs}$	-0.08	0.11	0.03	0.09	94	< 0.001	-0.64
$\Delta_{AVMeta_TOT_Abs}$	-0.07	0.12	0.02	0.10	104	< 0.001	-0.61

r_{rb} , Rank-biserial correlation.

$U = 107, p < 0.001, r_{tb} = 0.60$), and the total score ($\Delta_{AVMeta_TOT_Rel}$: $M_e = 0.12, SD_e = 0.15$ vs. $M_c = -0.02, SD_c = 0.10$; $U = 96, p < 0.001, r_{tb} = 0.64$). Likewise, significant group differences were found for absolute meta-emotional self-evaluation in the strategic area ($\Delta_{AVMeta_SA_Abs}$: $M_e = -0.08, SD_e = 0.11$ vs. $M_c = 0.03, SD_c = 0.09$; $U = 94, p < 0.001, r = -0.64$) and for the total score ($\Delta_{AVMeta_TOT_Abs}$: $M_e = -0.07, SD_e = 0.12$ vs. $M_c = 0.02, SD_c = 0.10$; $U = 104, p < 0.001, r = -0.61$), with the intervention group demonstrating an overall improvement in their meta-emotional self-evaluations, while the comparison group exhibited an overall decline. Lastly, no significant difference was found for absolute meta-emotional self-evaluation in the experiential area ($\Delta_{AVMeta_EA_Abs}$).

5 Discussion

The study presented the results of a pilot application of the Meta-Emotions program for teachers, focusing on its effects on various dimensions, including emotional abilities, self-perceptions, and meta-emotional dimensions such as meta-emotional beliefs, meta-emotional knowledge, and meta-emotional self-evaluations.

Regarding EI, the results indicate that the training did not significantly improve participants' emotional abilities. This lack of improvement has been documented in past research (Meyer et al., 2004; Wagstaff et al., 2013), and studies using performance measures of EI generally yield mixed results (Kotsou et al., 2019). This finding appears to be more related to the nature and structure of the training itself, as overall research shows that EI can be improved (Gilar-Corbi et al., 2018; Hodzic et al., 2018; Kotsou et al., 2019; Mattingly and Kraiger, 2019; Özdemir Cihan and Dilekmen, 2024; Schutte et al., 2013). Specifically, teachers in this study participated in a short-term program comprising 21 h, divided into seven sessions of 3 h each. The development of actual abilities, however, may require a more longitudinal approach (e.g., interventions lasting longer than 6 months). Evidence from a meta-analytic investigation supports this notion, showing that for every additional hour of training per week, the resulting effect size increases by 0.03 (Hodzic et al., 2018).

On the other hand, significant changes were observed in meta-emotional dimensions, highlighting how the program's emphasis on MEI influenced participants' perceptions of emotions and their emotional abilities. These results align with prior findings (D'Amico and Geraci, 2022a). First, participants' self-perceptions about their emotional abilities changed globally but in an unexpected direction, as they reported a slight decrease over time. This suggests that participants in the intervention group became more cautious in self-reporting their level of emotional abilities. This cautiousness is further evidenced by the results in meta-emotional self-evaluation, where teachers in the intervention group showed an overall improvement, reducing the discrepancy between their self-evaluations in the ability test and their actual performance. Notably, they exhibited a decreased tendency to underestimate their emotional abilities in the testing situation compared to the comparison group, which showed an increase. These findings are consistent with prior research (D'Amico and Geraci, 2022a). Additionally, the training influenced participants' meta-emotional beliefs, an important component of metacognitive processes (Capobianco et al., 2020; Mansueto et al., 2019). Specifically, teachers in the intervention group demonstrated an increase in their beliefs about emotional perception and facilitation, whereas the control group presented a decrease in their beliefs about emotions.

Overall, these results highlight the program's impact on MEI, as evidenced by improvements in meta-emotional beliefs and more accurate and attentive evaluations of emotional performance in the ability test. However, it is important to note that these findings should be interpreted with caution, as they derive from an exploratory pilot study.

5.1 Limitations and future directions

Despite the findings, this study should be regarded as an exploratory pilot investigation and, as such, it has several important limitations that preclude comprehensive conclusions. First, the small sample size and the pilot nature of the study limit the statistical power and the generalizability of the results. Given the exploratory nature of this pilot study, no priori power analysis was performed. However, the observed effect sizes provide valuable information for planning future studies with larger samples and sufficient statistical power. Larger, more diverse samples are needed to confirm these findings and explore whether they hold across different populations of teachers (e.g., preschool, primary school, and secondary school), educational settings, and cultural contexts. Additionally, another limitation concerns the sample distribution, as it consisted exclusively of female teachers. Although the teaching profession is predominantly composed of females both worldwide (UNESCO, 2024) and in Europe (Katsarova, 2020), individual differences—such as teaching experience, age, and gender—must be considered in future studies. This pronounced gender homogeneity represents a critical limit on the generalizability of the findings, as the present results cannot be directly extended to male teachers, given that emotional and meta-emotional processes may vary across genders as evidenced in previous studies (Cabello et al., 2016; D'Amico and Geraci, 2022b; Fernández-Berrocal et al., 2012). Moreover, individual and professional characteristics, such as years of teaching experience and prior training in social and emotional learning or EI, were not systematically collected in this pilot study. Future research should address these limitations by including more heterogeneous samples and by collecting detailed demographic, professional, and contextual information.

Second, another limitation might concern the methodology used for measuring MEI and calculate meta-emotional indices (CMeta and AVMeta) in adults, that combines two tests that have not been standardized in the same adult populations. The use of different normative sample might have contributed to variability in the derived meta-emotional indices and could have affected the results. In the future, a dedicated test for measuring MEI in adult would be beneficial.

Third, the study employed a relatively short intervention duration (21 h over seven weeks). While improvements were observed in meta-emotional dimensions, longer-term interventions may be necessary to produce significant changes in EI abilities, as evidenced by previous research (Hodzic et al., 2018; Kotsou et al., 2019; Wagstaff et al., 2013). Future studies should consider longitudinal designs to capture sustained changes over time and examine the retention of training effects. Moreover, no conclusions can be drawn regarding the long-term effectiveness of the intervention program due to the absence of follow-up assessments. Including follow-up measurements in future research would address this limitation.

Fourth, from a methodological perspective, participants were not randomly assigned to the intervention and comparison groups. The voluntary nature of the intervention may have introduced selection bias related to motivation. Although the two groups were largely comparable at baseline, some differences emerged on specific dimensions which should be considered when interpreting the findings. Thus,

future research should prioritize randomized group allocation in order to reduce selection bias and strengthen causal inferences regarding the effectiveness of the training program (Kotsou et al., 2019). Additionally, including an active comparison group that receives an equivalent amount of training in terms of hours and engagement could help reduce potential motivation bias.

Finally, this study focused exclusively on direct measures of teachers' emotional and meta-emotional abilities. Future studies should incorporate additional assessments, such as student or colleague evaluations of teachers' skills. Furthermore, due to the pilot nature of this research, the focus was limited to EI and MEI dimensions. Future studies should also include other relevant outcomes, such as well-being and work-related variables (e.g., burnout, work engagement, and self-efficacy).

By addressing these limitations, future research can build on the findings of this pilot study, offering more robust evidence for the utility of targeted programs like Meta-Emotions in fostering emotional and meta-emotional abilities among educators. These insights could contribute to the development of more effective training initiatives aimed at promoting teachers' well-being and improving educational outcomes for students.

6 Conclusion

This pilot study represents the first application of the Meta-Emotions program in adults, specifically targeting teachers. Initial results provide preliminary support for the potential utility of the Meta-Emotions Program in enhancing teachers' MEI, particularly their meta-emotional beliefs, knowledge, and self-evaluations, suggesting that meta-emotional dimensions can be improved. Further research is needed to examine these effects in larger and more diverse samples, as well as to explore how the program impacts teachers' work, well-being, and students' outcomes.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Bioethics Committee of the University of Palermo. The studies were conducted in accordance with the local legislation and institutional requirements.

References

- Bar-On, R. (2006). The Bar-On model of emotional-social intelligence (ESI). *Psicothema* 18, 13–25
- Brackett, M. A., Rivers, S. E., Reyes, M. R., and Salovey, P. (2012). Enhancing academic performance and social and emotional competence with the RULER feeling words curriculum. *Learn. Individ. Differ.* 22, 218–224. doi: 10.1016/j.lindif.2010.10.002

The participants provided their written informed consent to participate in this study.

Author contributions

AG: Formal analysis, Writing – original draft, Project administration, Data curation, Visualization, Conceptualization, Investigation, Methodology, Writing – review & editing. AD'A: Resources, Supervision, Validation, Conceptualization, Funding acquisition, Writing – review & editing, Writing – original draft, Methodology.

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- Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., and Salovey, P. (2006). Relating emotional abilities to social functioning: a comparison of self-report and performance measures of emotional intelligence. *J. Pers. Soc. Psychol.* 91, 780–795. doi: 10.1037/0022-3514.91.4.780

- Cabello, R., Sorrel, M. A., Fernández-Pinto, I., Extremera, N., and Fernández-Berrocal, P. (2016). Age and gender differences in ability emotional

- intelligence in adults: a cross-sectional study. *Dev. Psychol.* 52, 1486–1492. doi: 10.1037/dev0000191
- Capobianco, L., Faija, C., Husain, Z., and Wells, A. (2020). Metacognitive beliefs and their relationship with anxiety and depression in physical illnesses: a systematic review. *PLoS One* 15:e0238457. doi: 10.1371/journal.pone.0238457
- Castillo, R., Fernández-Berrocal, P., and Brackett, M. A. (2013a). Enhancing teacher effectiveness in Spain: a pilot study of the RULER approach to social and emotional learning. *J. Educ. Train. Stud.* 1, 263–272. doi: 10.11114/jets.v1i2.203
- Castillo, R., Salguero, J. M., Fernández-Berrocal, P., and Balluerka, N. (2013b). Effects of an emotional intelligence intervention on aggression and empathy among adolescents. *J. Adolesc.* 36, 883–892. doi: 10.1016/j.adolescence.2013.07.001
- Chang, M. L. (2009). An appraisal perspective of teacher burnout: examining the emotional work of teachers. *Educ. Psychol. Rev.* 21, 193–218. doi: 10.1007/s10648-009-9106-y
- Cipriano, C., Strambler, M. J., Naples, L. H., Ha, C., Kirk, M., Wood, M., et al. (2023). The state of evidence for social and emotional learning: a contemporary meta-analysis of universal school-based SEL interventions. *Child Dev.* 94, 1181–1204. doi: 10.1111/cdev.13968
- Cohen, J. (1992). A power primer. *Psychol. Bull.* 112, 155–159. doi: 10.1037//0033-2909.112.1.155
- Curci, A., Lanciano, T., and Soletti, E. (2014). Emotions in the classroom: the role of teachers' emotional intelligence ability in predicting students' achievement. *Am. J. Psychol.* 127, 431–445. doi: 10.5406/amerjpsyc.127.4.0431
- D'Amico, A. (2013). *Test IE-ACCME - Intelligenza emotiva: Abilità, credenze e concetto di sé meta-emotivo. Test per-adolescenti*. Firenze: Giunti O.S.
- D'Amico, A. (2018). *Intelligenza emotiva e metaemotiva*. Bologna: Il Mulino.
- Damico, A., and Curci, A. (2010). *MSCEIT - Mayer-Salovey-Caruso emotional intelligence test. Manuale*. Firenze: Giunti O.S. Organizzazioni Speciali.
- D'Amico, A., and Geraci, A. (2021). The role of emotional and meta-emotional intelligence in pre-adolescents' well-being and sociometric status. *Front. Psychol.* 12:749700. doi: 10.3389/fpsyg.2021.749700
- D'Amico, A., and Geraci, A. (2022a). Metaemotions at school: a program for promoting emotional and metaemotional intelligence at school; a research-intervention study. *Educ. Sci.* 12:589. doi: 10.3390/educsci12090589
- D'Amico, A., and Geraci, A. (2022b). Sex differences in emotional and meta-emotional intelligence in pre-adolescents and adolescents. *Acta Psychol.* 227:103594. doi: 10.1016/j.actpsy.2022.103594
- D'Amico, A., and Geraci, A. (2023). Beyond emotional intelligence: the new construct of meta-emotional intelligence. *Front. Psychol.* 14:1096663. doi: 10.3389/fpsyg.2023.1096663
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., and Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: a meta-analysis of school-based universal interventions. *Child Dev.* 82, 405–432. doi: 10.1111/j.1467-8624.2010.01564.x
- Fernández-Berrocal, P., Cabello, R., Castillo, R., and Extremera, N. (2012). Gender differences in emotional intelligence: the mediating effect of age. *Behav. Psychol.* 20, 77–89.
- Flavell, J. H. (1979). Metacognition and cognitive monitoring: a new area of cognitive-developmental inquiry. *Am. Psychol.* 34, 906–911. doi: 10.1037/0003-066X.34.10.906
- Frenzel, A. C., Daniels, L., and Burić, I. (2021). Teacher emotions in the classroom and their implications for students. *Educ. Psychol.* 56, 250–264. doi: 10.1080/00461520.2021.1985501
- Gilar-Corbi, R., Pozo-Rico, T., Pertegal-Felices, M. L., and Sanchez, B. (2018). Emotional intelligence training intervention among trainee teachers: a quasi-experimental study. *Psicol Reflex Crit.* 31:33. doi: 10.1186/s41155-018-0112-1
- Gimbert, B. G., Miller, D., Herman, E., Breedlove, M., and Molina, C. E. (2023). Social emotional learning in schools: the importance of educator competence. *J. Res. Leadersh. Educ.* 18, 3–39. doi: 10.1177/19427751211014920
- Greenberg, M. T., Brown, J. L., and Abenavoli, R. M. (2016). *Teacher Stress and Health: Effects on Teachers, Students, and Schools*. State College: Pennsylvania State University; Edna Bennett Pierce Prevention Research Center.
- Hakanen, J. J., Bakker, A. B., and Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *J. Sch. Psychol.* 43, 495–513. doi: 10.1016/j.jsp.2005.11.001
- Hodzic, S., Scharfen, J., Ripoll, P., Holling, H., and Zenasni, F. (2018). How efficient are emotional intelligence trainings? A meta-analysis. *Emot. Rev.* 10, 138–148. doi: 10.1177/1754073917708613
- Jennings, P. A., and Greenberg, M. T. (2009). The prosocial classroom: teacher social and emotional competence in relation to student and classroom outcomes. *Rev. Educ. Res.* 79, 491–525. doi: 10.3102/0034654308325693
- Jones, S. M., Bouffard, S. M., and Weissbourd, R. (2013). Educators' social and emotional skills vital to learning. *Phi Delta Kappan* 94, 62–65. doi: 10.1177/003172171309400815
- Katsarova, I. (2020). *Teaching Careers in the EU. Why Boys do not Want to be Teachers*. Brussels: European Parliamentary Research Service.
- Kotsou, I., Mikolajczak, M., Heeren, A., Grégoire, J., and Leys, C. (2019). Improving emotional intelligence: a systematic review of existing work and future challenges. *Emot. Rev.* 11, 151–165. doi: 10.1177/1754073917735902
- Mahoney, J. L., Durlak, J. A., and Weissberg, R. P. (2018). An update on social and emotional learning outcome research. *Phi Delta Kappan* 100, 18–23. doi: 10.1177/0031721718815668
- Mansueto, G., Caselli, G., Ruggiero, G. M., and Sassaroli, S. (2019). Metacognitive beliefs and childhood adversities: an overview of the literature. *Psychol. Health Med.* 24, 542–550. doi: 10.1080/13548506.2018.1550258
- Mattingly, V., and Kraiger, K. (2019). Can emotional intelligence be trained? A meta-analytical investigation. *Hum. Resour. Manag. Rev.* 29, 140–155. doi: 10.1016/j.hrmr.2018.03.002
- Mayer, J. D., Caruso, D. R., and Salovey, P. (2016). The ability model of emotional intelligence: principles and updates. *Emot. Rev.* 8, 290–300. doi: 10.1177/1754073916639667
- Mayer, J. D., and Salovey, P. (1997). "What is emotional intelligence?" in *Emotional Development and Emotional Intelligence: Educational Implications*. eds. P. Salovey and D. J. Sluyter (New York: Harper Collins), 3–34.
- Mayer, J. D., Salovey, P., and Caruso, D. (2002). *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT): User's Manual*. Toronto: Multi-Health Systems.
- Mérida-López, S., and Extremera, N. (2017). Emotional intelligence and teacher burnout: a systematic review. *Int. J. Educ. Res.* 85, 121–130. doi: 10.1016/j.ijer.2017.07.006
- Meyer, B. B., Fletcher, T. B., and Parker, S. J. (2004). Enhancing emotional intelligence in the healthcare environment: an exploratory study. *Health Care Manag.* 23, 225–234. doi: 10.1097/00126450-200407000-00006
- Näring, G., Briët, M., and Brouwers, A. (2006). Beyond demand-control: emotional labour and symptoms of burnout in teachers. *Work Stress.* 20, 303–315. doi: 10.1080/02678370601065182
- Nathanson, L., Rivers, S. E., Flynn, L. M., and Brackett, M. A. (2016). Creating emotionally intelligent schools with RULER. *Emot. Rev.* 8, 305–310. doi: 10.1177/1754073916650495
- Özdemir Cihan, M., and Dilekmen, M. (2024). Emotional intelligence training for pre-service primary school teachers: a mixed methods research. *Front. Psychol.* 15:1326082. doi: 10.3389/fpsyg.2024.1326082
- Oliveira, S., Roberto, M. S., Pereira, N. S., Marques-Pinto, A., and Veiga-Simão, A. M. (2021). Impacts of social and emotional learning interventions for teachers on teachers' outcomes: a systematic review with meta-analysis. *Front. Psychol.* 12:677217. doi: 10.3389/fpsyg.2021.677217
- Ozamiz-Etxebarria, N., Legorburu Fernández, I., Lipnicki, D. M., Idoaga Mondragón, N., and Santabárbara, J. (2023). Prevalence of burnout among teachers during the COVID-19 pandemic: a meta-analysis. *Int. J. Environ. Res. Public Health* 20:4866. doi: 10.3390/ijerph20064866
- Puertas Molero, P., Zurita Ortega, F., Ubago Jiménez, J. L., and González Valero, G. (2019). Influence of emotional intelligence and burnout syndrome on teachers' well-being: a systematic review. *Soc. Sci.* 8:185. doi: 10.3390/socsci8060185
- Reimers, F. M., Amaechi, U., Banerji, A., and Wang, M. (2022). "Education in crisis. Transforming schools for a post-COVID-19 renaissance" in *Education to Build Back Better*. eds. F. M. Reimers, U. Amaechi, A. Banerji and M. Wang (Cham, Switzerland: Springer), 169–185.
- Rivers, S. E., Brackett, M. A., Reyes, M. R., Elbertson, N. A., and Salovey, P. (2013). Improving the social and emotional climate of classrooms: a clustered randomized controlled trial testing the RULER approach. *Prev. Sci.* 14, 77–87. doi: 10.1007/s11211-012-0305-2
- Ruiz-Aranda, D., Cabello, R., Salguero, J. M., Extremera, N., and Fernández-Berrocal, P. (2013). *Programa INTEMO: Guía para mejorar la inteligencia emocional de los adolescentes*. Madrid: Pirámide.
- Ruiz-Aranda, D., Castillo, R., Salguero, J. M., Cabello, R., Fernández-Berrocal, P., and Balluerka, N. (2012a). Short- and midterm effects of emotional intelligence training on adolescent mental health. *J. Adolesc. Health* 51, 462–467. doi: 10.1016/j.jadohealth.2012.02.003
- Ruiz-Aranda, D., Salguero, J. M., Cabello, R., Palomera, R., and Fernández-Berrocal, P. (2012b). Can an emotional intelligence program improve adolescents' psychosocial adjustment? Results from the INTEMO project. *Soc. Behav. Pers.* 40, 1373–1379. doi: 10.2224/sbp.2012.40.8.1373
- Schutte, N. S., Malouff, J. M., and Thorsteinsson, E. B. (2013). Increasing emotional intelligence through training: current status and future directions. *Int. J. Emot. Educ.* 5, 56–72.
- Shimony, O., Malin, Y., Fogel-Grinvald, H., Gumpel, T. P., and Nahum, M. (2022). Understanding the factors affecting teachers' burnout during the COVID-19 pandemic: a cross-sectional study. *PLoS One* 17:e0279383. doi: 10.1371/journal.pone.0279383
- Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *Futur. Child.* 27, 137–155. doi: 10.1353/foc.2017.0007
- Schonert-Reichl, K. A., Kitil, M. J., and Hanson-Peterson, J. (2017). *To reach the students, teach the teachers: A national scan of teacher preparation and social and emotional learning*. Vancouver: University of British Columbia.
- Spilt, J. L., Koomen, H. M. Y., and Thijs, J. T. (2011). Teacher wellbeing: the importance of teacher-student relationships. *Educ. Psychol. Rev.* 23, 457–477. doi: 10.1007/s10648-011-9170-y

- Taylor, R. D., Oberle, E., Durlak, J. A., and Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: a meta-analysis of follow-up effects. *Child Dev.* 88, 1156–1171. doi: 10.1111/cdev.12864
- UNESCO (2024). *Global Report on Teachers: Addressing Teacher Shortages and Transforming the Profession*. Paris: UNESCO.
- Wagstaff, C. R. D., Hanton, S., and Fletcher, D. (2013). Developing emotion abilities and regulation strategies in a sport organization: an action research intervention. *Psychol. Sport Exerc.* 14, 476–487. doi: 10.1016/j.psychsport.2013.01.006
- Wang, Y., and Wang, Y. (2022). The interrelationship between emotional intelligence, self-efficacy, and burnout among foreign language teachers: a meta-analytic review. *Front. Psychol.* 13:913638. doi: 10.3389/fpsyg.2022.913638
- Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., and Gullotta, T. P. (2015). “Social and emotional learning: past, present, and future” in *Handbook of Social and EMOTIONAL learning: Research and Practice*. eds. J. A. Durlak, C. E. Domitrovich, R. P. Weissberg and T. P. Gullotta (New York: Guilford Press), 3–19.
- Zhao, Y., and Watterston, J. (2021). The changes we need: education post COVID-19. *J. Educ. Change.* 22, 3–12. doi: 10.1007/s10833-021-09417-3