

Promoting Emotional Intelligence among University Students: A Systematic Review and Meta-Analysis

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Dedication

I dedicate my work
to my daughter, who was there with me from the very start.
to our new family, with whom we look forward to a new start together.

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Published Studies of the Dissertation

This monograph builds upon the preprint of the following article and serves as its extension and further elaboration:

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Abstract

This systematic review and meta-analysis examine trainings aimed at promoting emotional intelligence (EI) among university students, a group frequently exposed to stress and mental health challenges. Our focus lies on three central aspects of the interventions: the theoretical model underpinning the training, the content covered, and the instruments used to measure EI. Across 49 studies (of which 39 were included in the meta-analysis), we provide an overview of existing interventions and assess the degree of alignment between model, content, and measure.

The review distinguishes between the three main EI models: ability, trait, and mixed, and builds on the idea of constructive alignment, asking whether the training content and outcome measures are coherent with the theoretical model used. Our research questions address: (1) the overall and moderated effects of these interventions, (2) which models the trainings are based on, (3) which content the interventions featured, (4) which EI measures are used, and (5) to what extent model, content, and measure align.

We conducted a systematic search across five databases and coded eligible studies based on model, content, and measure. Meta-analytic results showed a small to moderate overall effect (Hedges' $g = 0.23$ after removing outliers), with no significant moderation by model, content type, or measure. Only 35% of the interventions demonstrated alignment across model, content, and measure. In terms of models, the majority were based on a mixed model, regarding content, most of the interventions were not EI-specific, and measures-wise, performance tests and other-rater instruments were rarely used.

Our review contributes to the field by presenting a content typology and a framework for assessing alignment. These tools may help researchers and practitioners categorize and design EI trainings more systematically. Our findings point to a need for clearer theoretical grounding, greater consistency in the use of model-aligned measures, and more transparent reporting of content. These steps are essential for developing standards and improving the quality of interventions aimed at promoting EI in higher education.

Table of Contents

Dedication	ii
Acknowledgements	iii
Published Studies of the Dissertation	iv
Abstract	v
Table of Contents	vi
List of Tables and Figures	ix
1. Theoretical Background	5
1.1 The Concept of Emotional Intelligence	5
1.2 Models of Emotional Intelligence	6
1.2.1 The Ability Model	7
1.2.2 The Trait Model	8
1.2.3 The Mixed Models	9
1.2.4 Attempts to Unify the Models	10
1.3 Emotional Intelligence Trainings for University Students: Rationale	10
1.4 State of Research	12
1.4.1 Prior Reviews and Meta-Analyses on EI Trainings	12
1.4.2 Models in EI Training	16
1.4.3 Content of EI Training	17
1.4.4 Measures in EI Training	18
1.4.5 Alignment	19
1.5 The Present Research	21
2. Research Questions	23
3. Methods	25
3.1 Literature Search and Syntax	25
3.2 Inclusion Criteria	26

3.3 Screening Process.....	27
3.4 Coding Scheme	29
3.5 Statistical Analyses	32
3.6 Assessment of Outliers.....	33
3.7 Quality Assessment	33
3.8 Publication Bias Assessment.....	34
4. Results.....	35
4.1 Descriptive Results.....	36
4.2 Outlier Analyses.....	39
4.3 Quality Assessment	39
4.4 Publication Bias.....	40
4.5 Aggregating Effect Sizes.....	41
4.6 Overall Effect of Interventions (RQ 1)	41
4.7 Analysis of Models (RQ 2)	42
4.7.1 RQ2a. Descriptive Overview of the Models.....	42
4.7.2 RQ2b. Moderating Effects of the Underlying Model	44
4.8 Analysis of Content (RQ3).....	44
4.8.1 RQ3a. Descriptive Overview of the Content	44
4.8.2 RQ3b. Moderating Effects of Content Type.....	48
4.9 Analysis of Measures (RQ4).....	49
4.9.1 RQ4a. Descriptive Overview of the Measures.....	49
4.9.2 RQ4b. Moderating Effects of the Measures	50
4.10 Alignment between Model, Content, and Measures (RQ5)	51
5. Discussion	53
5.1 Overall Effectiveness of Interventions Aimed at Promoting EI	54
5.2 Discussion of Models	57

5.3 Discussion of Content	60
5.4 Discussion of Measures.....	62
5.5 Alignment Between Model, Content, and Measure (RQ5).....	64
5.6 Limitations and Future Directions.....	67
5.6.1 Limitations in Primary Studies	67
5.6.2 Limitations in Design and Scope	69
5.7 Implications for Practice	70
5.8 Implications for Theory.....	72
5.9 Conclusion.....	74
References	76
Appendix A Glossary of Terms.....	91
Appendix B Overview of Models	92
Appendix C Search Syntax	96
Appendix D Fine Coding Manual	98
Appendix E Measures of EI according to Underlying Model and Type.....	105
Appendix F Sample Coding for Models, Content, Measures and Alignment.....	106
Appendix G Overview of the Included Studies	108
Appendix H Moderator Analysis	117
Appendix I Description of Training Content	129

List of Tables and Figures

Table 1. <i>Overview of Previous Meta-Analyses and Systematic Reviews</i>	13
Table 2. <i>Overview of the Coded Variables</i>	30
Table 3. <i>Frequencies of the Study Characteristics</i>	37
Table 4. <i>Frequencies of Models, Measures and Content Types</i>	43
Table 5. <i>Alignment Between Models, Content, and Measures</i>	52
Figure 1. <i>Models of Emotional Intelligence</i>	7
Figure 2. <i>Focus of the Present Research Synthesis</i>	22
Figure 3. <i>PRISMA Flow-chart</i>	28
Figure 4. <i>Codes for Content of Trainings Aimed at Promoting EI</i>	32
Figure 5. <i>Outline of the Results Section</i>	35
Figure 6. <i>Funnel Plot before and after Outliers' Exclusion</i>	40
Figure 7. <i>Forest Plot Excluding Four Influential Studies</i>	42
Figure 8. <i>Word Cloud: Other Themes in Content of EI Interventions</i>	48
Figure 9. <i>Outline of the Discussion Section</i>	53
Figure 10. <i>Tentative Alignment Framework for Trainings Aimed at Promoting EI</i>	66

"For it is hard to find the middle point in anything: for instance, not everybody can find the center of a circle, but only someone who knows geometry. So also anybody can become angry – that is easy; but to be angry with the right person, and to the right amount, and at the right time, and for the right purpose, and in the right way – this is not easy."

-Aristotle, Nicomachean Ethics, 2.9

Dissertation:
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Consider two students preparing for the same examination. The first experiences high anxiety, studies late into the night, and relies on energy-dense snacks to remain awake. The second also feels the pressure of the upcoming test, yet interprets this stress as a typical reaction. He uses emotion-regulation strategies such as paced breathing, brief social support, and sufficient sleep. These behaviors help him maintain emotional balance, concentrate, and conserve energy. The key difference between the two students may lie in their level of Emotional Intelligence (hereinafter EI) – the ability to perceive, understand, use, and regulate emotions (Mayer et al., 2004).

EI has become a widely discussed concept in different contexts, including academia, organizational behavior, and clinical psychology (Mehler et al., 2024; Molero et al., 2020). The relevance of EI is especially evident in higher education, where students must meet rigorous academic demands while managing their own emotions and adapting to new life situations (Stevens et al., 2019; Worsley et al., 2021). As in the described exam situation above, several studies have indeed found a negative correlation between EI and academic stress, meaning that students with higher EI tend to experience less academic stress than those with lower EI (Kauts, 2016; Roy et al., 2021; Stevens et al., 2019). Apart from academic stress, university students must navigate a complex life transition phase. This phase is marked by the simultaneous challenges of increased independence, new social environments, and unfamiliar academic expectations (Worsley et al., 2021). These factors make them particularly vulnerable to anxiety and depression (Basudan et al., 2017; Doyle et al., 2021). Despite the need, help-seeking behavior in this group remains limited, with many students unsure where to turn to (Beamer, 2024; Kern et al., 2018). EI interventions may offer a promising avenue for addressing this problem. By fostering the ability to perceive, understand, and regulate emotions, EI training can help students respond more adaptively to stress and challenges they face. EI has been associated with enhanced coping and resilience under stress (Drigas & Papoutsis, 2020), academic achievement (MacCann et al., 2020; Manimozhi & Srinivasan, 2018) and, especially in roles requiring interpersonal interaction, higher job performance (Côté & Miners, 2006; Gong et al., 2019).

Despite this relevance, university students have received limited attention in EI research compared to other populations (Hodzic et al., 2018; Molero et al., 2020). Most existing

reviews and meta-analyses either combine university students with other groups or focus on adult workplace samples, limiting insights for this group specifically (Mattingly & Kraiger, 2019). At the same time, there has been a call to investigate EI interventions for vulnerable population groups (Lim & Lau, 2021). The present work aims to contribute to bridging this research gap.

Apart from focusing on the student population, the present work addresses the theoretical complexity of the EI field. Among the various approaches to view EI, three theoretical models have emerged as the most influential: the ability model (Mayer et al., 2004). The trait model (Petrides & Furnham, 2001), and mixed models (Bar-On, 2007; Goleman, 2001). Each model conceptualizes EI differently, which affects the choice of measures and training content. These models are discussed in more detail in the corresponding theory section below. The lack of conceptual clarity and the diversity of existing models have led to challenges in defining, measuring, and training EI in a coherent way (Côté, 2014; Matthews et al., 2004). The EI measures also vary widely in the underpinning model and type (Bru-Luna et al., 2021). Although not always explicitly addressed in primary studies, concerns about the conceptual mismatch between EI models and the measures used to assess them have been raised. Petrides (2011) emphasized that trait and ability EI represent fundamentally different constructs, requiring distinct measurement approaches. Inconsistent use of measures could limit the interpretability of findings.

Another aspect we consider in the present synthesis concerns the content of EI training programs. While prior reviews (Lim & Lau, 2021; Perry et al., 2020) describe general approaches, such as cognitive instruction or experiential activities, few systematically categorize the content themes used in EI trainings, such as emotion regulation, empathy, or self-reflection. Without this level of granularity, it remains unclear which types of content are most frequently employed and how they relate to underlying theoretical models and measures.

Finally, existing research has not sufficiently examined the conceptual alignment between the model, content, and measures within individual EI interventions. This alignment is essential for ensuring that training programs are coherent in both what is taught (model, content) and what is assessed (measure). Without such alignment, assessments may fail to capture the actual learning gains (Biggs, 1996; Martone & Sireci, 2009).

The present study adopts two complementary approaches to address these gaps: a systematic review and a meta-analysis. The systematic review aims to provide a detailed landscape of EI interventions for university students as a vulnerable population, describing the

models, content, and measures used, and examining the extent to which these components are conceptually aligned. The meta-analysis examines the overall effectiveness of EI interventions and explores the moderating role of models, content, and measures. This dual approach offers both qualitative and quantitative insights into the current state of EI training research and provides a foundation for future intervention design and potential development of quality benchmarks.

This dissertation is structured in five main chapters. Chapter 1 provides the theoretical background, introducing the concept of EI, comparing the major models, and outlining the relevance of EI training for university students. It also identifies key research gaps in the current literature that lead to formulating the research questions and hypotheses. Chapter 2 provides a list of the research questions alongside the corresponding hypotheses. Chapter 3 describes the methodology of the systematic review and meta-analysis, including the literature search strategy, inclusion criteria, coding procedures, statistical analyses, and study quality assessment. Chapter 4 reports the results, including descriptive findings, effect size estimates, and analyses of models, content, and measures, as well as their alignment. Finally, Chapter 5 offers a discussion of the findings, including limitations, theoretical and practical implications, and a conclusion. The appendices provide extensive supporting materials, including the coding manual, search syntax, conceptual clarifications, and additional descriptive and statistical results.

1. Theoretical Background

1.1 The Concept of Emotional Intelligence

The term “emotional intelligence” made its first appearance in a work that belongs to the field of literary analysis (van Ghent, 1953) and was further mentioned in an unpublished dissertation (Payne, 1985). Other works that potentially paved the way for the term described “social intelligence” (Thorndike, 1920) and “interpersonal intelligence” in the work of (Gardner, 1993) on multiple intelligences. The first profound works on EI appeared at the end of the 20th century (Mayer et al., 2000a; Salovey & Mayer, 1990), where EI was defined as “the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions” (Salovey & Mayer, 1990). This definition laid the foundation for the development of diverse theoretical models and a growing body of empirical research. Over time, related constructs such as emotional awareness, emotion regulation, and emotional literacy have emerged in parallel or overlapping discourse. While these concepts share features with EI, they differ in scope and emphasis; the glossary of terms is provided in Appendix A. Subsequently, distinct theoretical models of EI have emerged, which are discussed in detail in the following chapter.

As research on EI has advanced, EI has been increasingly associated with a range of positive outcomes, both in the general population and specifically among students. Higher levels of EI have been linked to better academic performance (MacCann et al., 2020), enhanced job performance and leadership effectiveness (Joseph & Newman, 2010), as well as improved mental health, interpersonal relationships, and general well-being (Mohamed et al., 2022; Vesely et al., 2014). These findings have contributed to the growing interest in promoting EI through educational and workplace interventions.

Despite its popularity, EI has faced criticism due to the lack of a clear neuroscientific foundation. Waterhouse (2006) highlights that, unlike well-established cognitive constructs such as working memory, neither the theory of multiple intelligences nor EI currently demonstrates a robust and clearly delineated neural basis. Nonetheless, findings from neuroscience provide insight into core processes related to EI, particularly emotion perception, regulation, and behavioral control (Fujita et al., 2024; Kelley et al., 2015; Langner et al., 2018; Malezieux et al., 2023).

To further clarify how EI is understood and studied, the following section outlines the main theoretical models that have shaped its conceptual development and guided subsequent research.

1.2 Models of Emotional Intelligence

Although the term EI is widely used, it does not refer to a single, clearly defined construct. This ambiguity reflects what Côté (2014) has elegantly called the jingle fallacy – the mistaken belief that different constructs are equivalent simply because they share the same name (Thorndike, 1913). In the case of EI, this fallacy has led to grouping conceptually distinct phenomena, ranging from cognitive-emotional abilities to stable personality traits, under a single umbrella term.

Reflecting these varying interpretations, the literature distinguishes between three principal models of EI, each offering a distinct perspective on what EI is and how it should be studied: the ability model (Mayer et al., 2004), the trait model (Petrides & Furnham, 2001), and mixed models (Bar-On, 2007; Goleman, 2001). Each framework carries its assumptions, strengths, and limitations, with implications for theory, assessment, and practical application (Matthews et al., 2004; Mattingly & Kraiger, 2019). Figure 1 provides an overview of the key components of each model.

Historically, the construct of EI began to take clearer shape with the work of Salovey and Mayer (1990), who defined EI as a set of cognitive-emotional abilities. Their ability model conceptualized EI as a form of intelligence measurable through performance-based tasks. Shortly thereafter, Bar-On (1997) introduced a broader mixed model that framed EI as a combination of emotional and social competencies relevant to everyday functioning and psychological well-being. Around the same time, Goleman's (1995) bestselling book *Emotional Intelligence* brought the term into the public sphere. His framework, also classified as a mixed model, emphasized EI's role in personal and professional success, with a special focus on organizational development. In response to concerns about conceptual clarity and measurement inconsistency, Petrides and Furnham (2001) proposed the trait model, explicitly distinguishing trait EI from ability EI by defining it as a constellation of self-perceived emotional traits measured via self-report. These divergent approaches reflect efforts to operationalize EI in line with different theoretical assumptions and applied goals. However, they have also contributed to the ongoing debate about the construct's boundaries and empirical validity.

To better understand the strengths and critiques of each approach, as well as their implications for EI training, the following sections present an overview of the ability, trait, and mixed models of EI, along with attempts to integrate these perspectives.

Figure 1
Models of Emotional Intelligence

Ability Model	Trait Model
Perceiving Emotions (identifying emotions and deceit, expressing emotions) Using emotions to facilitate thought (selecting activities based on emotional states, leveraging mood swings for varied perspectives, using emotions to aid judgment and memory) Understanding emotions (recognizing cultural differences, understanding emotional responses, differentiating between moods and emotions, and comprehending how emotions change over time) Managing emotions (regulating one's own and others' emotions to achieve specific goals, assessing strategies to control emotions, accepting both positive and negative feelings, etc.) (Mayer et al., 2007)	Trait emotional intelligence is composed of fifteen emotion-related facets scattered across personality dimensions clustered under four factors: • Well-being (self-esteem, trait happiness, trait optimism) • Self-control (emotion control, stress management, impulse control) • Emotionality (emotion perception, emotion expression, relationships, trait empathy) • Sociability (social awareness, emotion management of others, assertiveness, adaptability, self-motivation) (Petrides, 2010)
Mixed Models	
• Intrapersonal (self-regard, emotional self-awareness, assertiveness, independence, self-actualisation) • Interpersonal (empathy, social responsibility, interpersonal relationship) • Stress management (stress tolerance, impulse control) • Adaptability (reality-testing, flexibility, problem-solving) • General mood (optimism, happiness) (Bar-On, 2007)	• Self-awareness (emotional self-awareness) • Self-management (emotional self-control, adaptability, achievement orientation, positive outlook) • Social awareness (empathy, organizational awareness) • Relationship management (influence, coach and mentor, conflict management, teamwork, inspirational leadership) (Goleman, 2001)

Note.

Yellow and blue highlights signify the commonalities between the models. Yellow refers to knowledge about emotions: perceiving and understanding emotions, emotional awareness about self and others. Blue refers to managing emotions: regulating emotions, controlling oneself.

1.2.1 The Ability Model

The ability model of EI (Mayer et al., 2004), defines EI as a set of cognitive skills involved in processing emotional information. The model consists of four hierarchical branches: recognizing emotions, using emotions to facilitate thought, understanding emotions, and regulating emotions (see Figure 1 and Appendix B with elaborate models overview and what cognitive skills each dimension features). These components reflect an ascending level of complexity, with emotion regulation considered the most advanced skill. The model draws from cognitive intelligence theory and shares structural similarities with general intelligence models, focusing on how individuals process emotional data.

A major strength of this model is its conceptual precision and its clear differentiation from personality traits. It provides a well-defined structure that has supported the development of specific interventions targeting EI. However, some limitations have been noted. For example, the distinction between using and managing emotions is sometimes ambiguous, and the "using emotions" dimension has been criticized for its overlap with regulation strategies and lower empirical reliability (Gignac, 2009; Joseph & Newman, 2010; MacCann et al., 2014). Mayer and colleagues, however, argue that using emotions is a separate cognitive process involving the ability to harness moods to enhance thinking and problem-solving. For instance, being in a joyful mood might facilitate creative thinking, while a more somber mood may support critical analysis (Mayer et al., 2016). Another study found that emotion perception formed a distinct factor, while using, understanding, and managing emotions loaded onto a common factor (Ciarrochi et al., 2000).

Training aligned with the ability model focuses on enhancing each of the four emotional abilities. Such programs often include modules on recognizing emotional expressions, understanding how emotions change over time, and practicing emotion regulation strategies. Training may incorporate real-life applications and feedback to help learners integrate emotional knowledge into everyday situations. For example, one study featured a program for medical students targeting the four branches of EI (Herpertz et al., 2016) and reported improvements in emotion regulation. Similarly, the other two studies (Gaudet, 2010; Geßler et al., 2021) demonstrated the effectiveness of university-based training programs structured around the ability model, enhancing students' capacity to accurately perceive and manage emotions.

1.2.2 The Trait Model

The trait model conceptualizes EI as a collection of emotion-related dispositions and behavioral tendencies, rather than as cognitive abilities (see Figure 1). According to Petrides (2010), trait EI encompasses emotionality, self-control, well-being, and sociability dimensions that reflect how individuals typically respond to experiences and how they tend to behave.

The trait model's main strength is its grounding in established personality theory. By treating EI as a set of dispositions that are placed alongside the Big Five, researchers have a familiar conceptual map and well-validated self-report tools. However, this proximity to core traits is also its main weakness. Trait EI correlates strongly with low Neuroticism and higher Extraversion, Agreeableness, and Conscientiousness (Petrides, 2010). Such overlap has led

critics to question whether the construct explains anything beyond the Big Five or merely re-labels existing personality traits (Matthews et al., 2004).

Trait EI-based interventions designed specifically for university students remain relatively rare. This may reflect the construct's conceptual grounding as a disposition rather than a changeable skill set, and the fact that trait EI research has historically focused more on assessment than on training.

1.2.3 The Mixed Models

Mixed models, such as those proposed by Bar-On (2007), conceptualize EI as a combination of emotional abilities, personality traits, and general moods, such as optimism (see Figure 1). This model includes broad constructs such as empathy, motivation, emotional awareness, adaptability, and social effectiveness. A number of works refer to Goleman's model as mixed (Afroz et al., 2017; Mayer et al., 2008; Mikolajczak, 2009), arguing that it presents a combination of traits, competencies, and motivations. However, Goleman himself posits that his model answers the criteria of an ability model (Goleman, 2001).

Mixed models are widely used in trainings, for instance in school or workplace EI interventions. However, they have been criticized for their conceptual inclusiveness, as they include personality traits and general moods in addition to abilities. This breadth can lead to difficulties in clearly defining what is and what is not part of EI, complicating theoretical and empirical evaluations. Matthews et al. (2004) referred to mixed models as "psychologically diffuse" (p. 174), noting the challenges in maintaining conceptual distinctiveness. Further, while Goleman's model is criticized by some as lacking scientific rigor (Matthews et al., 2004; Mayer et al., 2000b), others see his work as a useful dissemination of EI concept, which makes it more relatable and understandable for the people (Ackley, 2016). Goleman (2001) acknowledges that his work serves a dual purpose: partly as a theoretical contribution to the concept of EI, and partly as an effort to disseminate the idea for a broader audience. Training programs based on mixed models often involve developing a range of emotional and interpersonal skills. These may include activities designed to foster self-reflection, build empathy, manage stress, and enhance communication. Because the competencies addressed are broad, such training is typically adaptable and can be customized to individual or organizational needs. For instance, McGinnis (2018) described the implementation of mixed-model EI training in leadership development, reporting gains in interpersonal effectiveness and organizational engagement. Similarly, certain studies (Dev et al., 2021; Rosario Quiroz et al., 2020) found positive outcomes from mixed-model-based interventions in university

contexts, including enhanced emotional awareness, peer relationships, and stress management.

1.2.4 Attempts to Unify the Models

In response to these ongoing conceptual differences, integrative frameworks have been proposed. For example, Mikolajczak (2009) introduced a three-level model that differentiates between emotional knowledge, emotional abilities, and trait-like behavioral tendencies. This structure allows for distinguishing what a person knows about emotions (e.g., recognizing emotional expressions), what they are capable of doing (e.g., regulating emotions effectively), and what they typically do in real-life contexts (e.g., responding empathetically or avoiding conflict). The model thus integrates cognitive, skill-based, and dispositional aspects of EI.

Another widely cited integrative model is the cascading model (Joseph & Newman, 2010). This framework seeks to reconcile the ability and trait perspectives by proposing a sequential, hierarchical process. In this model, emotional intelligence begins with emotion perception, which enables emotional understanding, which in turn facilitates emotion regulation. These ability-based components are positioned as upstream predictors that influence downstream outcomes such as job performance, health, and well-being. The model also accounts for the role of personality traits, such as emotional stability and conscientiousness, which may moderate or mediate the effects of EI abilities on outcomes. By separating EI into ordered stages and integrating dispositional factors, the cascade model has contributed to clarifying inconsistent findings and guiding the development of theory-driven assessments.

Overall, the coexistence of multiple models enriches the conceptual landscape of EI but also poses challenges for comparing studies and designing interventions. The present study addresses these issues by explicitly distinguishing the theoretical model guiding the intervention, and by stating the commonalities across the models.

At the same time, there is a growing need to understand how these conceptual distinctions play out in practice, particularly among populations facing complex emotional demands. University students represent one such group. They navigate a unique set of academic, developmental, and social challenges, making them a highly relevant target audience for EI interventions.

1.3 Emotional Intelligence Trainings for University Students: Rationale

University students represent a particularly relevant target group for interventions aimed at fostering EI. Students today face a unique combination of psychological, developmental, and situational stressors. These include transitions such as moving away from home, forming independent identities, and adjusting to new academic and social environments (Credé & Niehorster, 2012), all of which heighten their vulnerability to emotional distress.

There is substantial evidence that students in higher education report higher levels of anxiety, depression, and stress than other age groups (Basudan et al., 2017; Wahed & Hassan, 2017). At the same time, they are expected to master a wide range of emotional and social competencies crucial for academic success and future employability (O'Boyle Jr et al., 2011). Higher EI has been associated with better stress management, increased psychological well-being (Xu et al., 2021), and improved academic performance (MacCann et al., 2020; Sánchez-Álvarez et al., 2020).

Importantly, recent studies suggest that the benefits of EI extend beyond daily functioning to include preventive effects in times of crisis. For instance, students who participated in EI training prior to the COVID-19 pandemic showed better emotion regulation and resilience during the pandemic compared to peers without such training (Drigas & Papoutsis, 2020). These findings reinforce the value of early intervention and suggest that fostering EI may aid against the long-term psychological impacts of acute stressors.

Moreover, from a labor market perspective, EI is increasingly recognized as a critical competence. In collaborative professional environments, soft skills such as emotional awareness, empathy, and regulation are often valued on par with technical knowledge (Côté & Miners, 2006); Students with higher EI are more likely to adapt successfully to complex social settings, navigate workplace demands, and assume leadership roles (Côté, 2014; Humphrey, 2013).

Despite its relevance, most structured interventions targeting EI have been concentrated in primary and secondary education, often under the framework of Social and Emotional Learning (SEL), with limited adaptation to the needs and context of university students (Goleman, 2001; Mayer & Cobb, 2000). While SEL programs have demonstrated effectiveness among younger learners (Brackett & Rivers, 2014; Wood, 2020), the systematic evidence of university-specific EI interventions remains scarce. Existing meta-analyses have tended to focus on workplace training (Hodzic et al., 2018; Mattingly & Kraiger, 2019), or aggregate data across educational levels without focusing solely on university populations (Molero et al., 2020).

The current monograph aims to address this gap by providing a focused overview of EI interventions targeting university students. To carve out the further aspects of a research gap, we will summarize the current state of research from prior research syntheses on trainings aimed to promote EI in terms of models, content, measures, and alignment between them.

1.4 State of Research

1.4.1 Prior Reviews and Meta-Analyses on EI Trainings

Several previous reviews and meta-analyses have explored the effectiveness of EI trainings. Table 1 summarizes the major aspects from the previous meta-analyses and systematic reviews. These studies differ in scope, populations examined, and outcomes assessed. Hodzic et al. (2018) reviewed 24 studies involving healthy adults over the age of 16 and reported a moderate overall effect size ($g = 0.51$). Mattingly and Kraiger (2019) included 58 studies focused on adult workplace populations and found similar moderate effects ($d = 0.45$ – 0.61). Molero et al. (2020) examined 20 studies across educational levels: infant, primary, secondary, and university, and noted variation in outcomes based on developmental stage, with notably high effects for university students ($d = 0.77$). Though only three studies out of the sample belonged to the university level. Other large-scale reviews also addressed EI training. (Mehler et al., 2024) synthesized results from 50 studies with employed adults and reported small to moderate effect sizes (SMD = 0.44 pre-post, 0.47 controlled). Powell et al. (2024) examined 17 studies targeting healthcare workers and found strong effects, especially in rigorously designed trials (SMD = 1.51 for RCTs). However, despite these broad syntheses, university students as a distinct population have received limited focused attention. Several reviews have also called for more targeted research that identifies vulnerable groups who could particularly benefit from EI interventions, including university students (Kotsou et al., 2019; Lim & Lau, 2021). In many cases, university samples were included in aggregated data with other age groups, making it challenging to isolate findings relevant to this population. This underlines a key research gap in understanding how EI training affects university students specifically and how such programs are structured and evaluated (see Table 1).

The first research question is therefore whether EI can be promoted among university students and how strong the average overall effect of training interventions is. We hypothesize, in accordance with the previous meta-analyses (Hodzic et al., 2018; Mattingly & Kraiger, 2019; Mehler et al., 2024), that there will be a positive small to moderate overall effect.

Table 1
Overview of Previous Meta-Analyses and Systematic Reviews

Author(s), Year	Number of Studies	Sample	Overall ES	EI Model(s) Mentioned	EI Measures Used	EI Training Content	Summary of Results	Future Directions
Hodzic et al. (2018)	24	Healthy adults (>16 years)	SMC = 0.51 (Moderate)	Ability (Mayer- Salovey), Mixed (Bar-On), Trait (TEIQue), CASEL, Swinburne	MSCEIT, TEIQue, EQ-i, self-report, peer-report, ability tests	Combined experiential (role-play, reflective writing, feedback) and theory-based training (lectures, discussions, readings, exercises)	EI trainings moderately effective; Ability EI model showed largest effect sizes; training length influenced efficacy.	Rigorous controlled studies, unpublished studies, exploration of individual and situational factors.
Mattingly & Kraiger (2019)	58	Adults (>18 years)	$d = 0.61$ (pre- post), $d = 0.45$ (control)	Not explicitly stated; measures from Ability and Mixed models used	MSCEIT, EQ-i, Bar-On EQ-i 360, Wong and Law EI Scale, TEIQue-SF, mixed-model measures	Training methods diverse; specific EI training content not detailed	Moderate positive effects; published studies report higher effect sizes; limited evidence for the specific training components' impact.	Individualized EI training approaches, complex designs, and precise EI component testing.
Mehler et al. (2024)	50	Employed adults (>18 years)	SMD = 0.44 (pre-post), 0.47 (controlled)	Ability (Mayer- Salovey), Trait, Mixed, Gross's model	MSCEIT-2.0, TEIQue, EQ-i	General training methods (lectures, role-play, feedback); specific content details lacking	Workplace EI training effective with moderate effects; no differences by professional group or EI construct; effects slightly decrease over time.	High-quality RCTs, objective measures, longitudinal follow-ups, reinforcement strategies.

Author(s), Year	Number of Studies	Sample	Overall ES	EI Model(s) Mentioned	EI Measures Used	EI Training Content	Summary of Results	Future Directions
Molero et al. (2020)	20	Students across educational stages (incl. university)	$d = 0.73$ overall, $d = 0.77$ (university)	Not explicitly stated; measures from Ability and Mixed models used	MSCEIT, EQ-i, TEIQue, TMMS-24, SSRS, SDQ	Programs like INTEMO, SEL, Mindfulness, PATHS; detailed training content not provided	Significant positive effects of EI interventions, notably higher for medium-duration interventions; large effect in university students.	Clear specification of EI models, longitudinal studies, detailed content descriptions.
Powell et al. (2024)	17	Healthcare workers (18-65 years)	SMD = 1.51 (RCT), 0.71 (quasi), 0.38 (non-RCT)	Ability (Mayer-Salovey), Mixed (Bar-On, Goleman), Trait EI	EQ-i, SSEIT, Trait Meta-Mood Scale, GENOS, Wong & Law EI Scale	Structured interventions on stress management, emotional regulation, experiential exercises, feedback	EI training significantly improves EI, stress management, and patient care; higher effects in rigorous designs.	Standardization of training protocols, rigorous methods, diverse samples, detailed intervention descriptions.
Kotsou et al. (2019)	46	Adults	Qualitative synthesis	Ability (MSCEIT), Trait (EQ-i, TEIQue); specific EI models often unclear	MSCEIT, EQ-i, TEIQue, varied measures (>20 total)	Training content typically unclear; lacked explicit theoretical rationale	EI interventions generally effective; trait measures consistently positive; limited clarity in training models and content.	Rigorous controlled studies, clear model specification, consistent measurement tools.
Schutte et al. (2013)	13	Adults (various domains)	Qualitative synthesis	Multiple EI models mentioned implicitly	MSCEIT (ability-based), self-report measures (trait-based)	Diverse training content, no explicit details provided	Preliminary support for EI trainings, improved work, academics, health, relationships, and further evidence are needed for definitive conclusions.	Clarification of training content, exploration of specific EI competencies and individual differences.

Author(s), Year	Number of Studies	Sample	Overall ES	EI Model(s) Mentioned	EI Measures Used	EI Training Content	Summary of Results	Future Directions
Satterfield & Hughes (2007)	26	Medical students	Qualitative synthesis	Emotional skill training (other- directed skills); specific EI models unclear	Empathy questionnaires, direct skill assessments (OSCE), qualitative evaluations	Role-play, small- group discussions, experiential learning, patient interactions	Generally positive outcomes in empathy and patient interaction, diverse and effective teaching methods, and promising long-term results.	Longitudinal EI training integration in curricula, rigorous evaluation methods, clearly defined competencies.
Lim & Lau (2021)	25	Adolescents, adults, clinical groups	Qualitative synthesis	Ability EI model (explicitly Mayer- Salovey)	MSCEIT, STEU, STEM	Traditional educational formats, peer coaching, experiential learning, computerized cognitive training	Training generally improves EI abilities; combined traditional and personalized methods most effective; mixed evidence for computerized methods.	Active control groups, durability of EI training, generalizability across settings.
Perry et al. (2020)	18	Social work students/professionals, helping professions	Qualitative synthesis	Mindfulness, empathy, psychological flexibility; EI- specific model limitedly addressed	Emotional Intelligence Scale (limited use)	Mindfulness interventions (MBSR, ACT), experiential education, motivational interviewing	Mindfulness and empathy interventions promising; effectiveness mainly in student populations; limited research on professionals.	Development of professional EI training, experiential training, reflective supervision, macro-level interventions, practical evaluations.

Further, we will tackle the state of research for each aspect: models, content, and measures, first from a descriptive perspective and then from the perspective of moderating effects.

1.4.2 Models in EI Training

Existing reviews and meta-analyses vary in how they report and classify EI models, namely, the ability, trait, and mixed models. While some reviews explicitly identified the theoretical model guiding each intervention (e.g., Hodzic et al., 2018), others relied on the type of measure used to infer the model, such as classifying performance-based assessments under the ability model and self-report questionnaires under the trait or mixed models (Mattingly & Kraiger, 2019). In several reviews, the theoretical model was left unspecified, with reviewers deducing it indirectly from whether the outcome measure focused on cognitive-emotional skills or broader personality traits (Molero et al., 2020). Kotsou et al. (2019) similarly reported that most primary studies failed to name the underlying model, requiring classification to be based on the type of instrument used. Furthermore, many reviews rely on the measure used to infer the underlying model from the measure, an approach that can be misleading (Mattingly & Kraiger, 2019). For instance, ability-based trainings may be evaluated using trait-based measures, complicating interpretation (Kotsou et al., 2019). These inconsistencies suggest a need for more precise coding and a clearer differentiation between model, content, and measure.

The influence of theoretical models on the effectiveness of EI training has been examined across several reviews, with inconsistent findings. Hodzic et al. (2018) reported that interventions based on the ability model produced significantly greater effects than those grounded in trait or mixed frameworks, suggesting that skill-focused programs may yield stronger short-term outcomes. In contrast, Mattingly and Kraiger (2019) found no clear differences in effectiveness across model types, indicating that training outcomes may not be strongly dependent on the chosen model. Kotsou et al. (2019), in a qualitative synthesis, noted that trait-based programs more consistently led to improvements, while outcomes for ability-model interventions varied more widely. They also pointed out that changes in trait EI may require longer timeframes to become observable.

The second research question is therefore: (a) what models are most interventions based on? (b) does the ability/ trait/ mixed model moderate the overall effect of interventions?

Since the mixed models seem to be rather widespread due to Goleman's books (Goleman, 2001), and ability model is presented as clear, rigorous, and skill-based (Mayer et

al., 2004), we hypothesize that most of the trainings will be based on these two models. Although previous reviews have reported mixed findings regarding the role of theoretical models in moderating EI training effectiveness (Mattingly & Kraiger, 2019; Kotsou et al., 2019), one meta-analysis found that interventions grounded in the ability model produced significantly stronger effects than those based on trait or mixed approaches (Hodzic et al., 2018). This finding aligns with the theoretical premise of the ability model (Mayer & Salovey, 1997), which conceptualizes EI as a set of cognitive-emotional skills that can be systematically developed through training. Accordingly, we hypothesize that interventions based on the ability model would demonstrate greater effectiveness than those based on trait or mixed models.

1.4.3 Content of EI Training

Several previous reviews have aimed to capture the diversity of existing EI interventions and classify their content. In their narrative review, Lim and Lau (2021) identified two broad types of training approaches: educational programs targeting the development of EI abilities through instruction, and brain-training programs focusing on foundational social-cognitive skills like attention, memory, and language processing. Schutte et al. (1998) categorized EI programs by their field of application: organizational, educational, mental health, and sports, based on the population targeted. Perry et al. (2020) examined EI interventions for childcare professionals and noted a strong emphasis on mindfulness-based approaches, such as yoga and meditation practices aimed at increasing awareness of bodily sensations and emotional states. They also reported on less conventional formats, such as death education programs involving personal storytelling, journaling, film, and discussion. Prior systematic review explored whether interventions had an explicit EI focus, with some examples involving experiential learning activities like outdoor team-building and structured peer feedback (Kotsou et al., 2019). Still, not all interventions fit neatly into predefined content categories of EI-specific and non-EI-specific. For instance, some interventions emphasized related psychological constructs such as stress management (Sultan et al., 2020) or mindfulness (Chandrapal et al., 2022), while others blended EI-specific elements with broader educational content (Cuji Chacha et al., 2019). Given this heterogeneity, there is a need to systematically structure and analyze the content of EI interventions to inform clearer classification and support future quality benchmarks.

Previous meta-analyses have typically examined factors such as training duration or delivery format as potential moderators of effectiveness (Hodzic et al., 2018; Mattingly &

Kraiger, 2019). These studies concluded that experiential methods—particularly those that combine theoretical input with practical exercises in a workshop setting—tend to yield the strongest outcomes. This is consistent with broader evidence from training research across domains, which highlights that active learning strategies are generally more effective than passive approaches (Arthur Jr et al., 2003). However, we were interested in understanding what differentiates one EI training from another beyond delivery format. To address this, our review takes a closer look at the specific content of EI interventions.

The third research question is therefore: (a) what type of content do interventions feature? (b) does the training content moderate the overall effect of interventions? RQ3a is exploratory in nature and does not require a hypothesis. However, we expect more subtypes of training content that EI-specific and non-EI specific. Regarding RQ3b, though the content has not been studied systematically as a moderator, prior review evidence suggests that EI-specific interventions seem to yield higher effects (Hodzic et al., 2018; Kotsou et al., 2019). Hence, we hypothesize that the content will be a significant moderator with EI-specific interventions bringing higher effects.

1.4.4 Measures in EI Training

A wide range of instruments has been developed to assess EI, differing in both their underlying theoretical model and methodological approach. Three general types of measures are used: those based on the ability model (typically performance tests), those based on the trait model (self-report questionnaires), and mixed-model measures (often self-report or other-rater measures). Performance-based ability measures, such as the MSCEIT (Mayer et al., 2007), are considered the most objective by certain authors, though they have been critiqued for unclear scoring procedures (Conte, 2005). Trait and mixed measures (e.g., TEIQue, EQ-i) are more commonly used in applied settings, but are vulnerable to self-report biases and often conflate personality traits with emotional abilities (Mayer et al., 2004; Petrides, 2011).

There is also ongoing debate on how to classify measures. Some researchers suggest that any test based on the ability model should be considered an ability measure, regardless of format (Bru-Luna et al., 2021). Others argue that only performance tests should count as ability measures, given their design to capture actual emotional skills (Mayer et al., 2007). Our review adopts a dual coding system that classifies each instrument according to both its underlying model and its methodological type (self-report, other-rater, or performance test). This classification approach supports a more transparent and nuanced analysis of measurement issues.

Evidence on whether the type of measure moderates training effects is also mixed. Two meta-analyses found that self-report measures, especially those based on mixed models, often yielded higher effect sizes, potentially due to inflated reporting (Hodzic et al., 2018; Mattingly & Kraiger, 2019).

In sum, the literature highlights both the diversity and complexity of measurement approaches in EI training research. Measures vary not only by theoretical foundation: ability, trait, or mixed, but also by type, such as self-report versus performance-based formats. While some reviews have explored the moderating role of the measures, findings remain mixed, reinforcing the need for further research on the measures used.

The fourth research question is therefore: (a) what kind of measures were used most frequently to measure EI? (b) does the ability/ trait/ mixed measure moderate the overall effect of interventions? Based on previous reviews suggesting that mixed-model and trait-based self-report instruments are widely used in applied settings (Joseph & Newman, 2010; Mattingly & Kraiger, 2019; Mikolajczak, 2009), it is hypothesized for RQ4a that measures reflecting mixed models will be used most frequently to assess EI in training studies. For RQ4b, drawing on prior meta-analyses (Hodzic et al., 2018; Mattingly & Kraiger, 2018), it is further hypothesized that the type of measure moderates training effects, with self-report instruments, particularly those reflecting mixed or trait models, yielding larger effect sizes than performance-based ability measures. Further, neither review assessed whether outcome measures aligned with the theoretical model of the training. Such misalignment complicates the interpretation of training success. Our study directly addresses this gap by examining the training model, content, and measure in each study, and seeing if these aspects align.

In sum, the literature highlights both the diversity and complexity of measurement approaches in EI training research. Measures vary not only by theoretical foundation: ability, trait, or mixed, but also by type, such as self-report versus performance-based formats. While some reviews have explored the moderating role of the measures, findings remain mixed, reinforcing the need for further research on the measures used.

1.4.5 Alignment

In addition to examining models, content, and measures of EI trainings individually, we also consider how these elements align with one another. When discussing how to design effective EI trainings, it is important to look beyond isolated components and consider how well the elements of a training program work together. In instructional design, a long-standing

principle is that effective teaching requires alignment between learning objectives, instructional activities, and assessment tasks (Tyler, 2013). This means that what students are expected to learn, how they are taught, and how their learning is assessed should be intentionally coordinated. Instructional design models emphasize that such alignment creates coherent and goal-directed learning environments, reducing the risk that learners will focus on irrelevant tasks or develop misconceptions due to inconsistencies in training design.

Building on this foundation, Biggs (1996) introduced the concept of constructive alignment, which integrates the structure of instructional design with a constructivist view of learning. From this perspective, learners are seen as active participants who construct meaning through engagement in relevant learning activities. Teaching should therefore be structured in a way that supports students in performing the kinds of understanding that the learning objectives require. Biggs (1996) proposed that intended learning outcomes should describe these “performances of understanding” (p. 351), and that both teaching activities and assessment methods should be aligned to elicit and evaluate these performances. The focus thus shifts from transmitting information to creating opportunities for students to demonstrate deep, transferable understanding. This approach assumes that learners construct knowledge best when teaching and assessment are aligned with what they are expected to learn.

Importantly, Biggs (1996) also distinguishes between surface-level and deep alignment. Some programs may appear aligned at the level of terminology or structure, for example, using consistent keywords across goals, activities, and assessments, while failing to elicit or assess the intended level of understanding. In such cases, the alignment remains formal but does not support deep learning. True constructive alignment requires that assessment tasks match not just the content but also the cognitive complexity and type of learning targeted in the training. If students are expected to reflect, apply, or problem-solve, assessment must give them the opportunity to do so. Otherwise, teaching may encourage higher-order learning while assessment reinforces lower-level strategies like memorization or test-taking techniques (Biggs, 1996; Bloom et al., 1956).

Applying this framework to EI trainings allows us to critically evaluate whether the conceptual model used to design a training, such as ability EI, trait EI, or mixed models, is actually reflected in the training content and in the outcome measures used. For example, if a training draws on the ability model of EI (e.g., Mayer et al., 2004), which conceptualizes EI as a set of cognitive-emotional abilities like perceiving, using, and regulating emotions, but uses a trait-based self-report measure to assess outcomes, the alignment may be weak. Trait

EI measures often tap into broader personality-like characteristics such as well-being or empathy (Petrides, 2011), which may not directly correspond to the skills emphasized in the training.

This concern is echoed in the educational measurement literature. Martone and Sireci (2009) stress that when instruction, curriculum, and assessment are not well aligned, conclusions about the effectiveness of an educational intervention become difficult to interpret. Misalignment can result in assessments that fail to capture the intended learning, either underestimating or misrepresenting the impact of the intervention. They argue that clear alignment is necessary to ensure that assessment results are valid indicators of instructional effectiveness and can be meaningfully interpreted in light of the training goals. A further example of misalignment occurs when an intervention is explicitly based on the ability model of EI (e.g., teaching the four core dimensions of perceiving, using, understanding, and managing emotions), but is evaluated using a trait or mixed-model measure. In such cases, the measure may assess broader constructs such as well-being, sociability, or stress tolerance, which do not directly correspond to the abilities targeted in the training. This mismatch can make it hard to determine the effectiveness of the training, because the outcomes being measured do not reflect what was actually taught.

In the context of EI trainings, this means that the model of EI (e.g., ability vs. trait), the training content (e.g., role-play, reflection, skill practice), and the outcome measures (e.g., MSCEIT, TEIQue, self-report scales) should ideally reflect the same underlying construct and the same depth of learning. If alignment is weak or absent, it becomes difficult to assess whether the training is effective or whether the measure simply fails to capture the relevant changes. In this review, we therefore examine not only which measures are used, but whether they are conceptually aligned with the training model and content, using constructive alignment as a guiding principle. The goal is to identify whether the training is designed in a way that underlying model, unit content and the measures used correspond.

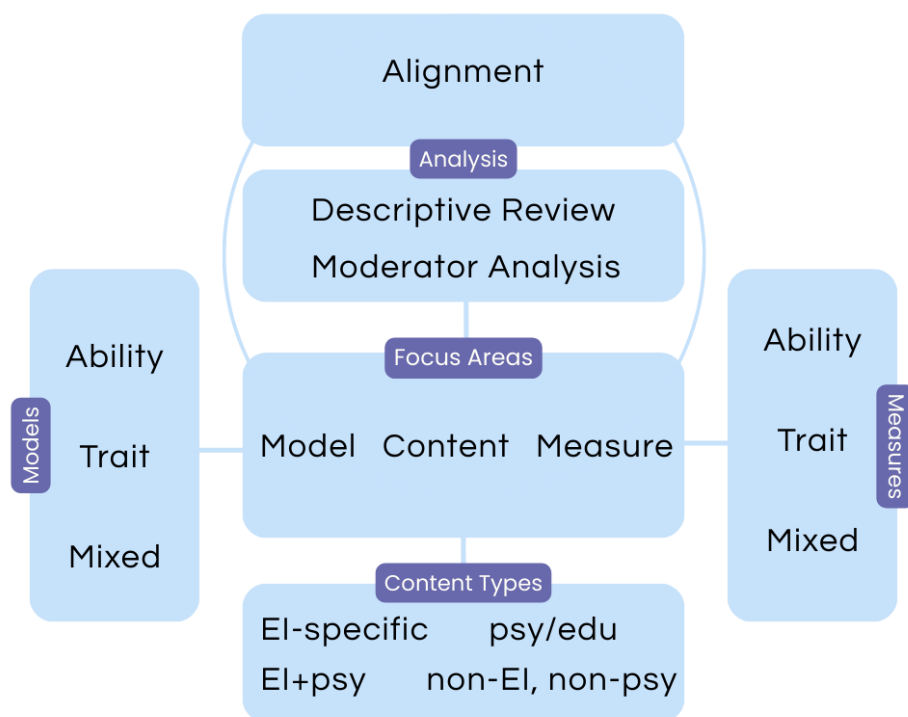
The fifth research question is therefore if models, content and measures align within each intervention. We hypothesize that there will be a number of studies with misalignment between models and content and between models and measures.

1.5 The Present Research

The present study adopts two complementary approaches to examine EI interventions developed for university students: a systematic review and a meta-analysis. While previous

syntheses have examined EI training for broader samples including adults or other educational levels, the higher education context remains underexplored. The systematic review maps the use of theoretical models (ability, trait, mixed), training content, and outcome measures across studies. The meta-analysis estimates the overall effectiveness of EI interventions and tests whether the type of model, content, or measure moderates training effects. We have classified the training content into four types (see Methods section): Emotion Intelligence Specific Trainings (EI-specific), Psychological (Related Terms) Training (non-EI, psy/edu), Emotional Intelligence and Psychological Foci (EI+psy/edu), and Non-Emotional Intelligence and Non-Psychological Training (non-EI, non-psy/edu). Finally, the study examines how well these components: model, content, and measure, are aligned within individual interventions. Figure 2 summarizes the main foci of the present research.

Figure 2
Focus of the Present Research Synthesis



2. Research Questions

In order to address the following questions we have applied two main approaches: meta-analysis and systematic literature review. RQ1 is meta-analytic and regards overall effects. RQs 2-4 tackle models, type and measures from the two abovementioned perspectives: (a) subquestions are literature review approach, which aim at providing a descriptive analysis of the existing landscape of intervention aimed at promoting EI, whereas subpoints (b) are the MA questions of moderating effects. RQ5 is descriptive and regards the issue of alignment.

RQ1: Can EI be promoted among university students and how strong is the averaged overall effect of training interventions?

Hypothesis 1: In line with prior meta-analyses (Hodzic et al., 2018; Mattingly & Kraiger, 2019; Mehler et al., 2024), we expect to find a positive overall effect of EI interventions.

RQ2a: What models are most interventions based on?

RQ2b: Does the ability/ trait/ mixed model moderate the overall effect of interventions?

Hypothesis 2: Drawing on both empirical evidence (Hodzic et al., 2018) and theoretical considerations (Mayer & Salovey, 1997), we hypothesize that interventions grounded in the ability model will show stronger effects than those based on trait or mixed models.

RQ3a: What type of content do interventions feature?

RQ3b: Does the training content moderate the overall effect of interventions?

Hypothesis 3: Although training content has not been consistently examined as a moderator, prior reviews suggest that EI-specific programs may yield greater effects (Hodzic et al., 2018; Kotsou et al., 2019). Accordingly, we expect content to moderate training outcomes, with EI-focused interventions producing higher effects.

RQ4a: What kind of measures were used most frequently to measure EI?

RQ4b: Does the ability/ trait/ mixed measure moderate the overall effect of interventions?

Hypothesis 4: Consistent with earlier reviews highlighting the prevalence of mixed and trait-based self-report instruments in applied settings (Joseph & Newman, 2010; Mattingly & Kraiger, 2019; Mikolajczak, 2009), we hypothesize that such measures will be most frequently used to assess EI in training studies (RQ4a). Furthermore, based on previous meta-analytic findings (Hodzic et al., 2018; Mattingly & Kraiger, 2019), we expect the type of

measure to moderate effects, with self-report instruments, especially those reflecting mixed or trait models, yielding larger effect sizes than performance-based ability tests (RQ4b).

RQ5: Do models, content, and measures align within each intervention?

Hypothesis 5: Given the diversity of theoretical models and measurement instruments used in EI research (Mayer et al., 2004; Petrides, 2011) and the lack of standardized alignment practices, we hypothesize that certain studies will show inconsistencies between the training model, content, and the outcome measure.

The following section outlines the methodological approach used to investigate these research questions, including the criteria for study selection, coding procedures, and statistical analyses.

3. Methods

The present study constitutes a research synthesis, combining systematic review and meta-analytic methods. It follows standard procedures as outlined by (Cooper et al., 2019), beginning with the development of a search syntax and a systematic search of relevant academic databases. Retrieved records were then screened based on predefined inclusion and exclusion criteria applied to titles and abstracts. Full texts of eligible studies were subsequently examined in detail and coded for descriptive information, methodological quality indicators, statistical data, and other characteristics relevant to the research questions. Finally, the extracted data were analyzed. Studies with sufficient statistical information were included in the meta-analysis, while studies lacking quantitative data but offering detailed descriptions of the intervention were included in the qualitative component of the literature review. We pre-registered the research synthesis at Open Science Framework (<https://osf.io/qx7m6>).

The methods section is organized in the following way. The first subsection features the literature search strategy and the search syntax used to identify relevant studies. In the second subsection, the inclusion criteria are specified, detailing the conditions under which studies were deemed eligible for inclusion in the review. The third subsection describes the screening process, including the steps taken during the title, abstract, and full-text review phases. The coding scheme used to extract and categorize study-level information is introduced in the fourth subsection. Statistical procedures for aggregating effect sizes and testing moderator effects are presented in the fifth subsection. The sixth subsection explains how statistical outliers were identified and handled. The seventh subsection outlines the quality assessment strategy applied to the included studies. Finally, the eighth subsection details the approach used to evaluate potential publication bias.

3.1 Literature Search and Syntax

We carried out a systematic search in August 2022, consulting educational databases such as Web of Science, Scopus, ERIC, Educational Source, and APA PsychArticles. Furthermore, we reached out to specialists within the educational and psychological research communities via professional associations, notably the *European Association for Research on Learning and Instruction* (EARLI) and the *American Educational Research Association* (AERA). Additionally, we examined conference proceedings from both EARLI and AERA. These supplemental strategies, however, did not identify further relevant studies. After the

initial screening of 3,320 records, we ultimately included 49 studies in our systematic review and 39 studies in our meta-analysis. Figure 3 displays the PRISMA flowchart, providing a detailed breakdown of the selection steps, including identification, screening, eligibility assessment, and the final study inclusion.

We used the PICOS framework, defining Population, Intervention, Comparison, Outcome, and Study design to develop our search syntax. The “Comparison” component was not used as a search strand, as it was not the focus of the investigation. Instead, the method or design of the intervention was more relevant and we included it as a separate search strand. We use the following groups of search terms. Population: university students / preservice teachers. Intervention: training / course. Outcome: EI (either overall irrespective of the model or one or more of the dimensions of the ability model). Study design: quasi-experiment / experiment / RCT / pre-test post-test.

After an iterative search process and syntax development, we decided to add the Boolean operator “NOT” to exclude primary and secondary school levels to focus on university students. Otherwise, the output would have exceeded our resources for screening and coding. Attachment A shows the specific search syntax for each database and includes Boolean operators “AND” and “OR,” and synonyms for each strand. We searched through titles, abstracts, keywords, and descriptors depending on the database. We derived the terms from prior research and through synonyms in ERIC Thesaurus and PsychINFO Thesaurus (for full search syntax see Appendix C). We limited our search to studies published from year 1990 and after as it was the year when the concept of EI made its appearance (Salovey & Mayer, 1990) and different models started emerging.

3.2 Inclusion Criteria

Eligibility Criteria included the following: (a) *Study Design*: Inclusion was restricted to experimental or quasi-experimental designs. Studies utilizing methodologies such as case studies, literature reviews, systematic reviews, and meta-analyses were excluded. Studies lacking reported posttest scores were retained if they contributed relevant insights addressing the research questions of the review part of the dissertation. (b) *Educational Level*: Eligible studies needed to involve university student populations without restrictions regarding academic discipline or academic level. Consequently, participants from diverse fields (e.g., economics, medicine, teaching, accounting) and academic stages (bachelor, master, doctoral levels) were incorporated. (c) *Educational Intervention*: We considered any educational

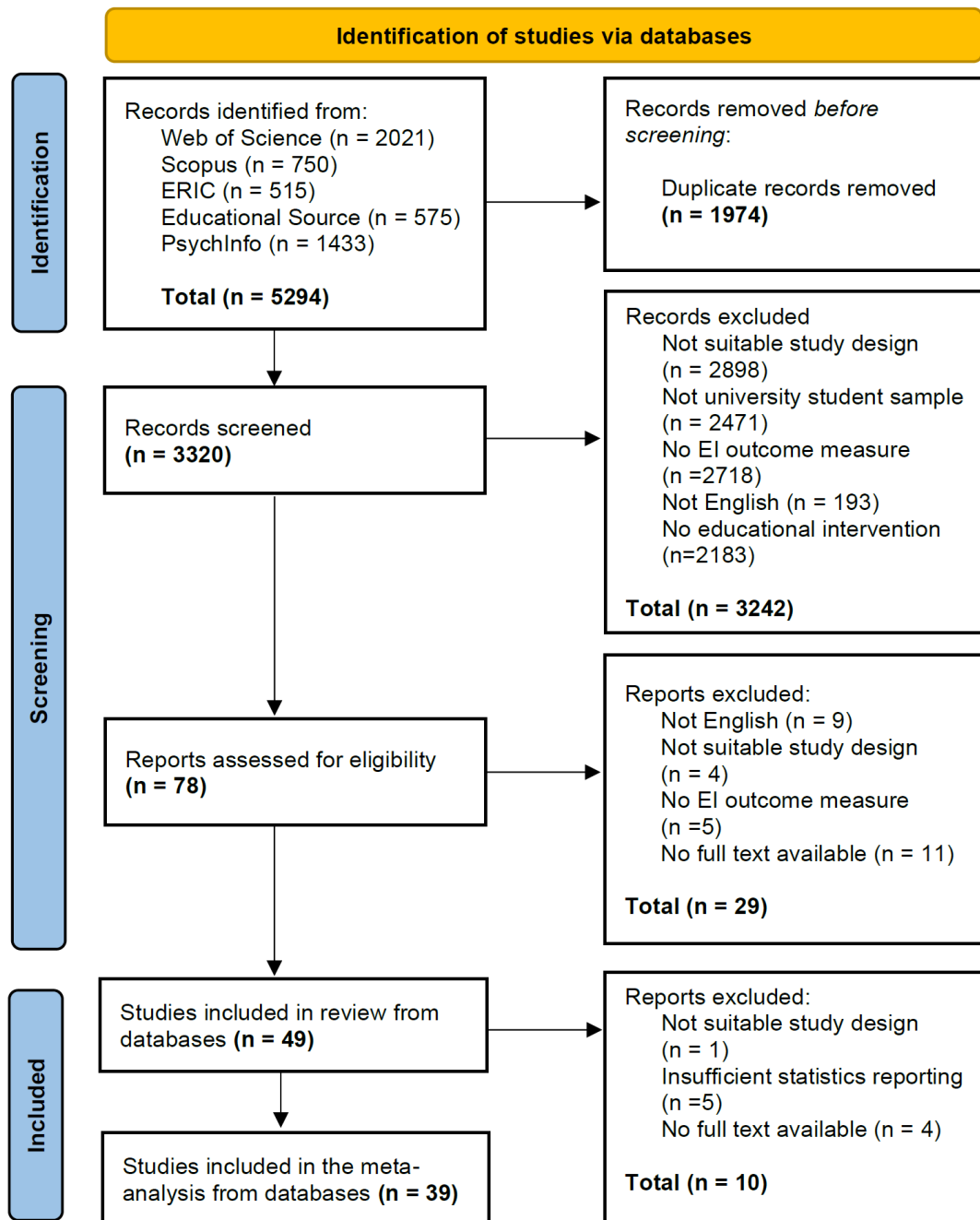
intervention eligible that was deemed to improve EI, including both interventions that featured explicit EI content and those that did not. By educational, we mean that the students were learning as opposed to getting medical treatment - medical or clinical interventions were excluded. Interventions could encompass diverse activities such as workshops, yoga sessions, or physical exercise programs. (d) *Emotional Intelligence as an Outcome*: Only studies assessing EI as an outcome were included. This criterion encompassed studies measuring overall EI or any of its four key dimensions: emotional perception/recognition, using emotions, understanding emotions, and emotion management/regulation. Studies exclusively measuring secondary outcomes like empathy, stress reduction, or academic performance without directly assessing EI were excluded. (e) *Language*: Only studies fully available in English were included for analysis.

3.3 Screening Process

The screening process is illustrated in the PRISMA flowchart (Page et al., 2021) in Figure 3. A total of 5,294 records were initially identified through five databases: Web of Science ($n = 2,021$), Scopus ($n = 750$), ERIC ($n = 515$), Educational Source ($n = 575$), and PsychInfo ($n = 1,433$). After removing 1,974 duplicates, 3,320 unique records remained and were subjected to title and abstract screening.

In the first screening stage, records were excluded for not meeting the inclusion criteria regarding study design ($n = 2,898$), population (non-university student samples; $n = 2,471$), outcome (no EI outcome measure; $n = 2,718$), language (not in English; $n = 193$), or intervention type (not educational; $n = 2,183$). As several records met multiple exclusion criteria, the total number of exclusions at this stage was 3,242. This led to 78 studies being assessed for full-text eligibility. Of these, 29 were excluded due to language ($n = 9$), unsuitable study design ($n = 4$), missing EI outcome ($n = 5$), or lack of accessible full text ($n = 11$). In total, 49 studies from the database search were included in the review. Of these, 39 were included in the meta-analysis. Ten studies were excluded from meta-analysis due to unsuitable study design ($n = 1$), insufficient statistics reporting ($n = 5$), or lack of full text ($n = 4$).

Figure 3
PRISMA Flow-chart



Two coders (the first author and a trained second coder) screened the identified studies' titles and abstracts for the specified inclusion criteria. If the necessary criteria were not clearly stated in the abstracts or titles, the full texts were reviewed for confirmation. Initially, a training set of 10% of the studies was used to establish coding agreement. Subsequently, an additional 20% of studies were independently coded, achieving an inter-coder agreement of 97%, after which the first author completed the remaining coding independently. In total, 58 studies were included for final analysis.

The fine coding stage was carried out by the first author and a trained intern, guided by a detailed coding manual. Their inter-coder agreement rate was 98%. Periodic discussions resolved any coding discrepancies. Any coding disagreements among authors were resolved through discussion.

3.4 Coding Scheme

The coding scheme used in this dissertation comprises four main categories: Control Variables, Descriptive Variables, Statistical Indicators, and Training Characteristics (see Appendix D). Table 2 presents an overview of the coded variables.

Control variables include details about participants' academic year, gender composition (homogeneous or heterogeneous), major field of study, intervention length, country of training, year of publication, and publication type (peer-reviewed or grey literature). Descriptive variables describe characteristics such as whether a follow-up measurement was conducted, the name and type of EI scale used (existing or author-developed), outcome variables (overall EI or specific EI dimensions), and the content of the control group intervention. Statistical indicators, utilized exclusively for the meta-analysis, contain detailed numerical data such as means, standard deviations, sample sizes for both experimental and control groups at pretest and posttest, as well as effect sizes (Cohen's *d* or Hedge's *g*). In cases where direct numerical data (*M*, *SD*) were not available, *t*-test and *F*-test values were used to calculate the effect sizes and variances; this procedure was necessary for three studies. Training characteristics were relevant to both the literature review and meta-analysis. Descriptive analysis involved reporting frequencies of EI models underlying training interventions (ability, trait, mixed, combination, other), measures used for EI assessment, and content types (EI-specific, educational psychological concepts, non-psychological activities). The meta-analysis component assessed the moderating effects of these characteristics.

Table 2
Overview of the Coded Variables

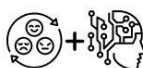
Category	Variables	Sub-categories
Control variables	Year of study of the participants	Undergraduate Graduate Other (special degree) (note on the year within the degree of study)
	Gender of the participants	Homogenous sample Heterogenous sample
	Study area/major	e.g., nursing, accounting, teaching, etc.
	Length of training	Number of hours, weeks, etc.
	Country	Name of country
	Year of publication	Year
	Type of publication	Peer-reviewed Grey
Descriptives	Name of the scale	Name of the scale
	Kind of the scale	Existing Developed by the author
	Outcome variable	Overall EI – ability Overall EI – trait Overall EI – mixed Perceiving emotions Understanding emotions Managing emotions Using emotions Other, specify in comment
	Design	Pre-post control Pre-post no control Other, specify
	Content of control group	e.g., no training, traditional training, other specific training
Statistics	Effect size	
	Mean	
	Standard deviation	
	Sample size N	For pre- and post-test of both control and experimental groups, continuous variables
	t-statistics	
	f-statistics	
	r correlation	

Category	Variables	Sub-categories
Quality criteria	Well-described intervention	Not described Described (duration, content of units)
	Reliability of the outcome measure	Continuous variable
	Assignment to conditions	Random Non-random n/a (no control group)
	Control group	yes no
	Baseline equivalence (if there is a control group)	present absent no information n/a
Training characteristics	Model	ability trait mixed combination other not stated/articulated
	Measure	ability trait mixed combination other not stated/articulated self-report other-rater performance test
	Dimensions of EI	Overall EI Perceiving emotions Understanding emotions Managing emotions Using emotions Other Non-EI intervention
	Training units	EI-specific Non-EI, psy (e.g., mindfulness, what is mature love, etc.) Non EI, non-psy (e.g. yoga) EI + psy (part is EI and part related psychological concepts)

Models and measures of EI were coded explicitly as “ability,” “trait,” “mixed,” “combination,” “other,” or “not stated,” along with the authors associated with each EI model used in the training interventions. When studies included multiple EI models or measures, the category "combination" was applied. Measures not fitting into the primary EI categories were labeled as "other," and if the specific model or measure could not be determined from the text, it was coded as "not stated." Additionally, EI measures were coded as “self-report,” “performance test,” or “other-rater” (see Appendix E). Content of EI training was classified into four types: EI-specific; interventions with a psychological component but no explicit EI component; interventions featuring both EI and psychological components; and interventions

without EI or psychological content (see Figure 4). Each intervention's effectiveness was assessed in terms of EI outcomes, even if EI was not explicitly targeted. To assess alignment, models and measures were coded to clearly indicate their correspondence, such as matching an ability model with an ability measure. The training content was color-coded to categorize aspects clearly into one of the defined training types (see Appendix F).

Figure 4
Codes for Content of Trainings Aimed at Promoting EI

 Emotion Intelligence Specific Trainings <i>EI-specific</i> Trainings that feature units that correspond to one of the EI models: ability, trait or mixed, e.g.: • Perception of emotions in self and others • Regulation of emotions in self and others (Köppe et al. 2019)	 Psychological (Related Terms) Training <i>non-EI, psy/edu</i> Trainings that do not feature EI concepts, but in its content cover related terms in psychology or education, e.g.: • Stress management course (Sultan et al., 2020) • Mindfulness course (Skuka, 2015; Loh et al., 2022) • Critical and logical thinking (Kuk et al., 2015)
 Emotional Intelligence and Psychological foci <i>EI+psy/edu</i> Trainings feature both EI and related concepts, e.g.: • Activity 1: Emotion perception • Activity 2: Teambuilding and thinking profiles (Cuji Chacha et al., 2019)	 Non-Emotional Intelligence and Non-Psychological Training <i>non-EI non-psy/edu</i> Trainings feature neither EI nor related concepts, e.g.: • Sport dance (Guan & Gong, 2014) • Deep breathing (Sellakumar, 2017) • Acting course (Corwin, 2015)

Note. *Psy/edu* denotes the training that did not specifically tackle EI. Instead, they focused on concepts either related to psychology (e.g., personality types, thinking profiles, etc.) or to broader educational topics (e.g., management courses, nursing courses, etc.).

3.5 Statistical Analyses

A random-effects model was used in the present meta-analysis, as heterogeneity among studies was expected and the true effect sizes were assumed to vary across interventions. All analyses were conducted in R (version 4.3.2) using the *metafor* package (Viechtbauer, 2010) and the *robumeta* package (Fisher & Tipton, 2015). The effect size metric used was Hedges' *g*, which was computed from reported means, standard deviations, and sample sizes. In three studies, *esc* package (Lüdtke et al., 2019) was used to convert *t*-test statistics into standardized mean differences. To account for dependencies due to multiple effect sizes from the same study and due to multiple measures or several EI dimensions, cluster-robust variance estimation (CRVE) with a small-sample correction (CR2) was applied using the *clubSandwich* package (Pustejovsky & Tipton, 2018). In two cases, we have

computed ES estimates and variance from t-test results, as means, standard deviations, and sample sizes were not fully reported.

3.6 Assessment of Outliers

To identify studies that may disproportionately influence the overall results, we conducted influence diagnostics using Cook's distance (Cook, 1977) and DFBETAS (Belsley et al., 2005). Cook's distance is a summary measure that captures the overall influence of a study on the estimated model parameters by considering both the leverage and the residual. Values exceeding the conventional threshold of $4/n$ (in our case, $4/39 \approx 0.102$) may indicate potentially influential cases. DFBETAS assess how much a study affects each individual regression coefficient by comparing the coefficient estimates with and without the study. As a rule of thumb, values exceeding $\pm\sqrt{2/n}$ (in our case, $\pm\sqrt{2/39} \approx \pm 0.227$) suggest that the study may exert substantial influence on that specific parameter. Both methods independently identified the same four studies as influential. These studies were retained for descriptive reporting but excluded from the main meta-analytic models. All primary and moderator analyses were therefore conducted on the full sample as well as on a reduced dataset with these four studies removed to test the robustness of results.

3.7 Quality Assessment

Our quality indicators were adapted from the criteria proposed by What Works Clearinghouse (2020). Methodological study quality was assessed using five binary indicators: (1) whether the intervention was well described (i.e., both duration and content reported; yes = 1, no = 0), (2) whether the outcome measure reported a reliability coefficient of at least .80 ($\geq .80 = 1$, $< .80 = 0$), (3) whether participants were randomly assigned to conditions (yes = 1, no = 0), (4) whether a control group was included (yes = 1, no = 0), and (5) whether baseline equivalence between groups was established. Baseline equivalence was assessed in accordance with WWC standards by calculating the standardized mean difference between intervention and control groups at pre-test, dividing the difference in means by the pooled standard deviation. If the absolute effect size was ≤ 0.05 , baseline equivalence was assumed and the study received a score of "1"; otherwise, a score of "0" was assigned. The sum of these values yielded a composite quality score ranging from 0 to 5, which was used as a continuous moderator in meta-regression analyses. Additionally, each quality indicator was tested individually in separate models to assess its specific association with effect sizes.

3.8 Publication Bias Assessment

To examine the potential presence of publication bias, we visually inspected funnel plots to assess the distribution of effect sizes. Two versions were produced: one including all studies, and a second excluding statistically influential outliers identified through influence diagnostics. We then conducted Egger's regression test and the PET-PEESE procedure (Stanley & Doucouliagos, 2014). Egger's regression involved regressing the observed effect sizes on their standard errors; the intercept tested for funnel plot asymmetry (Egger et al., 1997). The PET (Precision Effect Test) examined whether a true effect remained after accounting for sampling error by regressing effect sizes on their standard errors. If the PET intercept was non-significant, the PEESE (Precision Effect Estimate with Standard Error) model was used as a bias-adjusted estimate, regressing effect sizes on the squared standard errors. The decision rule followed standard recommendations: if PET was significant, its intercept was taken as the corrected effect; otherwise, the PEESE intercept was interpreted.

4. Results

This section presents the results of the systematic review and meta-analysis. Figure 5 depicts the outline of the current section. The first subsection features descriptive information on the included studies, including sample characteristics, study designs, and intervention formats. In the second subsection, the results of the outlier analyses are reported, describing which studies were identified as statistical outliers and how they were handled. The third subsection outlines the quality assessment of the included studies. In the fourth, findings from the publication bias assessment are presented, including visual and statistical indicators of potential bias. The fifth subsection summarizes the process of aggregating effect sizes across studies. This is followed by the sixth subsection, which reports the overall effect of EI interventions (RQ1). The seventh subsection examines the role of the underlying theoretical model (RQ2), including both a descriptive overview of the models used and a moderator analysis testing their influence on training effectiveness. The eighth subsection addresses training content (RQ3) and is similarly structured into a descriptive summary of content types and a test of their moderating effects. The ninth subsection analyzes the type of EI measure used (RQ4), also distinguishing between descriptive findings and moderator analysis results. Finally, the tenth subsection investigates alignment between model, content, and measure used.

Figure 5
Outline of the Results Section

Results Section	Outline	
Descriptive Results	• Study Characteristics • Outlier Analysis	
Primary Studies	• Quality Assessment • Publication Bias	
Research Question 1	• Aggregating Effect Sizes • Overall Effect of the Interventions	
Research Questions 2-4	• Analysis of Models • Analysis of Content • Analysis of Measures	➤ Descriptive Overview ➤ Moderator Analysis
Research Questions 5	• Alignment between Models, Content, and Measures	

4.1 Descriptive Results

A total of 39 studies were included in the meta-analytical part. Table 3 provides an overview of their key characteristics, including participants' educational level and study major, EI model and measurement approach applied, the type of training content, as well as sample sizes for the experimental and control groups. Participants were predominantly enrolled in undergraduate programs, with the largest proportion being junior-level students (32%, $n = 13$), followed by undergraduate level without further specification (26%, $n = 10$) and senior undergraduate students (21%, $n = 8$). A smaller number of studies involved mixed-level groups (18%, $n = 7$), while only one study focused exclusively on postgraduate students. Nearly all samples were gender-heterogeneous, i.e. including both female and male genders (95%, $n = 37$), with only a few studies not reporting gender composition (5%, $n = 2$). The disciplinary background of participants spanned a wide range of academic areas. Health sciences were most frequently represented (40%, $n = 16$), followed by business (18%, $n = 7$) and teaching (10%, $n = 4$). The remaining studies included participants from engineering, arts and humanities, public administration, and religious studies, with each of these areas appearing in a low number of cases.

Training durations varied considerably across studies. The most common were short interventions lasting between 11 and 40 hours (33%, $n = 13$), followed by medium-duration (41–100 hours, 23%, $n = 9$) and very short interventions (0–10 hours, 18%, $n = 7$). A smaller number of studies implemented longer formats (10%–13%), and only one study did not specify the duration. The included studies were conducted across 15 different countries. The United States accounted for the largest share of the dataset (33%, $n = 14$), followed by Germany, Iran, and Turkey (each 8%, $n = 3$). Several other countries such as Canada, India, Malaysia, and Peru were represented by one or two studies each, indicating a relatively broad but uneven international distribution. Most studies were published in peer-reviewed journals (79%, $n = 31$), while seven were classified as grey literature (18%). Only one study did not specify the publication type. Regarding follow-up assessments, a majority of studies (65%, $n = 25$) did not include a follow-up period. When present, follow-ups tended to be short-term (15%, $n = 6$), with only a few studies extending beyond 90 days.

The overview of 10 studies that were not included in meta-analysis, but were included into the systematic review are presented in Appendix G.

Table 3
Frequencies of the Study Characteristics

Variables	Frequencies	
	<i>n</i>	%
Education Level		
Junior undergraduate	13	32
Undergraduate	10	26
Senior undergraduate	8	21
Mixed	7	18
Postgraduate	1	3
Gender		
Heterogeneous	37	95
Homogeneous	0	0
Not specified	2	5
Major Areas		
Health sciences	16	40
Business	7	18
Teaching	4	10
Mixed	4	10
Engineering	3	8
Arts and humanities*	2	5
Public administration	1	3
Theology/religious studies	1	3
Not specified	1	3
Training Duration**		
Very short duration (0-10 hours)	7	18
Short duration (11-40 hours)	13	33
Medium duration (41-100 hours)	9	23
Long duration (101-160 hours)	4	10
Very long duration (>160 hours)	5	13
Not specified	1	3
Sample Size	<i>Min. 9, Max. 382</i> <i>M = 85.34 (SD = 75.26)</i> <i>Md = 60</i>	

Variables	Frequencies	
	<i>n</i>	%
Country		
USA	14	33
Germany	3	8
Iran	3	8
Turkey	3	8
Canada	2	5
India	2	5
Malaysia	2	5
Peru	2	5
UAE	2	5
China	1	3
Korea	1	3
Poland	1	3
Portugal	1	3
Spain	1	3
UK	1	3
Publication Type		
Peer-reviewed	31	79
Grey	7	18
Not specified	1	3
Follow-Up		
Short term (0-30 days)	6	15
Medium term (31-90 days)	2	5
Long term (91-180 days)	4	10
Very long term (>180 days)	2	5
Not specified	25	65
Type of Scale		
Existing scale	38	97
Developed by the author	1	3

Note.

n – number of studies

* “Arts and Humanities” includes psychology and acting, while “Business” covers economics, management, and business administration. “Health Sciences” primarily includes nursing and pharmacy, medicine, and allied health programs. “Theology/Religious Studies” includes clinical pastoral education. “Mixed” represents groups with majors from multiple fields.

** Training durations were converted into hours. When not explicitly stated, one semester was assumed to span 15 weeks with 10 hours of training per week (i.e., 150 hours total). Weekly hours were based on available descriptions or, if unclear, not estimated further to avoid assumptions.

Appendix G presents descriptive information for all the studies, including the ten studies that met the inclusion criteria but were not included in the final meta-analysis due to insufficient data or inconsistencies in effect size reporting (studies 18, 19, 24, 25, 31, 32, 33, 35, 38, and 41). These studies spanned a range of countries, including the USA, UK, Spain, Turkey, Malaysia, India, Iran, and Canada. Participant backgrounds were diverse, involving students from public administration (Jaeger, 2003), clinical pastoral education (Jankowski et

al., 2008), teaching (Sánchez-Núñez et al., 2015; Vesely et al., 2014), nursing (Mohamadirizi et al., 2015; Teskereci et al., 2020), health professions (Seow et al., 2022), paramedical fields (Sellakumar, 2017), business administration (Pat McEnrue et al., 2009), and mixed academic programs (Schwartz & Belknap, 2017). Group sizes were heterogeneous, with experimental group sample sizes ranging from 9 to 317 participants, and control group sizes, when reported, ranging from 15 to 119.

4.2 Outlier Analyses

We performed outlier analyses to identify influential studies. Cook's distance and DFBETAS independently identified the same four studies as influential (Dev et al., 2021; Goudarzian et al., 2019; Karahan & Yalçın, 2009; Sisman & Buzlu, 2022). A closer inspection revealed no obvious methodological or measurement issues. However, due to their strong statistical impact on moderator analyses and on potential aggregation of effect sizes for studies with and without control group, we calculated all subsequent analyses before and after removing these four influential studies.

4.3 Quality Assessment

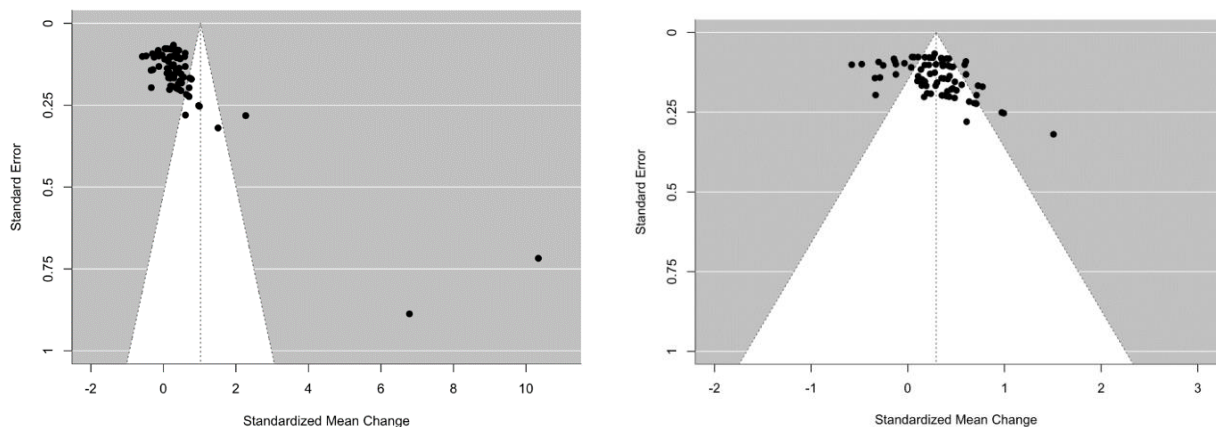
In the meta-regression using the overall quality score as a continuous moderator, no statistically significant effect was observed, $F(1, 13.49) = 4.31, p = .058$. While the coefficient was positive ($g = 0.11$), indicating a trend toward higher effect sizes in studies with higher quality ratings, the association did not reach conventional levels of significance. Similarly, in the subgroup analysis including only studies with the highest quality score (score = 4), the estimated effect size was $g = 0.67$, but this result was also not statistically significant ($p = .079$). For studies with the lowest quality score (score = 0, $k = 2$), a meta-analytic model could not be estimated. The average effect size across the two studies was $g = -0.04$, with effects ranging from $g = -0.36$ to $g = 0.08$.

None of the individual quality indicators, including the clarity of intervention description, reporting of reliability, use of a control group, random assignment, or inclusion of a baseline measurement – significantly moderated the effect sizes. Some trend-level differences were observed (e.g., random assignment, $p = .063$), but these did not meet the threshold for significance. Moreover, a number of studies were excluded from some of these analyses due to missing information. Specifically, 23 studies were omitted in the analysis of reported reliability and 24 in the analysis of baseline measurement.

4.4 Publication Bias

To evaluate the potential presence of publication bias, we examined funnel plot asymmetry, conducted Egger's regression test, and applied the PET–PEESE procedure. Figure 6 (on the left) displays the funnel plot including all studies. This funnel plot studies showed some asymmetry, with a tight cluster of studies on the left side of the mean effect size and several extreme values on the right. This pattern suggested a possible small-study effect, with studies reporting larger effects and higher standard errors tending to be overrepresented. However, Egger's regression intercept was not statistically significant ($b = -0.29$, $SE = 0.18$, $p = .144$), indicating no strong evidence for systematic funnel plot asymmetry. The slope term was marginally significant ($b = 2.93$, $SE = 1.33$, $p = .058$), pointing to a potential but inconclusive small-study effect.

Figure 6
Funnel Plot before and after Outliers' Exclusion



Note. Funnel plot on the left includes all studies ($k = 91$, $n = 39$), funnel plot on the right excludes influential studies ($k = 87$, $n = 35$)

Following standard recommendations, we conducted the PET–PEESE procedure to derive a bias-adjusted estimate. The PET model yielded a non-significant intercept ($b = -0.29$, $p = .144$), suggesting that the effect corrected for sampling error was indistinguishable from zero. In contrast, the PEESE model produced a statistically significant intercept ($b = 0.20$, $SE = 0.07$, $p = .010$), indicating a small but reliable overall effect after adjusting for precision-related bias.

Figure 6 (on the right) presents the funnel plot after excluding the four influential studies. The resulting plot shows a more symmetric distribution, with most studies clustering around the average effect size and a more even spread on both sides of the funnel. This improved symmetry supports the interpretation that the initial asymmetry was largely driven by a few outlying studies rather than systematic publication bias across the dataset. Overall, the results suggest limited evidence of publication bias, and the PEESE-adjusted estimate likely provides the most conservative and robust estimate of the intervention effect.

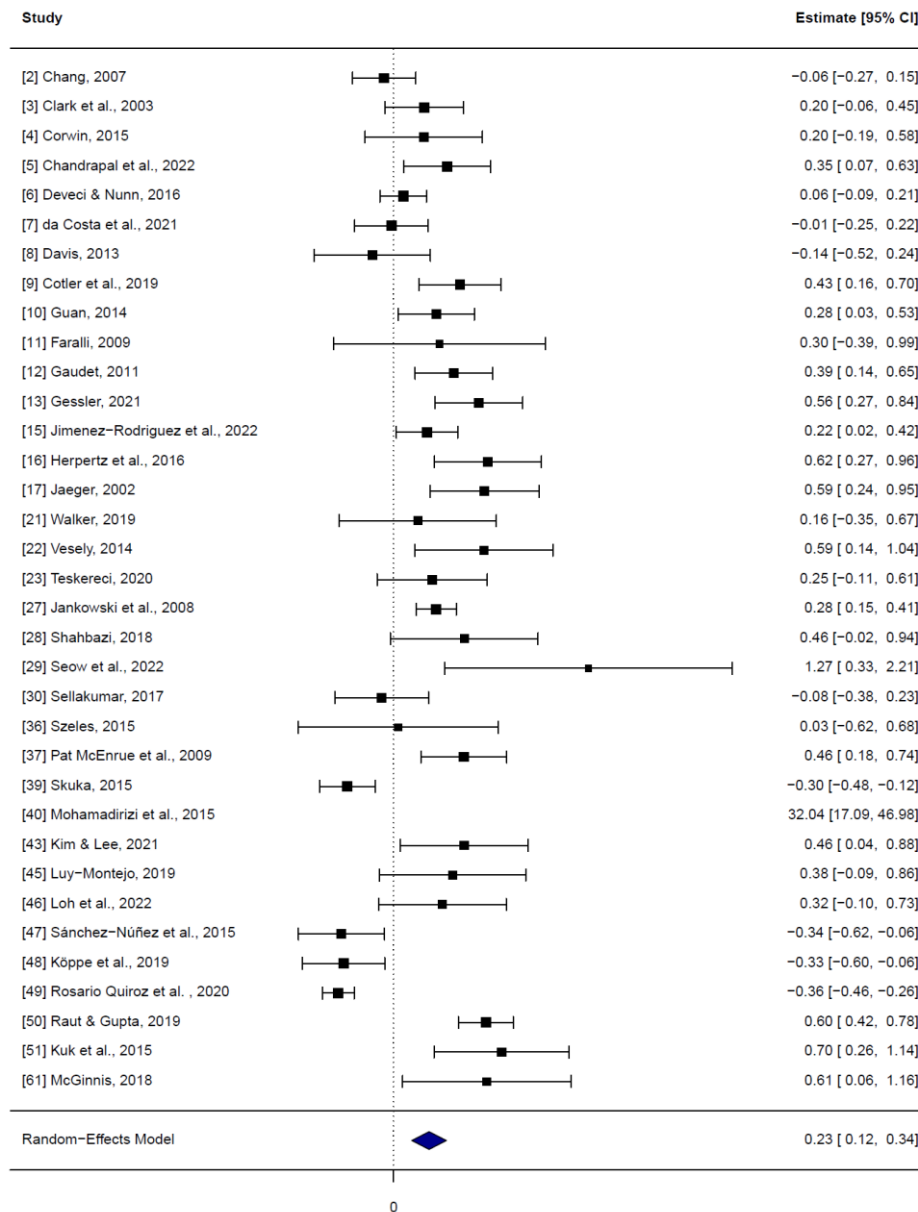
4.5 Aggregating Effect Sizes

Since our effect sizes originated from studies with and without control groups, we conducted empirical checks to test whether these effect sizes could be combined. Studies with a control group showed a significant effect ($g = 0.62$, $SE = 0.17$, 95% CI [0.26, 0.97], $p = .0015$), while studies without a control group yielded a larger effect ($g = 1.06$). The difference between these two types of studies was statistically significant ($p = .0335$), indicating systematically larger effects in studies lacking a control group. After excluding the four influential studies, however, the difference between studies with a control group ($g = 0.27$, $SE = 0.05$, 95% CI [0.16, 0.38], $p < .0001$) and studies without a control group ($g = 0.16$) was no longer statistically significant ($p = .2964$). Therefore, we proceeded with aggregating the effect sizes across both study designs in subsequent analyses, excluding the four influential studies.

4.6 Overall Effect of Interventions (RQ 1)

To estimate the overall effectiveness of interventions, we calculated the pooled effect size based on the dataset excluding influential studies ($k = 86$, $n = 35$). The combined average effect size across studies was statistically significant ($g = 0.23$, $SE = 0.06$, 95% CI [0.12, 0.34], $p < .0001$), indicating that participants undergoing EI intervention showed an improvement from pre- to posttest compared to those in control conditions or baseline. The forest plot (Figure 7) visually supports this pooled result, showing most individual studies clustering closely around the aggregated estimate. Nevertheless, substantial heterogeneity remained evident (QE ($df = 84$) = 384.20, $p < .0001$)

Figure 7
Forest Plot Excluding Four Influential Studies



Note. Forest plot of effect sizes (Hedges' g) and 95% confidence intervals for each study. The size of each square reflects the study's weight in the random-effects model. The diamond at the bottom represents the overall pooled effect size (Hedges' $g = 0.23$) with its confidence interval.

4.7 Analysis of Models (RQ 2)

4.7.1 RQ2a. Descriptive Overview of the Models

The analysis of theoretical models was focused on the studies that explicitly included EI components in their training content. This included both studies classified as EI-specific and those combining EI and Psychological foci. In contrast, studies categorized as Psychological (Related Terms) Training or Non-Emotional Intelligence and Non-Psychological Training were excluded from the count, as their content did not involve any EI component. These were instead

coded as “other.” Table 4 describes frequencies of models, measures and content types. Among the included studies, 14 (29.2%) were based on a mixed model, and 7 studies (14.6%) applied an ability model. A smaller group of 3 studies (6.2%) drew on a combination of different models, while another 3 studies (6.2%) fell into the "other" category. These “other” cases included, for example, studies focusing on emotion regulation or emotional management without explicitly referring to a theoretical model (e.g., Cotler et al., 2017). One additional study (Mohamed et al., 2022) introduced various EI-related topics, such as self-awareness, self-esteem, emotional expression, empathy, communication, and valuing diversity, under the general label of EI, but without linking the content to a specific model. Furthermore, two studies (4.2%) did not specify which model was used and merely stated that EI was included as part of the training, without providing further detail.

Table 4
Frequencies of Models, Measures and Content Types

Variables	Frequencies	
	<i>n</i>	%
Model		
Ability	6	15
Mixed	8	21
Combination	3	8
Other	15	38
Not stated/articulated	7	18
Measure		
Ability	7	18
Trait	4	10
Mixed	17	44
Other	8	21
Not stated/articulated	3	8
Type of Measure		
Self-report	29	74
Performance test	7	18
Not stated	3	8
Content Units		
Emotion intelligence specific trainings	13	33
Psychological (related terms) training	12	31
Emotional intelligence and psychological foci	11	28
Non-emotion intelligence and non-psychological training	3	8

4.7.2 RQ2b. Moderating Effects of the Underlying Model

We tested whether the underlying theoretical model of EI moderated the effectiveness of interventions. In the meta-regressions, the mixed model served as the reference category. Before removing outliers, the overall moderator test was not statistically significant, $F(4, 8.25) = 1.35$, $p = .3305$, and none of the individual categories (ability, combination, other, or not stated) differed significantly from the mixed model. After removing four influential studies, the moderator effect remained non-significant, $F(4, 4.44) = 1.22$, $p = .4162$. For example, the mixed model yielded an effect of $g = 0.06$, 95% CI $[-0.34, 0.47]$, while the ability model showed a slightly higher effect ($g = 0.23$, 95% CI $[-0.25, 0.59]$). These results indicate that the underlying model (whether ability-based, mixed, trait, or other) did not significantly moderate the effectiveness of interventions, and this pattern held even after the exclusion of outliers. All results of the moderator analyses are reported in detail in the appendix (see Appendix H).

4.8 Analysis of Content (RQ3)

4.8.1 RQ3a. Descriptive Overview of the Content

Of the included studies, 34.7% implemented EI-specific interventions, while 30.6% addressed other psychological or educational constructs, and 24.5% combined elements of both. A smaller proportion (10.2%) featured interventions unrelated to EI or psychological training, such as programs based on sports, acting, or dance (see Table 4). EI-specific trainings typically aligned with the theoretical model on which they were based: interventions grounded in the ability model focused on emotion perception, understanding, and regulation, whereas those based on mixed models included components such as self-awareness, self-management, social awareness, and relationship skills. In contrast, interventions categorized as targeting related constructs addressed a broad range of topics, including mindfulness, stress regulation, communication skills, business competencies, and medical interaction training for healthcare professionals. Programs that integrated EI with related domains offered more diverse combinations, such as emotional regulation with resilience, EI combined with transactional analysis, or emotion perception paired with cognitive profiling. These results indicate that roughly two-thirds of the interventions did not exclusively focus on EI, but instead emphasized broader psychological or applied skill areas (see Appendix I for detailed descriptions of the training content).

To answer RQ3a in more detail, we grouped the interventions based on their content focus. We identified four main types. First, trainings that focused specifically on EI and were based on one of the three theoretical models: ability, trait, or mixed (Emotional Intelligence Specific Trainings). Second, trainings that did not follow an EI model but included related psychological concepts (Psychological [Related Terms] Training). Third, trainings that combined EI with other psychological components (Emotional Intelligence and Psychological Focus). Fourth, interventions that did not explicitly focus on EI or psychology but still measured EI outcomes (Non-Emotional Intelligence and Non-Psychological Training). The following sections describe the content of interventions in each category in more detail.

4.8.1.1 Emotion Intelligence Specific Trainings

Ability Model based. Emotion perception branch was addressed in three interventions, solely (Herpertz et al., 2016), as well as with combination with dimension of managing emotions (Geßler et al., 2021; Köppe et al., 2019). Another intervention focused on understanding and managing emotions (Osadchyi, 2020). Two other programs targeted all four dimensions of EI according to the ability model (Gaudet, 2010; Pat McEnrue et al., 2009).

Mixed Model Based. The studies are primarily based on the model developed by Goleman, with less emphasis on Bar-On and a slight variation of concepts in focus. Certain studies (Dev et al., 2021; Joshith, 2012; Shahid et al., 2018) aim to develop self-awareness, self-management, motivation, empathy, and social skills. Faralli (2009) explores the same concepts with the exception of empathy. Jaeger (2003) gives additional attention to cognitive skills, including competencies of system thinking and pattern recognition.

Other. It is worthwhile mentioning that no intervention was based on trait model, but trait measures were used in certain studies. Three studies (Chang, 2006; Karahan & Yalçın, 2009; Vesely et al., 2014) were based on a combination of models, presenting a more wholistic view of EI understanding.

4.8.1.2 Psychological (Related Terms) Training

EI training programs vary widely in their content, but several common threads can be identified. One common feature shared by three studies is the integration of mindfulness components. For instance, Skuka (2014) emphasized attention and thought redirection techniques, as well as non-judgmental awareness to become more mindful. Loh et al. (2022)

implemented a brief mindfulness-based intervention focusing on present-moment attention, a beginner's mind, non-judgmental awareness, and cultivating gratitude and self-compassion. Enríquez et al. (2017) also included mindfulness exercises in their program, highlighting their role in emotional regulation. Another commonality is including the concept of empathy, which was characteristic of caring professions, such as pastors (Jankowski et al., 2008), nurses (Kim & Lee, 2021; Teskereci et al., 2020) or teacher leaders (Sánchez-Núñez et al., 2015). Lastly, self-reflection constituted an important component in three of the reviewed programs (Jankowski et al., 2008; Sánchez-Núñez et al., 2015; Walker, 2019).

Despite these similarities, the content of EI training programs can vary greatly. One management program that argued an overlap between concepts taught in management and EI covered traditional management components, such as self-awareness, stress management, and creative problem-solving, along with interpersonal skills like supportive communication and team development (Clark et al., 2003). A stress management program aimed at adolescents included components on reducing stigma, providing psychoeducation, and teaching coping skills (Sultan et al., 2020). Workshops for future physical education teachers focused on communication, team building, and leadership skills (Kuk et al., 2015). Another course relied on project-based learning, providing opportunities for incidental EI development through tasks and interactions (Deveci & Nunn, 2016). Yet another training had expressive writing at its core, and encouraged college students to explore their emotions related to various aspects of their lives, such as academic demands and personal relationships (Walker, 2019).

4.8.1.3 Emotional Intelligence and Psychological Focus

The interventions under this category included an EI component as well as “educational” component, that is, other related terms. Four of the interventions introduced mixed model of EI as within the training, one – ability, one – both ability and mixed model, and others introduced the dimensions of EI, such as emotion management (Jimenez-Rodriguez et al., 2022) and perception of emotion (Cuji Chacha et al., 2019), or a combination of the two (Cotler et al., 2017). The educational component varied widely, and included, for instance, mindfulness (Chandrapal et al., 2022), resilience (Jimenez-Rodriguez et al., 2022), communication (Seow et al., 2022), employment strategy, negotiation and performance (Da Costa et al., 2021). Several studies focused on presenting individual differences through introducing personality types (McGinnis, 2018), thinking profiles (Cuji Chacha et al., 2019), and accepting differences (Mohamed et al., 2022). Certain studies included wellness practices,

such as self-care (Goudarzian et al., 2019), relaxation (Karahana & Yalçın, 2009), and meditation (Cotler et al., 2017). Concepts related to self-awareness were also at the core of some interventions, encompassing self-esteem (Mohamed et al., 2022), and understanding one's own values (McGinnis, 2018).

Certain studies that focused on EI or combined EI with other educational components and constructs applied a holistic approach to presenting the concept of EI. They presented the existing models of EI and had respective readings of research articles on the topic of EI (Pat McEnrue et al., 2009). Certain trainings contained intertwined dimensions of ability model – perceive and regulate the emotions, and mixed model – self-awareness, self-management, social awareness, and social management (Davis, 2013).

Figure 8 represents a word cloud generated from the thematic content of trainings categorized under Emotional Intelligence and Psychological Focus, as well as Psychological (Related Terms) Training. The purpose of this visualization was to identify which psychological content themes appeared most frequently across studies, and which were more commonly used in interventions aiming to improve EI. In the word cloud, the size of each term corresponds to the number of studies in which it appeared. The most frequently used themes were mindfulness (5 studies), empathy (4 studies), self-reflection and personality types (3 studies each). All remaining terms, such as self-modification, resilience, relaxation training, self-care behaviors, coping skills, leadership skills, stress management, and others, were each represented by a single study.

While many terms, such as empathy, self-reflection, and mindfulness, are well known, some elements may require further explanation due to their theoretical specificity or relative novelty in educational contexts. Transactional analysis is a theory of personality and a method for improving communication. It analyzes interactions ("transactions") in terms of ego states: Parent, Adult, and Child (Berne, 1968). Self-Modification Theory is a cognitive-behavioral approach focusing on individuals' ability to change their behavior through self-monitoring, goal setting, and reinforcement (Cautela, 1973). Resilience refers to positive adaptation despite adversity (Masten, 2001). Mindfulness is the practice of paying attention in a non-judgmental, present-focused way. Rooted in Buddhist meditation, but adapted into secular health and psychological interventions (Kabat-Zinn, 2003).

Figure 8

Word Cloud: Other Themes in Content of EI Interventions



4.8.1.4 Non-Emotional Intelligence and Non-Psychological Training

The studies that featured neither EI component nor another cognitive concept, but measuring EI before and after intervention, were grouped under this category. These studies are highly diverse in their content focus. One of the interventions investigated whether an acting course fosters EI, arguing that an actor learns active listening, empathy, affect regulation that may influence EI improvement (Corwin, 2014). Guan and Gong (2014) focus on the role of sports dance in the emotional development of college students, suggesting that the synchronized physical movements and rhythmic patterns inherent in dance may contribute to EI. Another approach was centering around slow-deep breathing exercises and genital muscle relaxation techniques (Sellakumar, 2017). Schwartz and Belknap (2017) explored the impact of a college outdoor orientation program on trait EI, incorporating activities such as canoeing, hiking, and ropes courses. Substantial improvements in self-perceived EI among occupational therapy students are reported through rigorous practical training involving a minimum of 1,000 hours of direct clinical practice (Polonio-López et al., 2019).

4.8.2 RQ3b. Moderating Effects of Content Type

To assess whether the type of intervention content moderated the effect size, we conducted meta-regressions using three different reference categories: (1) EI-specific training,

(2) interventions combining EI and psychological foci, and (3) psychological (related terms) training. Across all models and both before and after the removal of influential studies, none of the overall moderator tests reached statistical significance (e.g., $F(3, 8.02) = 0.32$, $p = .8081$, after outlier removal). When using EI-specific training as the reference group, this category showed a significant average effect ($g = 0.50$, 95% CI [0.06, 0.93], $p = .029$), but comparisons with other content types were not statistically significant. Similarly, using the combined EI and psychological focus group as the reference yielded a significant average effect ($g = 0.26$, 95% CI [0.10, 0.42], $p = .0065$), yet differences relative to the other groups were again not significant. The same pattern held when psychological (related terms) training was used as the reference group ($g = 0.25$, 95% CI [0.11, 0.39], $p = .0029$). In sum, although the average effect sizes varied somewhat depending on the content category, the differences between groups were not statistically significant. Thus, content type was not found to be a significant moderator of intervention effects (see Appendix H).

4.9 Analysis of Measures (RQ4)

4.9.1 RQ4a. Descriptive Overview of the Measures

The included studies used a variety of instruments to assess EI, which differed in terms of both their underlying theoretical model and the type of measurement. Out of 48 studies, 19 (39.6%) used mixed-model measures, 14 (29.2%) applied ability-based measures, and 7 (14.6%) employed trait-based instruments. Three studies (6.2%) used measures classified as “other,” and another three studies (6.2%) combined different types of measures within the same evaluation. In two studies (4.2%), insufficient information was reported to determine the type or model of the measure used (see Table 4).

Mixed-model instruments were the most frequently used and showed substantial variety, with nine different measures applied across the studies. These included the Emotional Quotient Inventory (EQ-i), the Emotional and Social Competency Inventory-University Edition (ESCI-U), the Emotional Competency Inventory (ECI), and the Emotional Intelligence Appraisal (EIA). Such instruments typically assessed a broad set of competencies including self-awareness, self-regulation, empathy, interpersonal effectiveness, and stress management. Trait-based measures, though less common, were used in several studies and included the Trait Emotional Intelligence Questionnaire (TEIQue), the Trait Meta-Mood Scale (TMMS), and the Interpersonal Emotional Quotient Inventory (INTE). These self-report

instruments focused on dispositional aspects of emotional functioning, such as emotional clarity, mood repair, and trait well-being.

Ability-based measures included both performance-based and self-report formats. The only widely used performance test was the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), which assesses four key branches of emotional ability: perceiving emotions, using emotions to facilitate thinking, understanding emotions, and managing emotions. Other ability-aligned instruments, such as the Schutte Self-Report Emotional Intelligence Test (SSEIT), the Assessing Emotions Scale (AES), and the Wong and Law Emotional Intelligence Scale (WLEIS), were based on the same theoretical model but operationalized through self-report formats. Only one study used a self-developed performance-based measure (Cuji Chacha et al., 2019), and one applied an other-rater instrument (ECI; Boyatzis et al., 2000). All remaining studies used self-report measures.

In four studies, researchers applied more than one type of measure, combining for example ability and mixed (Chandrapal et al., 2022), trait and ability (Cuji Chacha et al., 2019), mixed and trait (Shahid et al., 2018), or ability and other (Geßler et al., 2021). While the use of multiple measures may provide a more comprehensive perspective, it also introduces challenges regarding the conceptual clarity of what is being assessed.

4.9.2 RQ4b. Moderating Effects of the Measures

The type of EI measure was also tested as a potential moderator. In the main analysis, mixed-type measures (e.g., EQ-i, ESCI) were used as the reference category. Before removing outliers, the moderator test was statistically significant, $F(4, 9.63) = 5.02, p = .0187$. Mixed-type measures showed the highest average effect size ($g = 0.47, 95\% \text{ CI } [0.09, 0.85], p = .0183$), while ability-based and trait-based measures produced smaller, non-significant effects. However, after excluding outliers, the overall moderator test was no longer significant, $F(4, 5.92) = 1.49, p = .3172$. Self-report measures continued to yield a significant average effect ($g = 0.23, 95\% \text{ CI } [0.12, 0.34], p = .0002$), while performance tests (such as the MSCEIT) resulted in a smaller and non-significant effect ($g = 0.09, 95\% \text{ CI } [-0.13, 0.30], p = .1471$). These findings suggest that the initial differences between measurement types were driven in part by outliers and do not reflect robust moderating effects (see Appendix H).

4.10 Alignment between Model, Content, and Measures (RQ5)

An analysis of the alignment between intervention model, content, and measurement across studies (see Table 5) showed a mixed picture. While some studies followed a consistent logic across all three components, others revealed notable inconsistencies. Alignment was strongest among interventions categorized as EI-specific, where the training was purposefully built around a single EI framework. For instance, Faralli (2009), Loh et al. (2022), and Shahbazi (2018) developed their interventions following Goleman's mixed model and used corresponding training content and mixed-type measures, such as the ESCI or EQ-i. Similarly, several studies based on the ability model maintained conceptual coherence. Herpertz et al. (2016), for example, employed ability-based training content grounded in Mayer and Salovey's model and evaluated outcomes using performance-based measures like the MSCEIT. This level of alignment ensures that the construct taught during training closely matches what was assessed post-intervention.

In contrast, studies combining EI with broader psychological training content were more likely to exhibit misalignment. For instance, Cotler et al. (2019) implemented an intervention that addressed emotional management and regulation but did not explicitly rely on a recognized EI model. Despite this, they used a standardized EI self-report measure, which may assess constructs that were not directly trained. Other studies mixed elements of different EI models in the intervention but used only one type of measurement. Chang (2007) and Karahan and Yalcin (2009), for example, drew from multiple theoretical models but relied on mixed-model self-report tools for evaluation. Vesely (2014) also combined different models in the intervention phase but used a trait-based measure, potentially introducing a mismatch between the theoretical assumptions underlying training and those inherent in the assessment tool. Additional examples include studies such as McEnrue et al. (2009) and Gaudet (2011), which implemented training content grounded in the mixed model but assessed outcomes with trait or general self-report measures. These patterns point to a broader issue: when model, content, and measure are not conceptually aligned, there is a risk that the intervention's effectiveness is either underestimated or misrepresented. The findings highlight the need for greater methodological coherence in future research on EI training.

Table 5
Alignment Between Models, Content, and Measures

Authors, Year	Model	Content	Measure
Chandrapal et al., 2022	●	◐	●
Chang, 2007	●	◐	●
Clark et al., 2003	●	◐	●
Corwin, 2015	●	⊗	●
Cotler et al., 2019	●	◐	●
da Costa et al., 2021	●	◐	●
Davis, 2013	●	●	●
Dev et al., 2021	●	●	●
Deveci & Nunn, 2016	●	○	●
Faralli, 2009	●	●	●
Gaudet, 2011	●	●	●
Gessler, 2021	●	●	●
Goudarzian, 2019	●	◐	●
Guan, 2014	●	⊗	●
Herpertz et al., 2016	●	●	●
Jaeger, 2002	●	●	●
Jankowski et al., 2008	●	○	●
Jimenez-Rodriguez et al., 2022	●	◐	●
Karahan & Yalcin, 2009	●	◐	●
Kim & Lee, 2021	●	○	●
Köppe et al., 2019	●	●	●
Kuk et al., 2015	●	○	●
Loh et al., 2022	●	○	●
Luy-Montejo, 2019	●	○	●
McEnrue et al., 2009	●	●	●
McGinnis, 2018	●	◐	●
Mohamadirizi et al., 2015	●	○	●
Raut & Gupta, 2019	●	●	●
Rosario Quiroz et al., 2020	●	●	●
Sánchez-Núñez et al., 2015	●	○	●
Sellakumar, 2017	●	○	●
Seow et al., 2022	●	◐	●
Shahbazi, 2018	●	○	●
Sisman & Buzlu, 2022	●	●	●
Skuka, 2015	●	⊗	●
Szeles, 2015	●	◐	●
Teskereci, 2020	●	○	●
Vesely, 2014	●	●	●
Walker, 2019	●	○	●

Note. The legend of the figure is specified below.

Model and Measure	Training Unit
Ability ●	Emotional intelligence specific trainings ●
Trait ●	Emotional intelligence and psychological foci ●
Mixed ●	Psychological (related terms) training ○
Combination ●	Non-emotional intelligence and non-psychological training ⊗
Other ●	
Not stated ●	

5. Discussion

This section features the discussion of the systematic review and meta-analysis. Figure 9 depicts the outline of the current section. The discussion chapter is structured into several parts. The first part outlines the overall effectiveness of EI interventions. The second through fourth examine the use and impact of theoretical models, training content, and outcome measures, both descriptively and as moderators. The extent to which these components are conceptually aligned within individual studies is addressed in the fifth subsection. The sixth part discusses limitations of the included primary studies and the scope of this review, and outlines directions for future research. The seventh and eighth sections consider the implications of the findings for practice and theory. The final subsection provides a brief conclusion.

Figure 9
Outline of the Discussion Section

Discussion Section	Outline
Summary and Discussion of Results	• Overall Effectiveness of EI Trainings • Models underpinning EI Trainings • Content in EI Trainings • Measures used in EI Trainings • Alignment between Models, Content and Measures
Limitations and Related Future Directions	5. Primary studies a. Quality b. High Tech Trainings c. Cultural Component 6. Design and Scope - Self-reported measures - Subgroup analyses - University context - English language
Implications for Theory and Practice	• Implications for Practice - creating EI Interventions • Implications for EI Theory
Conclusions	

This dissertation presents a research synthesis of interventions aimed at promoting EI among university students. While previous syntheses have examined EI training across broader samples, including working adults and school-age populations (Hodzic et al., 2018; Mattingly & Kraiger, 2019; Molero et al., 2020), the higher education context remains

comparatively underexplored. This is despite growing evidence that university students face unique developmental, emotional, and academic challenges, such as heightened stress, anxiety, and low help-seeking behavior, that may render them especially responsive to EI interventions (Basudan et al., 2017; Beamer, 2024; Worsley et al., 2021). In addition, prior reviews have highlighted the diversity of theoretical models and outcome measures, as well as conceptual inconsistencies and a potential lack of alignment between the models, content, and measures used in EI training interventions (Côté, 2014; Kotsou et al., 2019; Matthews et al., 2004). Addressing these gaps, the present study combines two complementary approaches, a systematic review and a meta-analysis. It explores the overall effectiveness of EI interventions; looks at whether model, content, and measure moderate the overall effects; and assesses whether the model, content, and measure are conceptually aligned within the training. This discussion now turns to the interpretation of key findings in light of these goals and situates them within the existing body of research.

Based on a synthesis of 49 studies, five central findings emerged. First, the meta-analytic results indicate that EI interventions produce a small but statistically significant positive effect on student outcomes, confirming the general trainability of EI in higher education settings. Second, interventions that were explicitly EI-specific yielded larger effects than those with broader psychological or educational content, suggesting that focused training may be more effective. Third, no consistent differences in effectiveness were found between interventions based on different theoretical models, highlighting the need for more rigorous model implementation and alignment. Fourth, the effectiveness of training did not significantly vary by content type, though conceptual ambiguity in many interventions remains a challenge. Fifth, most studies relied heavily on self-report measures, at times without alignment to the training model, which raises concerns about the validity of outcome evaluations. In the sections that follow, each of these findings will be discussed in greater depth, including their implications for research, theory, and educational practice.

5.1 Overall Effectiveness of Interventions Aimed at Promoting EI

The meta-analytic findings of this synthesis show that, on average, interventions aimed at promoting EI among university students lead to a statistically significant improvement in EI outcomes, confirming the first hypothesis. When excluding statistical outliers, the pooled effect size was $g = 0.23$. This result is lower in comparison with the range of effect sizes reported in earlier meta-analyses, which found moderate effects for EI

interventions in broader adult or workplace populations, for example, $g = 0.51$ (Hodzic et al. 2018) and $d = 0.45\text{--}0.61$ (Mattingly & Kraiger, 2019). Thus, our results without outliers suggests that, on average, the interventions in our sample yielded lower effects.

One likely explanation lies in the composition of the sample. In contrast to prior reviews that focused predominantly on EI-specific programs, our synthesis included a wider range of trainings. Some are explicitly designed to improve EI, others focus on related psychological or educational content such as mindfulness, stress regulation, or communication skills. Our categorization of intervention types revealed that only about one-third of the included studies were EI-specific. Previous research has suggested that EI-specific interventions tend to yield stronger effects (Mattingly & Kraiger, 2019). These patterns are further examined in the moderator analysis (see discussion section 5.3 Discussion of Content), where we explore whether training content influences the magnitude of effects.

Considering not only effect sizes but also the cost of interventions has been recommended, especially when aiming to inform educational practice (Kraft, 2020). However, for EI interventions targeting university students, costs have rarely been addressed in primary studies and research syntheses. One of the few exceptions is (Cherry et al., 2014), who pointed to the cost of commercial EI assessments. For example, the MSCEIT and the Bar-On EQ-i require online scoring services that cost approximately \$3.50 to \$10 per participant. While this may appear minor, such costs can become relevant in large-scale applications or studies with limited budgets and may affect researchers' decisions around measurement tools.

By contrast, in the context of primary and secondary education, the cost-effectiveness of SEL interventions has been investigated in a number of studies. The studies suggest that SEL interventions can be implemented at low to moderate cost per student and often generate substantial long-term benefits (Belfield et al., 2015; Hunter et al., 2018; Klapp et al., 2017; Lee et al., 2023). One analysis of multi-year interventions reported costs ranging from \$290 to \$680 per student over several years, with estimated benefits up to \$5,960 per student and net benefits between \$1,000 and \$5,670 (Belfield et al., 2015). These higher costs reflect the extended duration of the programs, some of which spanned up to five years and were embedded in regular classroom instruction. In contrast, shorter interventions delivered over a few weeks or months show lower costs. For example, a U.S. study reported a cost of \$19 per student for a short-term classroom-based program, with greater cost-effectiveness when

delivered in the second grade (Hunter et al., 2018). In Sweden, an SEL program taught over several years as part of the school curriculum showed a positive net present value per student, largely due to reduced substance use (Klapp et al., 2017). A global modeling study estimated that universal SEL programs could be delivered for as little as I\$0.10–0.16 per student, assuming brief, school-wide delivery, with costs per healthy life year gained as low as I\$958 in low- and middle-income countries (Lee et al., 2023). Several analyses have shown that such programs can generate a wide range of benefits, including immediate improvements in classroom behavior, fewer disciplinary incidents during schooling, and long-term outcomes such as increased earnings and improved health (Belfield et al., 2015; Lee et al., 2023). While these evaluations provide valuable insights into the cost-effectiveness of SEL in school settings, comparable cost data for university-level EI interventions are largely absent.

To address this gap, we estimated approximate intervention costs based on academic staff salaries. Moreover, since the actual costs were not reported, we use length of the training as a cost indicator (Levin & McEwan, 2001). Based on assumed hourly rates of \$100 for internal university staff (U.S. Bureau of Labor Statistics, 2023) and \$150 for external coaches (Knight, 2012), and assuming group-based delivery to 20 participants, the estimated cost per student in the reviewed EI interventions ranges from \$25 to \$1,000, depending on duration and delivery format. Very short interventions (<10 hours) would cost approximately \$25–40 per student, short formats (11–40 hours) around \$125–190, and medium-length programs (41–100 hours) \$350–525. Interventions lasting more than 100 hours may exceed \$1,000 per student. These estimates are broadly comparable to those reported for school-based SEL programs, where costs typically range from \$19 to \$680 per student, depending on scope and duration (Belfield et al., 2015; Hunter et al., 2018). However, due to higher instructional salaries in higher education and occasional reliance on external coaches, university-based interventions may involve higher per-student costs, particularly for intensive or individualized formats. On the other hand, not all interventions involve high costs.

In some cases, such as self-paced online formats (Osadchyi, 2020) or programs that are already part of the medical or nursing curriculum, the additional cost per student may be close to 0\$. These interventions often rely on existing staff and infrastructure, without requiring extra teaching hours or external trainers. While more intensive formats, especially those involving external facilitation, may cost several hundred dollars per student, others can be implemented with minimal resources. Given the previous evidence from research syntheses that medium-length interventions are most effective, the cost estimate can range

from 0\$ to 190\$ per student. Taking into the consideration the training effectiveness and drawing on the previous research from school level on the earned gains, such as increased earnings, improved health, as well as decreased incidents of burnout, anxiety and depression (Belfield et al., 2015; Klapp et al., 2017; Lee et al., 2023), we may conclude the EI interventions for students are worth the cost.

Following the discussion of the overall effectiveness and estimated cost of EI interventions, the next part addresses the role of theoretical models. This includes interpreting both the descriptive findings on the types of models used across studies and the extent to which the underlying model moderated intervention effectiveness.

5.2 Discussion of Models

Among the 49 studies included in our synthesis, only a subset explicitly stated the theoretical model guiding their EI-related training. Within this group, the mixed model was the most frequently applied ($n = 14$), with many studies referring to Goleman's conceptualization of EI (Faralli, 2009; Shahid et al., 2018). The ability model appeared less frequently ($n = 7$), though it was used in several interventions targeting emotion recognition or regulation (e.g., Gaudet, 2010; Herpertz et al., 2016). The trait model was not used in any of the reviewed studies.

Trait EI-based interventions designed specifically for university students remain relatively rare. This may reflect the construct's conceptual grounding as a stable self-perception rather than a changeable skill set, and the fact that trait EI research has historically focused more on assessment than on training. Our analysis identified no interventions explicitly based on trait models. However, one recent qualitative dissertation (Gillis-Davis, 2024) reported an ultra-brief trait EI training for university student leaders, explicitly based on Petrides' trait EI framework. The intervention focused particularly on the Sociability component of trait EI, using a short workshop format to increase students' emotional self-awareness, confidence in social interactions, and interpersonal communication. Although the sample was small, post-intervention interviews suggested that the training was perceived as effective, especially in fostering leadership-related emotional competencies. This study was not included in our synthesis due to the fact that our search was conducted prior to its publication date.

Certain studies either combined the models or used neither of the established theoretical frameworks. Two studies provided a more integrative theoretical rationale by referring to multiple EI models or reviewing conceptual debates as part of their training design (Davis, 2013; Joshith, 2012). These efforts reflect a valuable direction that deserves more systematic exploration in future research, particularly with regard to whether combining models may be beneficial for students. A few studies did not clearly assign content to a defined EI theory (e.g., Cotler et al., 2017). In some cases, EI was mentioned as a component of the training, such as fostering empathy or managing emotions, but no theoretical model was cited, and no conceptual definition of EI was provided (Chandrapal et al., 2022; Pat McEnrue et al., 2009). These findings reinforce concerns raised in previous reviews about the insufficient articulation of theoretical foundations in EI interventions, particularly in educational settings (Kotsou et al., 2019; Mayer & Cobb, 2000).

Against our hypothesis, we have found that both models, including and excluding statistical outliers, show no significant differences in effect size between interventions based on ability models and mixed models. Although the mixed model yielded the effect of $g = 0.06$, and the ability model showed a higher effect, $g = 0.23$, no statistically significant difference between them was found. The overall moderator test was also non-significant. These results are in line with a prior meta-analysis, which found no differences across model types (Mattingly & Kraiger, 2019). Another meta-analysis, however, reported that interventions grounded in the ability model tended to produce higher effects (Hodzic et al., 2018).

Though the moderating effect was not statistically significant, which may be due to the need for multiple aspects of a training to align for measurable effects, the descriptive results still indicate somewhat higher effects for interventions based on the ability model. Several potential explanations may account for this pattern. One possible explanation for the somewhat higher effects of ability-model-based interventions lies in the greater conceptual clarity and trainability of the ability model. It is grounded in specific, measurable skills such as perceiving, understanding, and managing emotions. These components can be more easily translated into structured training activities, such as emotion recognition tasks or role plays, which may support the acquisition and transfer of skills (Mayer et al., 2008; Schutte et al., 2013). A second explanation concerns the focus and coherence of training content. The mixed model integrates a broader range of traits and competencies, including personality traits, emotional abilities, and general moods. This conceptual breadth may lead to less targeted

interventions. For university students in particular, who often participate in short-term or time-limited programs, a narrower focus on clearly defined skills may lead to more effective learning (Clarke, 2010; Mattingly & Kraiger, 2019). Additionally, three studies based on the mixed model (Da Costa et al., 2021; Goudarzian et al., 2019; McGinnis, 2018) combined EI training with other psychological constructs, such as resilience or stress management. These integrated approaches may have diluted the emotional intelligence focus, limiting their specific impact.

The findings presented here contribute to clarifying the theoretical landscape of EI interventions for university students. By coding the underlying model separately from the type of measure or training content, we aimed to provide a more nuanced picture of how explicitly interventions are grounded in established EI frameworks. This approach addresses a methodological challenge noted in previous reviews, where models were often inferred from outcome measures, such as assuming an ability model based on the use of a performance test or categorizing a training as trait-based due to self-report assessment. While such strategies were often necessary due to limited reporting in primary studies (Kotsou et al., 2019; Mattingly & Kraiger, 2019), they may inadvertently introduce inconsistencies in how interventions are classified and interpreted. By contrast, our review focused on whether the theoretical model was explicitly described as part of the intervention rationale or design, offering a more direct view of how models are used, or omitted, in practice.

In sum, our findings expand previous work by mapping the actual use of EI models in a sample of intervention studies targeting university students. While references to models are not uncommon, many interventions rely on general EI terminology without articulating a coherent theoretical basis. To improve both research and practice, future interventions should explicitly state their conceptual foundations and align more clearly with established theoretical models.

While theoretical models provide the conceptual foundation for EI interventions, it is important to consider what is actually taught. The following section therefore focuses on the content of the trainings, analyzing the content of the units and influence of four content types on EI outcomes.

5.3 Discussion of Content

The training content of interventions aimed at promoting EI among university students varied substantially. While some interventions were grounded in established EI models and targeted core components such as emotion perception, regulation, or social awareness (e.g., (Dev et al., 2021a; Osadchyi, 2020), many others incorporated broader psychological or educational content. These included topics such as mindfulness, stress reduction, self-reflection, and personality profiles. A smaller group of interventions did not feature any explicit EI or psychological concepts but nonetheless measured EI outcomes post-intervention. This variation in content confirms earlier observations about the heterogeneity of EI training approaches (Lim & Lau, 2021; Perry et al., 2020) and reflects a broader challenge in the field concerning conceptual clarity.

To bring greater structure to this diversity, we developed a four-part typology based on systematic coding of training descriptions. As shown in Figure 4, the four categories include: (1) EI-specific trainings, aligned with established EI models; (2) Psychological trainings, which do not refer to EI but focus on related psychological constructs; (3) Combined EI and psychological trainings, which integrate both types of content; and (4) Non-EI, non-psychological trainings, with no direct connection to emotional or psychological concepts.

This classification expands on prior approaches that often relied on binary distinctions such as EI-focused versus non-EI-focused (Kotsou et al., 2019). Only about one-third of the studies in our review featured EI-specific content. The remaining two-thirds drew either on related psychological terms or lacked clear theoretical grounding altogether. These findings highlight an important gap between how EI is defined at the theoretical level and how it is operationalized in educational practice. Moreover, many studies provided little explanation for how particular content, such as personality types or journaling, was expected to enhance EI. In line with previous critiques (Kotsou et al., 2019), our review shows that this conceptual vagueness remains a persistent issue in the field.

The most frequently observed related constructs were mindfulness, empathy, self-reflection, and personality profiles. Mindfulness has been associated with both trait and ability EI, with research showing that mindfulness training can enhance emotion regulation (Miao et al., 2018; Salcido-Cibrián et al., 2019). Empathy is partially embedded in mixed models of EI and has been found to correlate with EI scores (Abe et al., 2018; Bertram et al., 2016). In regard to self-reflection and personality profiles, evidence on correlation with EI is lacking,

though these themes could have contributed to a higher self-awareness overall, aiding the understanding of emotional processes in self in others (Jankowski et al., 2008). These aspects may explain why related constructs are frequently incorporated into trainings that aim to enhance EI.

Against our hypothesis, content type did not significantly moderate the effects of the intervention; the effect sizes differed descriptively. Interventions that focused specifically on EI showed the highest average effects (in accordance with Hypothesis 3), followed by those combining emotional and psychological content. Interventions focusing only on psychological constructs, or lacking a clear EI focus, showed lower effects. This pattern is consistent with previous research suggesting that EI-specific interventions may be more effective (Kotsou et al., 2019; Mattingly & Kraiger, 2019), even though the moderator analysis did not reach statistical significance. One likely reason for the lack of significance is the considerable overlap between content categories. Many interventions that were not classified as EI-specific still included core elements of EI, such as emotion regulation, self-reflection, or interpersonal skills. As a result, the differences between categories were often more formal than substantive. This overlap may have diluted potential contrasts and made it more difficult to detect clear differences between content types.

Our typology of four content categories contributes a more precise framework for describing and comparing the content of EI interventions in higher education. It also supports recent calls to establish clearer content-based benchmarks for what constitutes a high-quality EI training (Mattingly & Kraiger, 2019). The wide use of conceptually related, yet distinct, psychological constructs raises a larger theoretical issue: what is EI, and what should count as valid content for its development?

In sum, while the current landscape of training content reflects diversity, it also points to the need for greater conceptual precision. Advancing the field will require clearer articulation of how training components relate to EI theory and more systematic efforts to align intervention design with the constructs that are being targeted.

In addition to examining the content of EI interventions, it is essential to consider how EI is assessed. The following section therefore focuses on the types of measures used across studies and explores whether the type of measure influenced the observed effects.

5.4 Discussion of Measures

Our analysis of the measures used in interventions aimed at promoting EI among university students reveals three key insights. First, we identified a lack of diversity in the types of instruments used, with an overreliance on self-report measures. Second, we observed a frequent mismatch between the theoretical model underlying the training and the type of outcome measure selected. Third, very few studies applied multiple measures to capture different dimensions of emotional intelligence, despite the known benefits of such triangulation.

A first observation concerns the limited variety of EI measures used. Most studies relied exclusively on self-report instruments, even when the training was based on an ability model. Among ability-based assessments, only the MSCEIT was used (Mayer et al., 2007), despite the availability of other validated performance-based tests such as the STEU and STEM (MacCann & Roberts, 2008; Lim & Lau, 2021). Other-rater measures were used only once in the sample (Boyatzis et al., 2000), even though they are common in workplace-based EI assessments (Mehler et al., 2024). This overreliance on self-report tools may reflect both practical constraints and conceptual habits in the field. However, the MSCEIT itself has faced substantial criticism, including its scoring system based on expert consensus (Brody, 2004; Roberts et al., 2008), its limited ecological validity (Brody, 2004), and concerns regarding cultural generalizability (van Rooy et al., 2005).

Second, we found that many studies used outcome measures that were not aligned with the theoretical model that guided the intervention. For instance, some studies grounded in the ability model nonetheless relied on self-report questionnaires for outcome assessment (e.g., Osadchyi, 2020; Pat McEnrue et al., 2009). This misalignment may reduce the construct validity of the results and complicate the interpretation of training effects. While mixed- or trait-based models may be more compatible with self-report instruments, interventions targeting EI as an ability should ideally be evaluated with performance-based tests that capture actual emotional problem-solving skills.

Third, only a few studies used multiple types of measures to triangulate outcomes. For example, Chandrapal et al. (2022) found that participants scored consistently higher on self-reports than on ability-based tests, both before and after the training. Similarly, Kotsou et al. (2019) recommended combining different formats, such as self-report, performance-based, and other-rater instruments, to offer a more comprehensive view of change. This approach is

particularly important given that self-report measures may reflect perceived EI, while ability-based tests and peer ratings can offer more objective perspectives. Nevertheless, logistical challenges such as test availability, administration time, and scoring complexity likely contribute to the limited use of multi-method approaches.

Although initial results suggested that measurement type might moderate intervention effectiveness, this effect became non-significant after the removal of outliers. This aligns with prior meta-analytic work (Mattingly & Kraiger, 2019), suggesting that measure type alone may not systematically predict outcomes. Still, the field would benefit from more consistent use of measures that are conceptually aligned with training models, as well as from increased efforts to include diverse assessment methods. The absence of statistically significant moderation may reflect both the limited number of studies using ability- or trait-based measures and the considerable overlap between instruments. Several mixed-model tools include components that also appear in trait EI inventories or ability-based tasks, complicating classification. Furthermore, most studies in our sample relied on self-report instruments, regardless of the underlying EI model. This overreliance may have reduced variability and limited the capacity to detect differences between measurement models.

The analysis of measure type (self-report, performance test, or other-rater) also showed no significant moderation effect. However, the diversity of instruments was limited. Few studies employed established performance-based tests, and almost none used other-rater assessments. These constraints limited the statistical power to detect differences and may mask meaningful variation in sensitivity across measure types. Performance-based tests, for example, may be less responsive to short-term change, especially in brief interventions, whereas self-reports may primarily capture shifts in self-perception rather than actual skill development (Martins et al., 2010; MacCann et al., 2014).

Although measurement type did not emerge as a significant moderator, the findings point to persistent issues in the assessment of EI in training research with university students: the narrow range of available tools, heavy reliance on self-report measures, frequent mismatches between theoretical model and outcome measure, and the underuse of performance-based or other-rater instruments. Future research should address these limitations by developing psychometrically sound, culturally appropriate performance tests

for academic settings and by exploring the integration of peer or instructor ratings into evaluation designs.

Constructive alignment between training goals, theoretical models, and outcome measures remains essential (Biggs, 1996; Martone & Sireci, 2009). Interventions grounded in the ability model should prioritize performance-based measures, provided they are valid, reliable, and accessible. For trait- or mixed-model interventions, well-validated self-report instruments may be appropriate, but should ideally be complemented by other-rater or behavioral assessments. Triangulating measurement perspectives can improve the robustness and validity of outcome evaluations (Joseph & Newman, 2010; Mehler et al., 2024).

After discussing the individual components of EI interventions, namely the models, content, and methods, it is important to consider how well these elements align with one another. The following section therefore examines the degree to which the model, content, and measure are coherent within each study, using the framework of constructive alignment.

5.5 Alignment Between Model, Content, and Measure (RQ5)

A key focus of this synthesis was to examine the degree of conceptual alignment between the theoretical model, training content, and measurement approach used in interventions aimed at promoting EI among university students. While previous reviews have mostly examined these components in isolation or assumed alignment based on indirect indicators such as the type of measure used (Mattingly & Kraiger, 2019), our findings demonstrate that this assumption often fails to hold. Rather, alignment was uneven across the reviewed studies, and in many cases, model, content, and measure were only loosely connected or not aligned at all. This finding raises important concerns about the interpretability of intervention effects and the validity of outcome claims in the field of EI training.

In line with instructional design theory (Tyler, 2013), the principle of alignment holds that learning objectives, instructional methods, and assessments should work together to support the intended learning outcomes. Biggs (1996) extended this view in his concept of constructive alignment, which emphasizes that deep and transferable learning occurs when teaching activities and assessments are explicitly tied to the performance of understanding that the learning outcomes aim to elicit. In the context of EI training, this means that the model of EI (for example, ability, trait, or mixed), the intervention content (such as activities

focused on emotional reasoning, self-awareness, or interpersonal skills), and the assessment method (such as performance test, self-report, or other-rater instrument) must reflect the same underlying conceptualization of EI.

Our findings suggest that strong alignment was most often observed in interventions explicitly grounded in a single EI framework, particularly those categorized as EI-specific. For instance, certain studies (Herpertz et al., 2016; Pat McEnrue et al., 2009) built their programs around the ability model and used content and assessment methods congruent with that model, including the MSCEIT. Similarly, studies following Goleman's mixed model (Faralli, 2009; Shahid et al., 2018) tended to apply training content related to self-awareness and relationship management and used mixed-model measures such as the ESCI or EQ-i. The alignment between model, content, and measure was present in these cases.

In contrast, studies that combined EI with broader psychological or educational content were more likely to demonstrate misalignment. For example, interventions that incorporated mindfulness, resilience, or personality profiling often included activities loosely connected to EI, but failed to explain how these components fit within a coherent EI framework (e.g., McGinnis, 2018; Mohamed et al., 2022). While some authors provided theoretical rationales for including such content, citing associations between EI and related constructs like mindfulness or resilience (e.g., Jiménez-Rodríguez et al., 2022), others did not articulate why these additions were relevant to EI development or how they were expected to affect EI outcomes. This inconsistency mirrors concerns raised in educational research about the risks of "surface alignment," where similar terminology may mask deeper conceptual mismatches (Biggs, 1996).

Another common form of misalignment occurred when the model and content of the training were based on one conceptualization of EI, but the measure used reflected another. For example, interventions grounded in the ability model sometimes relied on self-report tools aligned with trait or mixed models (e.g., Vesely et al., 2014; Chang, 2007). In these cases, the assessment may not capture the specific skills taught, such as emotional reasoning or regulation, but instead reflect participants' general emotional self-perceptions or dispositional traits (Petrides, 2011; Mayer et al., 2004). Martone and Sireci (2009) emphasize that when training, curriculum, and assessment are not aligned, evaluations of instructional effectiveness become difficult to interpret and may either overestimate or underestimate actual learning.

Given these patterns, our review underscores the importance of systematic alignment between theoretical model, training content, and measurement in EI research. This principle is particularly critical in university student populations, where interventions often serve both developmental and academic support functions, and clarity about what is being taught and evaluated is essential. The alignment framework we propose (see Figure 10) is intended to support this goal by offering practical guidance for researchers and practitioners on how to structure EI trainings in a coherent and theory-driven way.

Figure 10

Tentative Alignment Framework for Trainings Aimed at Promoting EI

	Intended Learning Outcomes Parts of underlying EI Model, formulated as Student outcomes.	Teaching and Learning Activities Content of the units and activities, aligned with Learning outcomes.	Assessment Tasks Measurement of the Learning outcomes, aligned with the intended goals and the content.
Ability model	E.g., Dimension Perceiving Emotions: - Identify emotions in one's own physical states, feelings, and thoughts. - Identify deceptive or dishonest emotional expressions - Discriminate accurate vs. inaccurate emotional expressions - Understand how emotions are displayed depending on context and culture - Perceive emotional content in the environment, visual arts, and music - Perceive emotions in other people through their vocal cues, facial expression, language, and behavior*	E.g., Dimension Perceiving Emotions: - Content: labels for different emotions and how they show up through voice, facial expressions, language, thoughts, behaviour and art. - Activities: journaling and mindfulness meditations for recognizing own thoughts and states; case studies of emotions of others through films; discussing emotions in art and music	E.g., established measures for ability model or other self-developed test that measure ability model conceptualization of EI: MSCEIT, SSEIT, EISDI, AES, WLEIS, Emln
Mixed model	E.g., Intrapersonal - Self-awareness and self-expression: - Self-Regard - to accurately perceive, understand and accept oneself. - Emotional Self-Awareness - to be aware of and understand one's emotions. - Assertiveness - to effectively and constructively express one's feelings and oneself. - Independence - to be self-reliant and free of emotional dependency on others. - Self-Actualisation - to strive to achieve personal goals and actualize one's potential.	E.g., Intrapersonal - Self-awareness and self-expression: - Content: introduction into self-regard, emotional self-awareness, assertiveness, independence, self-actualisation. - Activities: journaling of own emotions; role-play to express emotions; learning own strengths to be more self-sufficient, setting and visualizing personal goals	E.g., established measures for mixed model or other self-developed test that measure mixed model conceptualization of EI: EQ-i, I-CE, ECI, EQ Map, ESCI-U, Bradberry and Greaves' EI Questionnaire, Emotional Quotient Self-Score Questionnaire, ESCI-U, EIA, EI Self-Evaluation Scale

Note. See full versions of abbreviated measures in Appendix F

From a practical standpoint, misalignment not only hinders interpretability but may also affect program outcomes. If learners are assessed using tools that do not reflect what they practiced, they may appear to have made less progress than they actually did, or vice versa. From a research perspective, lack of alignment obscures our understanding of what works in EI training and for whom. Going forward, researchers should justify their choice of models, design content that reflects the targeted EI domains, and select outcome measures that are psychometrically sound and conceptually appropriate for the training goals. In cases where

broader psychological constructs are included, the theoretical relationship to EI should be explicitly explained. Only then can we begin to build cumulative evidence that allows for meaningful comparisons across studies and clearer insights into how to design effective EI interventions.

While our analysis of alignment between models, content, and measures offers a more integrated understanding of current EI training practices, several limitations of this review should be acknowledged to contextualize the findings and inform future research directions.

5.6 Limitations and Future Directions

The present systematic review has several limitations, which concern both the included primary studies and the scope of our synthesis. We first discuss three common limitations in primary studies, namely, inconsistent reporting, limited use of technology-enhanced interventions, and restricted cultural diversity. Then, broader design and contextual issues are addressed, such as reliance on self-report measures, the lack of subgroup analyses, the university context, and language bias.

5.6.1 Limitations in Primary Studies

A first set of limitations relates to the quality and reporting of primary studies. Inconsistent or incomplete reporting was common, which has also been mentioned by prior research syntheses (Hodzic et al., 2018; Kotsou et al., 2019). Several potentially eligible studies had to be excluded from our meta-analytic computations due to missing statistical data (e.g., standard deviations or sample sizes), unclear reporting of intervention procedures, or unavailability of post-test comparisons. This reflects a broader issue in educational and psychological intervention research, where incomplete reporting undermines reproducibility and evidence synthesis (Hedges & Olkin, 2014; Morris & DeShon, 2002). Future studies should follow established reporting guidelines and provide full statistical details, either within the article or as supplementary material. Pre-registration of studies and open access to protocols and data sets would further support transparency and allow future researchers to reanalyze or pool data for broader synthesis. Improved reporting and open science practices will be essential for strengthening the cumulative evidence base on EI interventions in higher education.

A further limitation related to primary studies is lack of technology-enhanced trainings in our sample. The included studies featured almost exclusively face-to-face training formats.

Technology-enhanced interventions were largely absent from the sample, with the exception of one study involving an online AR environment (Osadchyi, 2021). As such, the findings may not fully reflect the broader landscape of EI training, which increasingly includes digital and immersive formats. Recent research has documented promising developments in this area, including online platforms (Salcido-Cibrián et al., 2019), gamified modules (Navarro-Mateos et al., 2024), and virtual or augmented reality settings (Papoutsi et al., 2021). While VR-based EI trainings may involve higher costs, mobile applications offer a more accessible alternative. A recent dissertation using the Technology Acceptance Model found that post-secondary students had low awareness and limited motivation to use EQ apps, despite recognizing their potential value under certain conditions, such as aligning with personal interests or being integrated into university support services (Beamer, 2024). Although mobile apps have been reviewed in the context of supporting individuals with special needs (Papoutsi et al., 2018), similar reviews are lacking for the university student population. Future work should assess the availability, usability, and effectiveness of EQ apps tailored to this group.

Another limitation of this review is the lack of cultural diversity of the included studies. Out of 39 studies, 23 were conducted in Western countries, with 14 from the United States and the rest from Canada, the UK, and Europe. This may bias the findings by overlooking cultural nuances that are important when teaching and learning EI in different contexts. Previous research has shown that emotional norms, learning preferences, and understandings of EI vary substantially across cultures. Emotional expression, for instance, differs across sociocultural contexts: collectivist cultures such as Japan or China often emphasize emotional restraint to preserve group harmony, whereas individualist cultures like the United States encourage open expression and assertiveness (Hofstede, 2001; Matsumoto et al., 2008). Preferences for training formats also reflect cultural values, with participants from high power-distance cultures tending to respond more positively to structured, instructor-led formats, and those from low power-distance cultures preferring participatory and interactive approaches (Hofstede, 2001). Research also suggests that culturally adapted learning methods, such as localized case studies, role-play scenarios, and examples grounded in everyday emotional challenges, can support engagement and learning

Building on this, future research should explore how EI trainings can be more systematically adapted to cultural context, both in content and delivery. It would also be important to examine whether some training components, such as emotion recognition or regulation, apply more universally.

5.6.2 Limitations in Design and Scope

A further limitation is the widespread reliance on self-report measures in the studies reviewed. Self-report tools are vulnerable to biases such as social desirability and self-perception bias, that is, respondents may lack an accurate awareness of their own EI levels (Petrides, 2011). Moreover, increases in self-reported EI may reflect greater emotional self-awareness or social norms internalized during training, rather than genuine changes in ability or behavior. This measurement bias could either inflate or obscure the true effects of interventions. Future studies should therefore adopt multi-method assessment strategies, including performance-based instruments (e.g., MSCEIT), behavioral tasks, and other-rater assessments (e.g., peer, instructor, or supervisor ratings). Combining subjective and objective measures may offer a more valid and nuanced understanding of training impact (Herpertz et al., 2016). In particular, behavioral simulations or emotionally rich role-play scenarios assessed by trained observers could capture real-time use of EI skills under pressure – an approach more aligned with the construct’s applied nature (Osadchy, 2020).

In terms of scope, this review did not include subgroup analyses based on academic field, geographic location, training length, or instructional format. This was a deliberate decision, given our primary focus on the theoretical models, training content, and measurement strategies employed in interventions aimed at promoting EI. Nonetheless, we collected data on these contextual factors and presented the descriptive patterns in the relevant sections of this review. Future meta-analyses could build on this by examining whether certain configurations, such as short-term versus semester-long interventions, instructor-led versus peer-based formats, or humanities versus STEM student groups, moderate intervention outcomes. Prior research suggests that factors like training duration, delivery style, and educational setting can meaningfully influence learning gains (Hodzic et al., 2018; Mattingly & Kraiger, 2019; Schutte et al., 2013). Additionally, meta-analyses could explore whether interventions delivered in certain world regions or institutional types (e.g., community colleges vs. research universities) differ in effectiveness due to cultural, curricular, or infrastructural variables (Matsumoto et al., 2008).

The university context introduces additional complexity. Due to this context, there are numerous developmental and environmental variables that can influence emotional growth independently of EI interventions. University students are embedded in complex academic and social systems, often experiencing high levels of stress, identity exploration, and

interpersonal change (Schneider et al., 2013; Toriello et al., 2022). These background influences make it difficult to isolate intervention effects, particularly in the absence of rigorous experimental controls. Although some studies in our sample employed pre-post designs with control groups, few used randomized allocation or long-term follow-ups. Future research should therefore prioritize high-quality randomized controlled trials (RCTs), ideally with multiple follow-up assessments to evaluate both short- and long-term effects. Such designs can also assess the potential for delayed gains, which may emerge only after students have opportunities to apply EI skills in real-world settings (Kotsou et al., 2019). Additionally, including active control conditions, such as general personal development workshops, could help disentangle the specific contribution of EI-focused content.

Lastly, our review included only studies published in English, which introduces potential language and publication bias. This exclusion may have limited the cultural and geographical diversity of our sample and omitted valuable research from non-English-speaking regions. For example, several studies from Korean, Arabic, Mandarin, and Spanish-language contexts have explored culturally embedded approaches to emotional learning but were not included in our synthesis due to language constraints. These studies are particularly relevant given that emotional norms and training expectations differ significantly across cultures (Hofstede, 2001; Matsumoto et al., 2008; Moon, 2011). Future reviews could broaden their inclusion criteria by working with multilingual review teams or using translation tools to incorporate studies published in non-English languages. Doing so would support a more globally representative evidence base and reveal region-specific innovations in EI interventions.

While acknowledging these limitations for a more cautious interpretation of the results, the following section outlines key implications for educational practice and the design of future EI interventions.

5.7 Implications for Practice

The overall effect size found in this review was Hedges' $g = 0.23$. Although may be considered a small effect, several authors have cautioned against applying fixed benchmarks mechanically, particularly in education research, where even small effects can meaningfully influence student outcomes (Hedges, 2007; Hedges & Olkin, 2014; Kraft, 2020). Such effects should be interpreted in light of both costs and potential benefits. For the present dataset ($k = 39$, $N = 3542$), an average effect size of $g = 0.23$ suggests that 59.1% of the intervention group

would outperform the average control participant, and that approximately 14 students need to participate for one additional student to benefit in a way that would not have occurred without the training (Magnusson, 2023). Moreover, since the interventions included in this review were not exclusively focused on EI, the overall effect size may underestimate the potential impact of EI-specific trainings. Prior reviews have reported that EI-focused interventions tend to yield higher effects (Hodzic et al., 2018; Kotsou et al., 2019), suggesting that such targeted approaches may bring even greater gains in raising students' EI. These considerations suggest that even relatively low-cost EI interventions can make a practical difference, particularly when designed for broad implementation within higher education.

The findings of this review suggest several directions for improving the design and implementation of EI interventions in higher education. One clear implication is the need to develop and evaluate structured EI programs for first-year university students, as they constitute a vulnerable group at a peak of life transition in contrast to senior university students. A general training format could serve as an intervention across disciplines, especially if it ensures that what lies at the core of EI is actually taught, namely, the knowledge about EI (including awareness, perception, and understanding of emotions), as well as the ability to manage and regulate emotions effectively. Whichever theoretical model is used, researchers and practitioners need to ensure that these central elements are both addressed in the training and measured accordingly. Such alignment may be particularly valuable during the early phase of university studies, which is often marked by emotional and academic challenges.

Depending on context, it may also be useful to develop discipline-specific adaptations of the core program. For instance, future teachers may benefit from training that emphasizes emotion recognition in others, law students from managing emotionally charged interactions, and medical students from improving patient-related empathy and regulation. Senior university students may benefit from a program that prepares them to their future workplace and handling emotions and relationships in that new context. While these adjustments may enhance relevance, the structure of the program should remain grounded in a coherent model of EI to ensure conceptual consistency.

It may also be useful to align the theoretical model of EI with the developmental goals of the target population. For early university students, the ability model offers a logical sequence of skill acquisition and lends itself well to structured educational formats. In

contrast, for students in later stages of their studies or those preparing for professional roles, elements of mixed models may become more relevant, especially where the focus is on leadership, social effectiveness, or workplace functioning. Our review found that only a few studies adjusted their training content to student characteristics such as study year or field. Future research should investigate whether such tailoring contributes to higher engagement or stronger outcomes.

5.8 Implications for Theory

Several researchers have proposed integrating the fragmented field of EI by identifying core components that go beyond the traditional debate between ability, trait, and mixed models. Mikołajczak (2009) and Joseph and Newman (2010) argued for unified frameworks that emphasize underlying processes common across models. Across existing approaches, two key aspects consistently emerge: the recognition and understanding of emotions, and the regulation or management of emotional states. These two components, knowing emotions and working with emotions, are present in all major models of EI and form the foundation of most training interventions.

Our review supports this integrative view by highlighting these two components as essential targets for EI training, regardless of the theoretical model used. Goleman's mixed model distinguishes between self-awareness and self-management, as well as between social awareness and relationship management, covering emotional processes directed at both the self and others. The ability model by Mayer and Salovey includes four branches, which can be grouped into two broader domains. Experiential EI includes perceiving and using emotions, while strategic EI includes understanding and managing emotions. Despite differences in terminology, these models share a common structure that can guide training content and progression.

This structure is particularly relevant in educational contexts. Teaching emotion regulation in isolation may be less effective if learners have not first developed emotional awareness and understanding. The staged design of the ability model reflects this logic. One cannot regulate an emotion that one cannot identify or understand. This developmental sequence is also consistent with self-determination theory, which distinguishes between a motivated, controlled, and integrative forms of regulation (Ryan & Deci, 2000). Only the latter reflects conscious engagement with emotional experience. Training programs that follow this progression are more likely to support meaningful and lasting learning.

These points also relate to a broader issue in the field. Many interventions that report improvements in EI include components such as mindfulness, stress management, or reflective writing, but do not explicitly link these to EI theory. Although such programs may yield positive outcomes, the lack of theoretical grounding makes it difficult to compare results across studies and limits the cumulative development of the field. Rather than continuing to expand the scope of EI by loosely incorporating adjacent constructs, future research should examine how EI relates to overlapping concepts such as emotion regulation, emotional literacy, and SEL (Peña-Sarrionandia et al., 2015). Clarifying these relationships can help define what constitutes an EI intervention and improve consistency in both training design and outcome evaluation (Matsumoto et al., 2008; Moon, 2011).

To move the field forward, future studies should clearly specify which model underpins an intervention and how the content aligns with its components. Structured comparisons of model elements, such as those presented in Figure 8, may support more informed decisions about training design. At the same time, identifying which aspects of emotional learning are shared across models, such as emotion recognition, understanding, and regulation, can support the development of interventions that are both theoretically grounded and flexible enough to apply across populations and contexts.

One line of critique against emotional intelligence has focused on its status as a psychological construct, particularly its neurobiological validity. Waterhouse (2006) argued that, unlike well-established constructs such as working memory or attention, EI does not correspond to a clearly defined set of neural systems and therefore lacks the scientific rigor expected of cognitive constructs. However, recent neuroscientific findings provide increasing support for the idea that core components of emotional intelligence are grounded in identifiable neural mechanisms.

Several brain regions have been consistently associated with emotional functioning, including the amygdala, which is central to rapid emotional reactivity, and the anterior cingulate cortex, which plays a role in emotional awareness and conflict monitoring. Prefrontal cortical regions, such as the orbitofrontal cortex and dorsolateral prefrontal cortex, are involved in executive functions and the regulation of emotional responses (Fujita et al., 2024; Kelley et al., 2015; Langner et al., 2018; Malezieux et al., 2023). These regions support cognitive-emotional integration processes, particularly top-down regulation, whereby

prefrontal areas modulate subcortical emotional responses – for example, the inhibition of amygdala-driven reactions (Ochsner & Gross, 2005).

A widely studied mechanism in this context is cognitive reappraisal, where individuals reinterpret an emotionally salient situation, such as receiving negative feedback, to reduce its emotional intensity. This process directly reflects abilities often described in EI models, such as emotional understanding and regulation. Additionally, research on self-regulatory depletion shows that the capacity to manage emotional and behavioral responses is limited and can become temporarily exhausted, for instance, through sustained emotional suppression or impulse control (Langner et al., 2018). These capacities, however, are restorable, for example through sleep or positive affective experiences (Fujita et al., 2024).

While such evidence does not suggest that EI is a unitary neurocognitive construct with a single neural signature, it does provide a plausible neurobiological framework for many of its key components. The integration of affective and executive functions, as reflected in current neuroscience, supports the theoretical position that emotional intelligence draws on widely distributed but interacting brain systems. This aligns with views of EI as an umbrella construct composed of discrete but interrelated capacities, each of which can be studied empirically and potentially enhanced through training.

5.9 Conclusion

This systematic review and meta-analysis provide a comprehensive overview of interventions aimed at promoting EI among university students. By focusing on this specific population, our analysis offers a more targeted understanding of the structure, content, and theoretical underpinnings of existing EI training programs in higher education. The review makes several key contributions to the field.

First, the meta-analysis presents updated estimates of the overall impact of EI interventions for university students, and the accompanying moderator analyses in regards to model, content, and measure. Although the difference between moderators was insignificant, descriptively ability model, EI-specific content, and mixed measure showed higher effects. Second, we introduce a content typology that moves beyond the simple label of EI-specific versus non-EI-specific interventions. This typology offers researchers and practitioners a clearer tool for describing existing programs and for planning new ones. Third, we examined the alignment between the model, content, and measure within each intervention. We outlined

a preliminary alignment framework that can guide future work toward greater internal coherence across these elements and pave the way for future quality benchmark setting.

Taken together, these contributions aim to support the development of a more structured and theory-informed foundation for EI interventions in university contexts. While the field has grown substantially, our findings suggest that future research should place greater emphasis on theoretical clarity, model-measure-content alignment, and transparent reporting. In particular, we encourage the explicit articulation of which training elements are expected to support which specific EI dimensions, as well as the theoretical mechanisms through which these effects are assumed to occur.

More broadly, the present review can be seen as a stepping stone toward structuring a fragmented field. By offering a clearer overview of existing practices and identifying conceptual gaps, this review lays the groundwork for future efforts to establish quality standards and benchmarks in EI training. Such standards are essential not only for improving intervention design and evaluation but also for informing policy-level decisions about the integration of EI development into higher education.

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Appendix A Glossary of Terms

Emotional Awareness The ability to perceive and understand emotions in oneself and others. It involves levels ranging from bodily sensations and action tendencies to complex blends of emotions (Lane et al., 1990). In ability-EI models, emotional awareness constitutes the theoretical basis of the perception and understanding branches.

Emotional Regulation The ability to manage one's own emotional states and to influence others' emotional responses. It includes conscious and unconscious strategies to increase, maintain, or decrease emotional intensity (Gross, 2008). Emotional regulation is typically targeted in the final stages of EI training.

Emotional Competence Defined as “the demonstration of self-efficacy in emotion-eliciting social transactions” (Saarni, 1999, p.3). While overlapping with EI in its focus on emotion-related skills, it additionally emphasizes personal context, including moral development and socialization history. Emotional competence lacks a unifying theoretical model and is used more sporadically in empirical research (Pérez-González et al., 2020).

Emotional Literacy A construct involving recognition of emotions in oneself and others, paired with socially appropriate emotional responses (Bocchino, 1999; Steiner, 1984). Often used in educational contexts, emotional literacy overlaps with emotional awareness and regulation but emphasizes social communication and appropriateness.

Emotional Quotient (EQ) EQ refers to a specific score derived from an assessment tool, and should not be confused with the construct of emotional intelligence itself. It is analogous to IQ as a score derived from intelligence testing. Emotional intelligence is the broader theoretical construct, while EQ represents one operationalization of it (Bar-On, 1997).

Emotional Plasticity A concept grounded in the idea of neuroplasticity, emphasizing that emotional responses are malleable and can be modified through learning or experience. It highlights the capacity of individuals to form new emotional habits or response patterns (Faucher & Tappolet, 2008; Majeed, 2022).

Social and Emotional Learning (SEL) SEL refers to structured educational programs aimed at developing social and emotional competencies in children and adolescents. Although often encompassing EI-relevant skills, SEL initiatives typically focus on school-based settings and combine social, emotional, and sometimes ethical education (Brackett & Rivers, 2014).

Appendix B Overview of Models

Table 1

Ability Model (Mayer & Salovey, 1997)

Branch	Types of Reasoning
1. Perceiving Emotion	- Identify deceptive or dishonest emotional expressions - Discriminate accurate vs. inaccurate emotional expressions - Understand how emotions are displayed depending on context and culture - Express emotions accurately when desired - Perceive emotional content in the environment, visual arts, and music - Perceive emotions in other people through their vocal cues, facial expression, language, and behavior - Identify emotions in one's own physical states, feelings, and thoughts
2. Facilitating Thought Using Emotion	- Select problems based on how one's ongoing emotional state might facilitate cognition - Leverage mood swings to generate different cognitive perspectives - Prioritize thinking by directing attention according to present feeling - Generate emotions as a means to relate to experiences of another person - Generate emotions as an aid to judgment and memory
3. Understanding Emotions	- Recognize cultural differences in the evaluation of emotions - Understand how a person might feel in the future or under certain conditions (affective forecasting) - Recognize likely transitions among emotions such as from anger to satisfaction - Understand complex and mixed emotions - Differentiate between moods and emotions - Appraise the situations that are likely to elicit emotions - Determine the antecedents, meanings, and consequences of emotions - Label emotions and recognize relations among them
4. Managing Emotions	- Effectively manage others' emotions to achieve a desired outcome - Effectively manage one's own emotions to achieve a desired outcome - Evaluate strategies to maintain, reduce, or intensify an emotional response - Monitor emotional reactions to determine their reasonableness - Engage with emotions if they are helpful; disengage if not - Stay open to pleasant and unpleasant feelings, as needed, and to the information they convey

Table 2*Trait Model (Petrides, 2010)*

Factors	Facets
Emotionality	Emotion perception Trait empathy Emotion expression Relationships
Self-control	Emotion regulation Stress management Impulsiveness (low) Adaptability Self-motivation
Sociability	Assertiveness Emotion management Social awareness Self-esteem
Well-being	Trait happiness Trait optimism

Table 3*Bar-On Mixed Model (Bar-On, 2007)*

Composite Scales	Subscales
Intrapersonal	Self-respect Awareness of one's emotions Assertiveness Independence Tenacity
Interpersonal	Empathy Social responsibility Interpersonal responsibility
Adaptability	Reality testing Flexibility Problem solving
Stress Management	Stress tolerance Impulsivity control
General Mood	Optimism Happiness

Table 4*Goleman's Model*

Domains	Competencies
Self-Awareness	Emotional Self-awareness
Self-Management	Emotional Self-control Adaptability Achievement Orientation Positive Outlook
Social Awareness	Empathy Organizational awareness
Relationship Management	Influence Coach and Mentor Conflict Management Teamwork Inspiration Leadership

Appendix C Search Syntax

ERIC (TI, AB, DE - descriptors), PsychInfo and Educational Source (TI, AB, KW)

(emotion AND intelligen*) OR (emotional* intelligen* OR SEL OR CASEL OR social emotional learning)

AND

(intervention* OR training* OR program* OR instruction OR approach* OR session* OR teach* OR learn* OR educat* OR tutor* OR curricul* OR skill* develop* OR pedagogy OR coach* OR academic support)

AND

(student* OR intern* OR college OR university OR tertiary education OR higher education OR postsecondary education OR prospective teacher* OR preservice teacher* OR trainee teacher* OR trainee solicitor* OR seminarian*)

AND

(experiment* OR quasi experiment* OR control group* OR intervention group* OR experimental group* OR pretest OR posttest OR random* OR between-subject OR within-subject OR repeated measures OR matched group* OR experiment controls OR improv* OR effectiv*)

NOT

(infant* OR children OR adolescen* OR primary school OR primary school student* OR primary education OR elementary school OR elementary education OR elementary student* OR secondary school OR secondary school student* OR high school OR high school student* OR K-12 OR P-12)

Web of science

((TS=("emotion*") AND TS=("intelligen*")) OR

(TS=("emotional* intelligen*")) OR TS=("SEL") OR TS=("CASEL") OR TS=("social emotional learning"))

AND

(TS=(intervention*) OR TS=(training*) OR TS=(program*) OR TS=(instruction) OR TS=(approach*) OR TS=(session*) OR TS=(teach*) OR TS=(learn*) OR TS=(educat*) OR TS=(tutor*) OR TS=(curricul*) OR TS=("skill* develop*") OR TS=(pedagogy) OR TS=(coach*) OR TS=("academic support"))

AND

(TS=(student*) OR TS=(intern*) OR TS=(college) OR TS=(university) OR TS=("tertiary education") OR TS=("higher education") OR TS=("postsecondary education") OR TS=("prospective teachers") OR TS=("preservice teacher*") OR TS=("trainee teacher*") OR TS=("trainee solicitor*") OR TS=("seminarian*"))

AND

(TS=(experiment*) OR TS=("quasi experiment*") OR TS=("control group*") OR TS=("intervention

group*") OR TS=("experimental group*") OR TS=(pretest) OR TS=(posttest) OR TS=(random*)
OR TS=("between-subject") OR TS=("within-subject") OR TS=("repeated measures") OR
TS=("matched group*") OR TS=("experiment controls") OR TS=(improv*) OR TS=(effectiv*)

NOT

(TS=("infant*") OR TS=("children") OR TS=("adolescen*") OR TS=("primary school") OR
TS=("primary school student*") OR TS=("primary education") OR TS=("elementary school") OR
TS=("elementary education") OR TS=("elementary student*") OR TS=("secondary school") OR
TS=("secondary school student*") OR TS=("high school") OR TS=("high school student*") OR
TS=("K-12") OR TS=("P-12"))

Scopus

((TITLE-ABS-KEY ({emotion AND intelligence} OR {emotionally intelligent} OR {emotional
intelligence} OR {SEL} OR {CASEL} OR {social emotional learning})))

AND (TITLE-ABS-KEY ({intervention} OR {training} OR {program} OR {instruction} OR
{instructional} OR {approach} OR {session} OR {teach} OR {teaching} OR {learn} OR {learning}
OR {education} OR {educational} OR {tutor} OR {tutoring} OR {curriculum} OR {skill
development} OR {skills development} OR {pedagogy} OR {coaching} OR {academic support})))

AND (TITLE-ABS-KEY ({student} OR {students} OR {intern} OR {interns} OR {university} OR
{college} OR {trainee teacher} OR {trainee teachers} OR {prospective teachers} OR {prospective
teacher} OR {preservice teacher} OR {preservice teachers} OR {trainee solicitor} OR {trainee
solicitors} OR {seminarian} OR {seminarians} OR {tertiary education} OR {higher education} OR
{postsecondary education}))

AND (TITLE-ABS-KEY ({experiment} OR {quasi experiment} OR {control group} OR
{intervention group} OR {experimental group} OR {pretest} OR {posttest} OR {random} OR
{between-subject} OR {within-subject} OR {between subject} OR {within subject} OR {repeated
measures} OR {matched groups} OR {experiment controls} OR {improvement} OR
{improving} OR {effective})))

AND NOT (TITLE-ABS-KEY ({infant} OR {infants} OR {children} OR {adolescent} OR {primary
school} OR {primary school student} OR {primary school students} OR {primary education} OR
{elementary school} OR {elementary education} OR {elementary student} OR {secondary school}
OR {secondary school student} OR {secondary school students} OR {high school} OR {high school
student} OR {high school students} OR {K-12} OR {P-12})))

Appendix D Fine Coding Manual

Control Variables

contr_year

Write the year within the degree of study: e.g., Bachelor year 2, or master's year 1

- Undergraduate
- Graduate
- Other (special degree like pastoral studies that do not have bachelor or master level specified, then write what kind of degree and year according to the paper)

contr_gender

- Homogenous sample (only one gender)
- Heterogeneous sample (mixture of genders)

contr_major

e.g. nursing, accounting, teaching, etc.

contr_trainlength

Number of hours, weeks, etc. (as specified in the paper, as specific as possible)

contr_country

The country in which training took place

contr_publyear

The year of publication

contr_publtype

- Peer-reviewed (published in a journal that has peer-review procedure)
- Grey (thesis, conference paper)

Please note, that the Code book should optimally align with the Coding sheet. In the Coding sheet, the variable "follow_up" would be next.

Descriptives

follow_up – if there was a follow-up, after which period of time was the follow-up (enter the time frame as stated in the paper). If no follow-up was conducted, leave blank.

name_scale - name of the scale

The name of the measurement used

outcome_other – other outcome than options under outcome_var (dimensions of trait or mixed model, such as “clarity”, “repair”, “adaptability”, etc.)

kind_scale - kind of scale

- Existing
- Developed by the author

follow_up – if there was a follow-up, after which period of time was the follow-up (enter the time frame as stated in the paper). If no follow-up was conducted, leave blank.

outcome_var - outcome variable

- Overall EI – ability
- Overall EI – trait
- Overall EI – mixed
- Perceiving/recognizing emotions
- Understanding emotions
- Managing/regulating emotions
- Using emotions
- Other, specify in the column “outcome_other” (trait or mixed, such as “clarity”, “repair”, “adaptability”, etc.

More notes on outcome variables:

- We focus only on the measures of Emotional Intelligence interested. We are interested in overall EI measure for all models, especially and only in overall EI for trait and mixed models (we do not consider measures for specific dimensions, such as stress management or well-being)
- Emotional Quotient – another term for EI (mixed model)
- We also focus on one of the dimensions only of the ability model, i.e., Perceiving/recognizing emotions, Understanding emotions, Managing/regulating emotions, Using emotions to facilitate thought.

CG_content - content of control group

e.g. no training, traditional training, other specific training

Statistics

CG_pre_ES - effect size for control group from pretest to posttest (specify the metric, e.g. Cohen's d, Hedges' g)

numeric value

EG_pre_ES - effect size for experimental group from pretest to posttest (specify the metric, e.g. Cohen's d, Hedges' g)

numeric value

CG_pre_mean - control group mean of the EI at the pretest. (overall EI value or each dimension on a new line)

numeric value

EG_pre_mean - experimental group mean of the EI at the pretest. (overall EI value or each dimension on a new line)

numeric value

CG_pre_SD - standard deviation of EI measurement result for control group at pretest (overall EI value or each dimension on a new line)

numeric value

EG_pre_SD - standard deviation of EI measurement result for experimental group at pretest (overall EI value or each dimension on a new line)

numeric value

CG_pre_f - f-statistic for control group from pretest to posttest

numeric value

EG_pre_f - f-statistic for experimental group from pretest to posttest

numeric value

CG_pre_t - t-test result for control group from pretest to posttest

numeric value

EG_pre_t - t-test result for experimental group from pretest to posttest

numeric value

CG_pre_N - sample size of control group at pretest

numeric value

EG_pre_N - sample size of control experimental group at pretest

numeric value

CG_post_ES - effect size for control group from pretest to posttest (specify the metric, e.g. Cohen's d, Hedges' g)

numeric value

EG_post_ES - effect size for experimental group from pretest to posttest (specify the metric, e.g. Cohen's d, Hedges' g)

numeric value

CG_post_mean - control group mean of the EI at posttest

numeric value

EG_post_mean - experimental group mean of the EI at posttest

numeric value

CG_post_SD - standard deviation of EI measurement result for control group at posttest

numeric value

EG_post_SD - standard deviation of EI measurement result for experimental group at posttest

numeric value

CG_post_f - f-statistic for control group from pretest to posttest

numeric value

EG_post_f - f-statistic for experimental group from pretest to posttest

numeric value

CG_post_t - t-test result for control group from pretest to posttest

numeric value

EG_post_t - t-test result for experimental group from pretest to posttest

numeric value

CG_post_N - sample size of control group at posttest

numeric value

EG_post_N - sample size of control experimental group at posttest

numeric value

CG_r - correlation coefficient r for control group (if reported)

numeric value

EG_r - correlation coefficient r for experimental group (if reported)

numeric value

If any of the statistics is unavailable, put n/a

Quality Variables

qual_descr - Well-described intervention

1 - described (content of the training units, length)

0 - not described (only the name of the intervention)

qual_reliab - Reliability of the outcome measure

the reliability score

qual_assign - Assignment to conditions

1 - non-random

0 - random

qual_contr - Control group

1 - no

0 - yes

qual_baseline - Baseline equivalence (if there is a control group)

- If the required statistics is specified, then calculated according to the following formula from WWC:
- If not specified, trying to request statistics from the authors
- If still not accessible, set value to n/a

Training Characteristics

train_model - Model, upon which the training intervention is based.

The respective model or the author should be explicitly stated or clear from the model described.

0 - ability*

1 - trait**

2 - mixed***

3 - combination

Combination of two or more models - ability, trait and mixed

4 - other

Training was not based on one of the above mentioned models, but there is another explicitly stated model it is based on. Choose other also for trainings that are non-EI, non-psy, as there is no EI element there.

Notes:

- If the model was not stated explicitly as in “this training is based on the mixed model”, however either the corresponding authors are named (Goleman, Bar-On for Mixed, Petrides for Trait and Mayer Salovey for ability), or it is possible to recognize the model according to the dimensions (self-awareness, self-management, social awareness, relationship management point to the mixed model, also see the models for more info).
- If we see a mixture from several models, i.e. self-awareness, understanding emotions, regulating emotions and relationship management – this points to the code 3 - *combination* of models, since we can recognize dimensions of both mixed and ability models.
- If the dimensions are for the most part unrecognizable and include other concepts than any of the models, then code it as 4 - *other*

train_measure - Measure used in measuring EI outcome

0 - ability*

1 - trait**

2 - mixed ***

3 - combination

4 - other

5 - not stated/articulated

If several measures are used, enter it in a new row.

train_units - Training Units

0 - EI-specific

1 - Non-EI, edu (e.g. mindfulness, what is mature love, etc.)

2 - Non EI, non-edu (e.g. yoga)

3 - EI + edu (part is EI and part related psychological concepts)

Short description of the training unit **EI specific**, **edu concepts**, **non-EI non-psy**, **activities and format** – mark the topics or words from the article in corresponding color.

- **EI specific** – mark the words that make it clear that there is EI specific content – it can be names of the model (mixed, ability, trait), names of the authors of those models or the dimensions of each model. Also words like “emotional intelligence” or “emotional quotient” if it is part of content can be marked to this category
- **edu concepts** – mark the words that fall under the category of other concepts that are not EI, but are still in psychological, cognitive, educational domain. Examples can include management course, stress resilience, etc.
- **non-EI non-psy** – mark the words that do not correspond to either of the above categories and constitute normally various kinds of physical activity and other non-cognitive techniques, such as deep breathing or relaxation.
- **activities and format** – mark the words denoting the activities used during the training, such as case studies, videos, discussions, etc. If mentioned, if the training was online or in person.

*- **Ability model** as conceptualized by Mayer-Salovey

4 dimensions or branches:

- recognizing or perceiving emotions,
- using emotions to facilitate thought (sometimes called using emotions, or facilitating thought/action)
- understanding emotions
- managing or regulating emotions

** - **Trait model**

Trait EI described by Petrides (2009) features four factors with the following facets:

- emotionality (emotion perception, trait empathy, emotion expression, relationships),
- self-control (emotion regulation, stress management, impulsiveness (low), adaptability, self-motivation),
- sociability (assertiveness, emotion management, social awareness, self-esteem), and
- well-being (trait happiness, trait optimism).

Alternative model by Salovey et al.:

- Attention
- Clarity
- Repair

***-Mixed Models

Bar-On model (Bar-On 2007) features five parts with the subcategories specified in brackets:

- intrapersonal (self-respect, awareness of one's emotions, assertiveness, independence, tenacity),
- intrapersonal (empathy, social responsibility, intrapersonal responsibility),
- adaptability (reality testing, flexibility, problem solving),
- stress management (stress tolerance, impulsivity control),
- general mood (optimism, happiness).

Goleman model

- self-awareness (emotional self-awareness)
- self-management (emotional self-control, adaptability, achievement orientation, positive outlook)
- social awareness (empathy, organizational awareness)
- relationship management (influence, coach and mentor, conflict management, teamwork, inspiration leadership)

Appendix E Measures of EI according to Underlying Model and Type

Underlying Model	Instrument	Type
Ability	Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT)	Performance test
	Schutte Self-Reported Emotional Intelligence Test (SSEIT)	Self-report
	Emotional Intelligence Self-Description Inventory (EISDI)	Self-report
	Assessing Emotions Scale (AES) or the Emotional Intelligence Scale	Self-report
	Wong and Law's Emotional Intelligence Scale (WLEIS)*	Self-report
	Questionnaire "EmIn"*	Self-report
Trait	Trait-Meta Mood Scale (TMMS)	Self-report
	Trait Emotional Intelligence Questionnaire (TEIQue) known as TEIQue-SF	Self-report
	Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF)	Self-report
	Interpersonal Emotional Quotient Inventory (INTE)	Self-report
Mixed	The Emotional Quotient Inventory (EQ-i)	Self-report
	Bar-On Emotional Intelligence Inventory (I-CE)	Self-report
	The Emotional Competency Inventory (ECI)	Other-rater
	The EQ Map	Self-report
	The Emotional and Social Competency Inventory-University Edition (ESCI-U)	Self-report
	Bradberry and Greaves' standard emotional intelligence questionnaire	Self-report
	Emotional Quotient Self-Score Questionnaire	Self-report
	Emotional Social Competence Inventory (ESCI-U)	Self-report
	Emotional Intelligence Appraisal (EIA)	Self-report
	Emotional Intelligence Self-Evaluation Scale	Self-report

Appendix F Sample Coding for Models, Content, Measures and Alignment

Study	Short description of the training unit: EI-specific, edu concepts, activities and format, non-EI non-psy	EI Model	EI Measure	Training Units
Herpertz et al. (2016)	The emotion perception intervention focused on training the ability to perceive emotions in others. During the 1-day training program participants were familiarized with the specific features of basic and complex emotions. The intervention consisted of three modules. During the first module, participants were made aware of the relevance of EI in daily life with a focus on emotion perception in the workplace. In addition, participants were introduced to the four-branch model of EI (perceiving, using, understanding, and regulating emotions) ; Mayer & Salovey, 1997). The goal of the second module was to increase the ability to perceive emotions in others. Accordingly, we trained emotion perception in terms of facial expressions, body language, and voice . In the third module, mirrors were used to help participants see how they expressed various emotions. We also conducted role playing exercises. Participants were told to imagine taking part in group project meeting. Based on standardized instructions, each individual played a different role in a project team (e.g., an angry developer) process was videotaped. Subsequently, the participants watched and discussed the various features of emotion expressions in the process of the discussion with a focus on each individual.	Ability	Ability	0 - EI-specific
Cotler et al. (2019)	Integrated directly into the curriculum for this full-year course were experiential emotional intelligence interventions using the RESET model (Recognizing and regulating Emotions through Social and Emotional Teambased learning supported with mindfulness), (Cotler, 2016; Cotler, et al, 2017). Based on the RESET model, mindfulness was integrated directly into the start of class and was followed up with an assignment for individual practice outside of class . EI and mindfulness components within a computer software engineering class. In the beginning of the semester every student took the Myers-Briggs Type Indicator, an EQi 2.0 assessment and had a meeting to discuss our individual results with our instructor. I used this experience to self reflect, understand other personality types and learn how to design considerate software. Throughout the course we were taught how to build empathy with target users to understand their specific needs and goals. We were also taught how to design for different personality types and even users with disabilities. Along with improving my emotional intelligence, I also practiced mindfulness. At the beginning of almost every class in HCI we spent a couple minutes doing a reset meditation where our instructor would guide us to concentrate on an anchor, sometimes our breath or sometimes an outside noise.	Other	Mixed	3 - EI + psy
Schwartz & Belknap (2017)	Day of canoeing and a day of short hikes in nearby state parks . Primarily a ropes-coursebased program . Also includes a day of canoeing and a day of short hikes in nearby state parks. Explore 8	Other	Other	2 - non-EI non-edu

Days Fairly intensive travel-based program. Includes rock climbing, wilderness backpacking, day hikes, white-water rafting.

Loh et al. (2022)	Brief mindfulness-based intervention (b-MBI) is structured into four themes: (a) paying attention in the present-moment experiences; (b) adopting beginner's mind which is the child-like curiosity in observing the experiences; (c) developing non-judgemental awareness and acceptance of negative thoughts; as well as (d) experiencing gratitude, self-compassion and loving-kindness.	Other	Other	1 - non-EI edu (related terms)
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Appendix G Overview of the Included Studies

ID	Author, Year	Country	Participants (study major)	EI Model	EI Measure	EI Measure (name)	EI content	Training Description	<i>n</i> , EG	<i>n</i> , CG
1	Chandrapal et al. (2022)	USA	Medicine	Not stated	Ability, Mixed	MSCEIT, EQ-i, ECI	Emotional Intelligence and Psychological focus	Mindfulness and EI skills	21	n/a
2	Chang (2007)	USA	Psychology	Combination	Mixed	EQ-i, ECI	Emotional Intelligence and Psychological focus	Self-modification techniques and EI	101	118
3	Clark et al. (2003)	USA	Mixed	Other	Mixed	Selected scales from Cooper's Executive EQ Map	Psychological (related terms)	Management course	123	115
4	Corwin (2015)	USA	Acting	Other	Ability	MSCEIT	non-Emotional Intelligence and non-Psychological	Acting class	28	37

5	Cotler et al. (2019)	USA	Software engineering	Other	Mixed	EQ-i 2.0	Emotional Intelligence and Psychological focus	Recognizing and regulating emotions, mindfulness	37	n/a
6	Cuji Chacha et al. (2019)	Ecuador	Psychology	Ability	Trait, Ability	TMMS, self-developed performance test	Emotional Intelligence and Psychological focus	Thinking profiles, perception of emotions	40	n/a
7	da Costa et al. (2021)	Portugal	Economics and management	Mixed	Mixed	Scale of overall EI	Emotional Intelligence and Psychological focus	Employment strategy, negotiation, wellbeing, performance; EI	89	76
8	Davis (2013)	USA	Private Christian university, economics class	Mixed	Mixed	EQ-i	Emotional Intelligence Specific	EI discussed holistically	35	30
9	Deveci and Nunn (2016)	UAE	Engineering	Other	Ability	SSEIT	Psychological (related terms)	Communication course	100	n/a

10	Ebrahimi and Khoshsima (2015)	Iran	Economics	Mixed	Mixed	EQ-i (Persian version)	Emotional Intelligence Specific	Emotional Quotient	21	18
11	Enríquez et al. (2017)	Spain	Social studies	Other	Other	CERQ	Psychological (related terms)	Mindfulness Exercises	72	64
12	Faralli (2009)	USA	Nursing	Mixed	Mixed	ESCI-U	Emotional Intelligence Specific	Emotional intelligence	17	9
13	Gaudet (2011)	Canada	Pharmacy	Ability	Ability	MSCEIT	Emotional Intelligence Specific	EI, perceive and interpret emotional cues	75	77
14	Gessler et al. (2021)	Germany	Business administration and management	Ability	Ability	German versions of: MSCEIT, ERP-R, SREIS, ERQ	Emotional Intelligence Specific	Perceiving and regulating emotions	61	62
15	Goudarzian et al. (2019)	Iran	Nursing	Mixed	Mixed	Bradberry & Greaves EI Questionnaire	Emotional Intelligence and Psychological focus	Self-care behaviors, spiritual dimension, EI	30	30

16	Guan and Gong (2014)	China	Science and technology students	Other	Not Stated	EQ Test Standard Scale	non-Emotional Intelligence and non-Psychological	Sports dancing	40	n/a
17	Herpertz et al. (2016)	Germany	Business administration and management	Ability	Ability	MSCEIT (German version)	Emotional Intelligence Specific	Emotion perception	45	42
18	Jaeger (2002)	USA	Public administration	Mixed	Mixed	EQ-i	Emotional Intelligence Specific	Emotional intelligence	31	119
19	Jankowski et al. (2008)	UK	Clinical pastoral education	Other	Ability	SSEIT	Psychological (related terms)	Clinical pastoral education	144	n/a
20	Jimenez-Rodriguez et al. (2022)	Spain	Nursing	Other	Trait	TMMS-24	Emotional Intelligence and Psychological focus	Emotion management and resilience	60	n/a
21	Joshith (2012)	India	Teaching	Mixed	Mixed	EI Test for Prospective Teachers	Emotional Intelligence Specific	Emotional Intelligence Based Instructional Package	25	25

22	Karahan and Yalcin (2009)	Turkey	Mixed	Combination	Mixed	EI Self-Evaluation Scale (Turkish)	Emotional Intelligence and Psychological focus	Emotional Intelligence Skills Training Program	20	20
23	Walker (2019)	USA	Mixed	Other	Ability	AES	Psychological (related terms)	Expressive writing	15	22
24	Vesely et al. (2014)	Canada	Teaching	Combination	Trait	TEIQue-SF	Emotional Intelligence Specific	Emotional Intelligence training program	23	26
25	Teskereci et al. (2020)	Turkey	Nursing	Other	Mixed	EI Evaluation Scale	Psychological (related terms)	Human Caring Theory, Caring behaviors	37	36
26	Szeles (2015)	USA	Nursing	Ability	Ability	MSCEIT v2	Emotional Intelligence and Psychological focus	Peer coaching on Emotional intelligence	9	n/a
27	Sultan et al. (2020)	Pakistan	Biology	Other	Mixed	EQ Self Score Questionnaire	Psychological (related terms)	Stress management	46	50

28	Skuka (2015)	USA	Allied health programs	Other	Ability	MSCEIT v2	Psychological (related terms)	Mindfulness training	75	n/a
29	Shahid et al. (2018)	USA	Pediatrics and med-ped	Mixed	Mixed, Trait	EQ-i 2.0, TEIQue-SF	Emotional Intelligence Specific	Emotional intelligence training	31	n/a
30	Shahbazi et al. (2018)	Iran	Nursing	Other	Mixed	EQ-i	Psychological (related terms)	Problem-solving skill training	20	23
31	Seow et al. (2022)	Malaysia	Health professions	Not stated	Ability	WLEIS	Emotional Intelligence and Psychological focus	Transactional analysis and Emotional intelligence	17	17
32	Sellakumar (2017)	India	Paramedical	Other	Mixed	EQ-i	non-Emotional Intelligence and non-Psychological	Slow deep breathing and muscle relaxation	50	50
33	Schwartz and Belknap (2017)	USA	Mixed	Other	Trait	TEIQue-SF	non-Emotional Intelligence and non-Psychological	Outdoor orientation program (canoeing and hikes)	317	n/a

35	Sánchez-Núñez et al. (2015)	USA	Teaching	Other	Trait	MSCEIT v2	Psychological (related terms)	Leadership development program	32	n/a
36	Raut and Gupta (2019)	India	Medicine	Mixed	Other	Data collection tool for medical students (India)	Emotional Intelligence Specific	Emotional intelligence through reflection and peer feedback	94	n/a
37	Polonio-Lopez et al. (2019)	Spain	Occupational therapy	Other	Trait	TMMS-24	non-Emotional Intelligence and non-Psychological	Direct clinical practice	156	n/a
38	McEnrue et al. (2009)	USA	Business administration students	Ability	Ability	EISDI	Emotional Intelligence Specific	Leadership development program with focus on Emotional intelligence	75	60
39	Osadchyi et al. (2021)	Ukraine	Future psychologists and social workers	Ability	Ability	EmIn	Emotional Intelligence Specific	Emotional intelligence Training	30	30

40	Mohamed et al. (2022)	Malaysia	Not stated	Other	Trait	TEIQue-SF	Emotional Intelligence and Psychological focus	Self esteem, accepting differences, EI	40	40
41	Mohamadiri zi et al. (2015)	Iran	Midwifery nursing	Other	Mixed	EQ-43Q	Psychological (related terms)	Pregnancy and child birth apprenticeship courses	15	15
42	McGinnis (2018)	USA	Music education	Mixed	Mixed	EIA	Emotional Intelligence and Psychological focus	Personality, understanding of own journey and values, EI	10	n/a
43	Dev et al. (2021)	United Arab Emirates	Not stated	Mixed	Mixed	EQ-i	Emotional Intelligence Specific	Emotional intelligence course	105	105
44	Kim and Gyeong (2021)	Korea	Maternal nursing	Other	Ability	WLEIS	Psychological (related terms)	Maternal nursing competency reinforcement program	28	33

45	Sisman and Buzlu (2022)	Turkey	Nursing	Other	Other	LEAS	Emotional Intelligence Specific	Emotion-focused training program	40	40
46	Luy-Montejo (2019)	Peru	Business administration	Other	Mixed	EQ-i (I-CE)	Psychological (related terms)	Problem based learning	22	22
47	Loh et al. (2022)	Malaysia	Medical	Other	Trait	USMEQ-i	Psychological (related terms)	Mindfulness-based intervention	30	29
48	Kuk et al. (2015)	Poland	Future teachers of physical education	Other	Not Stated	INTE	Psychological (related terms)	Logical workshop	31	28
49	Köppe et al. (2019)	Germany	Business administration and management	Ability	Ability	MSCEIT (German version)	Emotional Intelligence Specific	Web-based emotional intelligence training	59	75

Note. MSCEIT: Mayer-Salovey-Caruso Emotional Intelligence Test; EQ-i: Emotional Quotient Inventory; ECI: Emotional Competence Inventory; TMMS: Trait Meta-Mood Scale; SSEIT: Schutte Self-Report Emotional Intelligence Test; CERQ: Cognitive Emotion Regulation Questionnaire; ESCI-U: Emotional and Social Competence Inventory - University Edition; ERP-R: Emotion Regulation Profile – Revised; SREIS: Self-Report Emotional Intelligence Scale; ERQ: Emotion Regulation Questionnaire; AES: Assessing Emotions Scale; TEIQue-SF: Trait Emotional Intelligence Questionnaire - Short Form; WLEIS: Wong and Law Emotional Intelligence Scale; TMMS-24: Trait Meta-Mood Scale - 24 Items; EISDI: Emotional Intelligence Self-Description Inventory; EmIn: Emotional Intelligence Inventory; EQ-43Q: Emotional Quotient - 43 Questions; EIA: Emotional Intelligence Appraisal; LEAS: Levels of Emotional Awareness Scale; INTE: Interpersonal Emotional Quotient Inventory; USMEQ-i: University Students' Emotional Quotient Inventory.

Appendix H Moderator Analysis

Meta-Regression Results for Training Model (Before Outlier Removal)

Training Model	<i>k</i>	<i>n</i>	<i>g</i>	<i>SE</i>	<i>df</i>	<i>p</i>	95% <i>CI</i>	<i>Q</i>
Mixed (<i>Reference</i>)	21	8	0.8596	0.5793	6.57	0.1842	[−0.5288, 2.2480]	464.36
Ability	16	6	0.2372	0.5891	11.08	0.3132	[−1.9177, 0.6730]	
Combination	14	3	1.3931	1.4053	3	0.7295	[−3.9371, 5.0040]	
Other	26	15	0.2142	0.5831	13.13	0.2883	[−1.9038, 0.6131]	
Not stated/ articulated	14	7	0.735	0.6172	12.48	0.8432	[−1.4637, 1.2145]	

Note. Overall Moderator Test: $F(4, 8.25) = 1.3478, p = 0.3305$

Meta-Regression Results for Training Model (After Outlier Removal)

Training Model	<i>k</i>	<i>n</i>	<i>g</i>	<i>SE</i>	<i>df</i>	<i>p</i>	<i>95% CI</i>	<i>Q</i>
Mixed (Reference)	19	6	0.0642	0.1526	4.63	0.693	[−0.3379, 0.4662]	305.94
Ability	16	6	0.2346	0.1874	9.48	0.3859	[−0.2503, 0.5911]	
Combination	13	2	0.2964	0.2245	1.87	0.4157	[−0.7985, 1.2630]	
Other	26	15	0.1618	0.1661	8.79	0.5716	[−0.2795, 0.4747]	
Not stated/ articulated	12	6	0.4631	0.1807	8.84	0.0552	[−0.0110, 0.8088]	

Note. Overall Moderator Test: $F(4, 4.44) = 1.2226, p = 0.4162$

Meta-Regression Results for Content Type – EI-specific Training as Reference (Before Outlier Removal)

Content Type	<i>k</i>	<i>n</i>	<i>g</i>	<i>SE</i>	<i>95% CI</i>	<i>df</i>	<i>p</i>
Emotion Intelligence Specific Trainings - Reference	35	13	0.4953	0.1993	[0.0602, 0.9304]	11.76	0.029
Psychological (Related Terms) Training	20	12	−0.1884	0.2136	[−0.6323, 0.2554]	21.28	0.3875
Non-Emotional Intelligence and Non- Psychological Training	6	3	−0.4601	0.285	[−1.3597, 0.4396]	3.04	0.2036
Emotional Intelligence and Psychological foci	30	11	0.4250	0.4895	[−0.5961, 1.4462]	19.96	0.3955

Note. Overall Moderator Test: $F(3, 8.67) = 1.23, p = 0.3558$

Meta-Regression Results for Content Type – EI and Psychological Foci as Reference (Before Outlier Removal)

Content Type	<i>k</i>	<i>n</i>	<i>g</i>	<i>SE</i>	<i>95% CI</i>	<i>df</i>	<i>p</i>
Emotional Intelligence and Psychological foci - Reference	30	11	0.9203	0.4471	[-0.0849, 1.9256]	9.38	0.0684
Emotion Intelligence Specific Trainings	35	13	-0.4250	0.4895	[-1.4462, 0.5961]	19.96	0.3955
Psychological (Related Terms) Training	20	12	-0.6135	0.4537	[-1.5622, 0.3353]	19.24	0.192
Non-Emotional Intelligence and Non-Psychological Training	6	3	-0.8851	0.4914	[-2.3571, 0.5869]	3.37	0.1594

Note. Overall Moderator Test: $F(3, 8.67) = 1.23, p = 0.3558$

Meta-Regression Results for Content Type – Psychological (Related Terms) Training as Reference (Before Outlier Removal)

Content Type	<i>k</i>	<i>n</i>	<i>g</i>	<i>SE</i>	<i>95% CI</i>	<i>df</i>	<i>p</i>
Psychological (Related Terms) Training - Reference	20	12	0.3068	0.0769	[0.1355, 0.4782]	10.02	0.0026
Emotional Intelligence and Psychological foci	30	11	0.6135	0.4537	[−0.3353, 1.5622]	19.24	0.192
Emotion Intelligence Specific Trainings	35	13	0.1884	0.2136	[−0.2554, 0.6323]	21.28	0.3875
Non-Emotional Intelligence and Non-Psychological Training	6	3	−0.2716	0.2178	[−0.9397, 0.3964]	3.21	0.2956

Note. Overall Moderator Test: $F(3, 8.67) = 1.23, p = 0.3558$

Meta-Regression Results for Content Type (After Outlier Removal) – EI-specific Training as Reference

Content Type	k	n	g	SE	95% CI	df	p	Q
Emotion Intelligence Specific Trainings - Reference	32	11	0.4953	0.1993	[0.0602, 0.9304]	11.76	0.029	506.5542
Psychological (Related Terms) Training	20	12	-0.1884	0.2136	[-0.6323, 0.2554]	21.28	0.3875	
Non-Emotional Intelligence and Non-Psychological Training	6	3	-0.4601	0.285	[-1.3597, 0.4396]	3.04	0.2036	
Emotional Intelligence and Psychological foci	28	9	0.425	0.4895	[-0.5961, 1.4462]	19.96	0.3955	

Note. Overall moderator test: $F(3, 8.02) = 0.3242, p = 0.8081$

Meta-Regression Results for Content Type – EI and Psychological Foci as Reference (After Outlier Removal)

Content Type	k	n	g	SE	95% CI	df	p	Q
Emotional Intelligence and Psychological foci - Reference	28	9	0.2581	0.0678	[0.0983, 0.4180]	7.12	0.0065	506.5542
Emotion Intelligence Specific Trainings	32	11	-0.0283	0.1258	[-0.2959, 0.2392]	15.44	0.8249	
Psychological (Related Terms) Training	20	12	-0.0070	0.0926	[-0.2034, 0.1894]	15.78	0.9405	
Non-Emotional Intelligence and Non-Psychological Training	6	3	-0.2592	0.2391	[-0.9661, 0.4477]	3.46	0.348	

Note. Overall moderator test: $F(3, 8.02) = 0.3242, p = 0.8081$

Meta-Regression Results for Content Type – Psychological (Related Terms) Training as Reference (After Outlier Removal)

Content Type	k	n	g	SE	95% CI	df	p	Q
Psychological (Related Terms) Training - Reference	20	12	0.2511	0.063	[0.1096, 0.3926]	9.39	0.0029	506.5542
Emotional Intelligence and Psychological foci	28	9	0.007	0.0926	[−0.1894, 0.2034]	15.78	0.9405	
Emotion Intelligence Specific Trainings	32	11	−0.0213	0.1233	[−0.2793, 0.2367]	19.03	0.8646	
Non-Emotional Intelligence and Non-Psychological Training	6	3	−0.2522	0.2377	[−0.9770, 0.4727]	3.25	0.3612	

Note. Overall moderator test: $F(3, 8.02) = 0.3242, p = 0.8081$

Meta-Regression Results for Measure (Before Outlier Removal)

Measure	<i>k</i>	<i>n</i>	<i>g</i>	<i>SE</i>	<i>df</i>	<i>p</i>	<i>95% CI</i>	<i>Q</i>
Mixed (<i>Reference</i>)	44	17	0.4709	0.1809	17.53	0.0183	[0.0901, 0.8518]	506.55
Ability	24	8	−0.2421	0.0879	1.39	0.1621	[−0.8361, 0.3518]	
Trait	11	4	−0.1679	0.2022	4.29	0.4501	[−0.7146, 0.3788]	
Other	9	8	0.4432	0.434	11.44	0.3282	[−0.5075, 1.3940]	
Not stated/ articulated	3	3	0.0537	0.2216	2.63	0.8263	[−0.7105, 0.8179]	

Note. Overall Moderator Test: $F(4, 9.63) = 5.0232, p = 0.0187$

Meta-Regression Results for Measure (After Outlier Removal)

Measure	<i>k</i>	<i>n</i>	<i>g</i>	<i>SE</i>	<i>df</i>	<i>p</i>	<i>95% CI</i>	<i>Q</i>
Mixed (Reference)	42	15	0.1863	0.0727	12.48	0.0243	[0.0285, 0.3441]	349.31
Ability	24	8	−0.1114	0.0945	5.07	0.2909	[−0.3534, 0.1306]	
Trait	11	4	0.1019	0.1211	4.57	0.4419	[−0.2185, 0.4223]	
Other	6	6	0.1384	0.1224	7.16	0.2946	[−0.1497, 0.4266]	
Not stated/ articulated	3	3	0.3237	0.1454	2.7	0.1221	[−0.1689, 0.8164]	

Note. Overall Moderator Test: $F(4, 5.92) = 1.4856, p = 0.3172$

Meta-Regression Results for Measure Type (Before Outlier Removal)

Measure Type	<i>k</i>	<i>n</i>	<i>g</i>	<i>SE</i>	<i>df</i>	<i>p</i>	<i>95% CI</i>	<i>Q</i>
Self-Report (Reference)	60	29	0.5235	0.1371	28.24	0.0007	[0.2427, 0.8043]	531.11
Not Stated	3	3	0.524	0.1875	2.41	0.998	[−0.6889, 0.6900]	
Other-Rater	4	1	0.5733	0.0036	1.05	0.0409	[0.0087, 0.0908]	
Performance Test	24	8	0.2601	0.1014	1.56	0.1561	[−0.8441, 0.3173]	

Note. Overall Moderator Test: $F(3, 0.95) = 21.74, p = 0.1674$

Meta-Regression Results for Measure Type (After Outlier Removal)

Measure Type	<i>k</i>	<i>n</i>	<i>g</i>	<i>SE</i>	<i>df</i>	<i>p</i>	<i>95% CI</i>	<i>Q</i>
Self-Report (Reference)	55	25	0.2311	0.0514	21.37	0.0002	[0.1243, 0.3379]	349.31
Not Stated	3	3	0.5098	0.136	2.38	0.156	[0.0064, 1.0132]*	
Other-Rater	4	1	0.2795	0.005	1.11	0.0514	[0.2299, 0.3292]	
Performance Test	24	8	0.0858	0.0862	5.53	0.1471	[-0.1295, 0.3012]	

Note. Overall Moderator Test: $F(4, 4.44) = 1.2226, p = 0.4162$

Appendix I Description of Training Content

ID	Author, Year	EI Content	Short Description
1	Chandrapal et al. (2022)	Emotional Intelligence and Psychological focus	This session focuses on developing emotional intelligence (EI) and mindfulness through discussions and activities. Objectives include understanding EI and mindfulness, recognizing EI as the foundation of ethical leadership in healthcare, exploring EI “practice fields,” applying EI in various contexts, and identifying the traits of ethical healthcare leadership.
2	Chang (2007)	Emotional Intelligence and Psychological focus	This study examined the impact of concentrated training on improving MSCEIT scores through self-modification techniques. Participants identified target behaviors for change and utilized strategies such as observation, antecedent-behavior-consequence analysis, change strategies, shaping, imagined rehearsal, modeling, discovering, using reinforcers, and self-coaching. For instance, students aiming to enhance self-regard tracked their emotions and replaced negative thoughts with realistic, positive ones. Some of them focused on assertiveness by monitoring their efforts to initiate conversations with peers or coworkers.
3	Clark et al. (2003)	Psychological (related terms)	All three instructors used Whetten and Cameron’s (1998) <i>Developing Management Skills</i> , which covers key intrapersonal and interpersonal management skills. Their teaching methods included typical management skills training methods, specifically, experiential learning in the classroom and an emphasis on real-world application, although emotional intelligence was not specifically integrated into the course.
4	Corwin (2015)	non-Emotional Intelligence and non-Psychological	In acting, repetition requires actors to listen attentively and stay present in the moment, mirroring key emotional intelligence (EI) skills like empathy, theory of mind (ToM), and affect regulation. Recognizing and responding to emotions, both personal and others’, is essential for actors to maintain cognitive focus while staying emotionally connected. The act of coming to the door in an exercise, for example, involves interpreting behavior and perspective, directly tying to EI’s foundation in reading others’ mental states. This process allows actors to explore their inner impulses and decide whether to act on them, reflecting the core of EI in decision-making.

5	Cotler et al. (2019)	Emotional Intelligence and Psychological focus	This year-long course integrated emotional intelligence (EI) interventions using the RESET model (Cotler, 2016; Cotler et al., 2017), combining mindfulness and team-based learning. Students began the semester with personality and EI assessments, followed by instructor feedback to encourage self-reflection and understanding of diverse personality types. Throughout the course, students learned to build empathy with users, design inclusive software, and address the needs of various personalities, including those with disabilities. Mindfulness was practiced at the start of most classes through guided meditations, reinforcing focus and emotional awareness. These activities improved both EI and mindfulness, enhancing the approach to software design.
6	Cuji Chacha et al. (2019)	Emotional Intelligence and Psychological focus	Activity 1 focused on the perception of emotions through pictures, and Activity 2 involved identifying microexpressions, where students were trained to detect involuntary facial movements associated with basic emotions, followed by a test to identify these expressions. An online microexpressions test (http://www.microexpressionstest.com) was included for practice. Activity 3 focused on team-building and understanding thinking profiles, while Activity 4 utilized visualization techniques to enhance emotional awareness and regulation.
7	da Costa et al. (2021)	Emotional Intelligence and Psychological focus	This study's educational intervention, part of the Business and Management curriculum, aimed to develop emotional intelligence (EI) and psychological capital (PsyCap) through two course units (PSC I and PSC II). Using Kolb's experiential learning theory, students engaged in activities like critical thinking, role-playing, and team assignments to enhance EI, teamwork, and communication skills. PSC I focused on EI, while PSC II built PsyCap through modules on self-efficacy, optimism, and resilience. Pre- and post-test comparisons showed positive changes in EI and PsyCap scores.
8	Davis (2013)	Emotional Intelligence Specific	The treatment objectives aimed to define emotional intelligence (EI), identify its key concepts, explore its value through research, and examine its relevance in academic and organizational settings. The methods, adapted from foundational EI studies by Cherniss, Goleman, and others, included video clips, self-awareness exercises, and discussions using real-world examples like <i>The Office</i> and <i>Star Trek: Generations</i> . These activities helped students deepen their understanding of EI's practical application, followed by literature reviews and reflective feedback on its importance in both personal and professional contexts.

9	Deveci and Nunn (2016)	Psychological (related terms)	The study examines how emotional intelligence (EI) develops among freshman engineering students at the Petroleum Institute in Abu Dhabi through project-based learning (PBL). Involving 100 students, the research uses the Schutte Emotional Intelligence Scale and semi-structured interviews to assess EI changes over an academic year. The study identifies key factors contributing to these improvements, including involvement in research projects, teamwork, reflective writing, and seminar discussions.
10	Ebrahimi and Khoshsima (2015)	Emotional Intelligence Specific	After one semester of instruction on emotional intelligence (EQ), students gained an understanding of its nature and how it can be enhanced and controlled to improve learning and recall.
11	Enríquez et al. (2017)	Psychological (related terms)	The study involved a control group of 24 participants and three experimental groups, each with 24 participants. The control group received a personal growth program through 6 conference-like sessions led by professors, while the experimental groups participated in the PINEP program over 8 sessions spanning 8 weeks. The pre- and post-test measurements were taken before the first session and after the final session, respectively. Each session of the training lasted 3 hours, totaling 24 hours of training. The PINEP program incorporates both formal and informal practices of contemplation, including mindfulness exercises, INEP exercises, and explanations of various emotional situations.
12	Faralli (2009)	Emotional Intelligence Specific	The EI Learning Program is designed to provide students with a comprehensive understanding of emotional intelligence (EI) and its application in the workplace. In the first week, students are introduced to the concept of EI and its significance. Subsequent weeks focus on developing key EI competencies such as self-awareness, self-management, social awareness, and relationship management, with practical applications like coaching, leadership, and conflict resolution. The final week addresses cognitive EI, emphasizing skills such as systems thinking and pattern recognition.
13	Gaudet (2011)	Emotional Intelligence Specific	The educational intervention, based on the ability-based model of EI and the MSCEIT, involved 12 hours of classroom learning, combining didactic and experiential methods. Students were assigned individual reflective journaling for two weeks and created an emotional analysis chart. Group work focused on a pharmaceutical care case study, where students applied EI to resolve drug-related problems within the presented emotional context. Performance was assessed through videotaped pharmacist-patient interactions, where students interpreted emotional cues and predicted patient

adherence based on their understanding of the therapeutic relationship. The researcher is certified to teach the EI Skills Workshop and administer and interpret the MSCEIT results.

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| 14 | Gessler et al. (2021) | Emotional Intelligence Specific | The training for the first group (TG1-MIX) aimed to enhance emotional perception and regulation skills, focusing on both self and others. It consisted of three modules: understanding emotion perception/regulation, perceiving/regulating emotions in the self, and perceiving/regulating emotions in others. The training incorporated practice, feedback, and instruction, following guidelines by Blanch-Hartigan et al. (2012) and integrating emotion regulation strategies from Gross (2014) and Peña-Sarrionandia et al. (2015). In contrast, the second group (TG2-ER) emphasized emotion regulation, offering more practical exercises (three per module instead of one) and similar theoretical content. Both groups received weekly online reminders and exercises for four weeks post-training to reinforce their learning. |
| 15 | Goudarzian et al. (2019) | Emotional Intelligence and Psychological focus | In the experimental group, self-care behaviors were taught through a structured program, consisting of 12 training sessions (two per week, each lasting at least one hour). The content, designed by a psychologist, included topics such as the definition and concept of emotional intelligence (EI), its benefits, problem-solving and decision-making skills, stress management techniques, personality and emotion, spiritual awareness, and strengthening relationships with God. The training was divided into two sessions for each topic. The checklist used for the training was validated by expert psychologists, and students worked in groups to engage with the content in each session. |
| 16 | Guan and Gong (2014) | non-Emotional Intelligence and non-Psychological | The study explores the effect of sports dance courses on the emotional intelligence (EQ) development of college students at Huanghe Science and Technology College. Employing psychological skill training, particularly goal-setting, the research aimed to improve students' EQ components such as self-awareness, self-motivation, self-control, empathy, and interpersonal relationships over an 8-week experimental period. |

17	Herpertz et al. (2016)	Emotional Intelligence Specific	The emotion perception intervention aimed to enhance participants' ability to recognize emotions in others. The 1-day training program was divided into three modules. The first module highlighted the relevance of emotional intelligence (EI) in daily life, particularly the emotion perception in the workplace, and introduced the four-branch model of EI (Mayer & Salovey, 1997). The second module focused on improving emotion perception through facial expressions, body language, and voice. The third module involved using mirrors to help participants observe their emotional expressions, followed by role-playing exercises. In these, participants acted out various roles in a group project meeting, and the process was videotaped for discussion. The next four weeks after sessions, participants received emails with reminders and practical exercises to reinforce their learning weekly.
18	Jaeger (2002)	Emotional Intelligence Specific	In the course, emotional intelligence (EI) was introduced in one of the five sections, referred to as the "EI curriculum section." This section emphasized the importance of EI components for successful managers and group dynamics. It included required readings from Goleman's (1998) <i>Working with Emotional Intelligence</i> , and course content was restructured to focus on the human aspect of management during the first three weeks. Case studies were analyzed in relation to the EI capacities of managers, and students received their EQ-i results in a one-hour session with an organizational psychologist. Additionally, EI concepts were integrated into the group project, and students had opportunities to develop strategies for improving their emotional intelligence throughout the course.
19	Jankowski et al. (2008)	Psychological (related terms)	Clinical Pastoral Education (CPE) is an experiential training program that combines theological education with practical pastoral care, preparing ministers to provide support to individuals in hospitals, care facilities, or prisons. Through hands-on practice and an action-reflection learning model led by trained supervisors, students enhance self-awareness, empathy, interpersonal skills, and understanding of behavioral sciences. The program encourages students to reflect on their experiences, address personal growth areas, and improve their pastoral competencies. CPE can be offered in varying formats, including intensive short-term units or extended semester-long programs, depending on student needs and supervisor availability.

20	Jimenez-Rodriguez et al. (2022)	Emotional Intelligence and Psychological focus	The “Emotions and Resilience” training program, part of a second-year course on “health promotion and safety”, combined theory and practical exercises on emotional management and resilience. Teaching methods included lectures with videos and case-solving, small-group role-playing, and individual self-reflective activities at home. Experiential exercises focused on self-awareness, emotional management, and resilience-building strategies such as daily positivity tracking and personal self-care. Workshops addressed emotions like rage, fear, and sadness, integrating role-play and group reflection to improve emotional regulation and coping skills. An instructor trained in emotional intelligence and resilience facilitated the program.
21	Joshith (2012)	Emotional Intelligence Specific	The Emotional Intelligence Based Instructional Package (EIBIP) is an interactive training resource designed to enhance emotional intelligence in teachers and prospective teachers. It is grounded in the theoretical frameworks of Bar-On, Mayer & Salovey, and Daniel Goleman, and incorporates the practical model developed by Marcia Hughes, Bonita Patterson, and J.B. Terrel for leadership and management coaching. The package focuses on key emotional intelligence components identified by Goleman (1998), including self-awareness, managing emotions, self-motivation, empathy, and relationship management. The instructional activities are tailored to each of these components to help develop emotional intelligence in educational contexts.
22	Karahan and Yalcin (2009)	Emotional Intelligence and Psychological focus	The program addressed key emotional intelligence components, including awareness, identification, and perception of emotions, understanding their connection to thoughts, behaviors, and physical reactions, and managing emotions effectively. Participants practiced empathic listening, motivational communication, and distinguishing between friendly and unfriendly behavior. Additional focus areas included fostering positive friendships, problem-solving with multiple solutions, relationship management skills, and relaxation techniques.
23	Walker (2019)	Psychological (related terms)	Participants engaged in 30-minute expressive writing sessions once a week for four consecutive weeks. These sessions encouraged students to explore their deepest emotions and thoughts about their college experiences, such as academic pressures, financial concerns, relationships, and future aspirations. The focus was on unfiltered self-expression, without concern for grammar, spelling, or punctuation, to foster emotional exploration and self-reflection.

24	Vesely et al. (2014)	Emotional Intelligence Specific	The five-week EI training program was a revised version of the Swinburne Emotional Intelligence model described by Hansen et al. (2007). This program focused on broad EI foundations, including emotional awareness in oneself and others, reasoning with emotions, self-management and control, and managing emotions in others, rather than aligning directly with specific EI measurement tools like WLEIS or TEIQue.
25	Teskereci et al. (2020)	Psychological (related terms)	The Caring Behavior in Nursing course covers topics such as the concept and power of care, the art of nursing care, and elements of the Human Caring Theory, including caring moments, transpersonal relationships, and curative care processes. It emphasizes caring behaviors like individualized attention, authentic listening, touch, and creating a supportive environment. The course employs educational methods such as discussions, caring analyses, sharing personal caring experiences, roleplay, and multimedia tools like videos and movies to enhance understanding and application.
26	Szeles (2015)	Emotional Intelligence and Psychological focus	The peer coaching program began with a presentation on Emotional Intelligence (EI) by an expert, followed by an introduction to the research study and an invitation to participate. Afterward, participants received training on peer coaching, including a live demonstration, and were guided to conduct weekly peer coaching sessions, focusing on setting and working toward specific EI-related goals.
27	Sultan et al. (2020)	Psychological (related terms)	To address stress management, the Stress OFF Strategies program (Shapiro & Health, 2013) was implemented. This 45-minute, one-session intervention is tailored for adolescents and focuses on decreasing stigma, providing psychoeducation, teaching coping skills through cognitive, behavioral, and mindfulness-based techniques, and offering follow-up resources like pamphlets and online tools.
28	Skuka (2015)	Psychological (related terms)	Mindfulness training was delivered through Focused Learning Training (FLT), emphasizing active attention and thought redirection. Participants were taught to focus solely on sensory inputs—what they could see, hear, and touch—and to repeatedly return their attention to these stimuli without judgment or interference from their thoughts. Unlike traditional, meditation-based mindfulness approaches, FLT provides a distinctive, object-oriented method of attention training.

29	Shahid et al. (2018)	Emotional Intelligence Specific	The emotional intelligence training program focused on developing four core EI skills: self-awareness, self-management, social awareness, and social skills.
30	Shahbazi et al. (2018)	Psychological (related terms)	A problem-solving program was structured around a six-phase model: (1) understanding problems as manageable phenomena and fostering self-efficacy in problem-solving; (2) defining and analyzing the problem, gathering information, and setting goals; (3) generating and selecting effective solutions; (4) decision-making by predicting outcomes and benefits; (5) implementing the chosen solution; and (6) revising and evaluating the results. Sessions included theoretical and practical steps to guide participants through the framework. Both experimental and control groups participated in routine nursing courses and internships, but only the experimental group received the additional program.
31	Seow et al. (2022)	Emotional Intelligence and Psychological focus	The four-week psycho-educational training program, TEITA, introduced participants to Emotional Intelligence (EI) and Transactional Analysis (TA). Each session included 30-45 minutes of theoretical discussion on EI and TA concepts, followed by 45 minutes to 1 hour of experiential sharing, where participants reflected on emotions from the previous week and the coping mechanisms they employed.
32	Sellakumar (2017)	non-Emotional Intelligence and non- Psychological	The slow-deep breathing exercise and genital muscle relaxation techniques were designed to help participants manage stress and enhance relaxation. Both techniques aim to improve emotional regulation and physical relaxation.
33	Schwartz and Belknap (2017)	non-Emotional Intelligence and non- Psychological	The study investigates the effects of college outdoor orientation programs (OOPs) on students' trait emotional intelligence (TEI), focusing on activities like backpacking, canoeing, ropes courses, rock climbing, day hikes, and white-water rafting. Using the TEIQue-SF scale and involving 317 participants across four OOP types, the research highlights how these intensive, travel-based programs foster self-awareness, stress management, and interpersonal skills during students' transition to college.

34	Sankhayeva et al. (2021)	Emotional Intelligence Specific	The goal is to develop the ability to understand, recognize, and predict the behavior and emotional states of others, enabling more effective interpersonal interactions. Additionally, it aims to enhance emotional intelligence by fostering the capacity to manage both personal emotions and the emotions of others. Lastly, the program seeks to cultivate constructive behavior in students, particularly in conflict situations, to promote healthier communication and problem-solving.
35	Sánchez-Núñez et al. (2015)	Psychological (related terms)	This two-year program prepares candidates for certification as building or district administrators in New York State schools. Comprising eight courses—two per semester—the program is designed for individuals with at least three years of teaching experience and NY State Certification. Throughout the program, students engage in both content-based and clinical practices in leadership development, adhering to the standards set by the National Council for Accreditation of Teacher Education (Canole & Young, 2013).
36	Raut and Gupta (2019)	Emotional Intelligence Specific	The intervention package focused on enhancing emotional intelligence (EI) through self-assessment, reflective practice, and peer feedback. Following a baseline assessment, students participated in a 3-hour workshop on EI and were trained to write weekly reflections analyzing their emotional responses, behavior control, and lessons learned from triggering events. They paired with peers to exchange monthly feedback based on observations in college, hospital, and hostel settings. The reflection tool included open-ended questions, while peer feedback utilized a 20-item Likert scale. EI scores were reassessed at intervals of 7 days, 1 month, and 3 months among the 94 participants.
37	Polonio-Lopez et al. (2019)	non-Emotional Intelligence and non-Psychological	In the study, emotional intelligence (EI) was addressed through a practical training intervention, referred to as the “Practical Training EI Development.” This intervention emphasized the importance of EI components such as Emotional Attention, Emotional Clarity, and Emotional Repair for occupational therapy students. It involved pre- and post-training assessments using the Trait Meta-Mood Scale-24 (TMMS-24), with students completing the measure two weeks before and one week after the training. The intervention included a practical rotation lasting 4–6 weeks across various clinical areas such as Physical Rehabilitation, Mental Health, and Geriatrics and Gerontology. Students engaged in hands-on experiences, linking theoretical knowledge to real-life applications under the supervision of clinical tutors. Statistical analyses evaluated improvements in EI, with significant gains observed, particularly in women, across specific training areas. This structured program provided opportunities for students to enhance their emotional intelligence as part of their professional development. A minimum of 1,000 hours of direct clinical practice was conducted.

38	McEnrue et al. (2009)	Emotional Intelligence Specific	The leadership development program required participants to create a written plan, which they carried out over ten weeks with the help of a coach. The plan included nine components: identifying three EI abilities to improve, assessing current competence, setting behavioral goals, describing actions to meet goals, identifying sources of support and feedback, and establishing review points. Participants engaged in on-site exercises such as role-plays, film discussions, readings, and journal summaries focused on emotional intelligence.
39	Osadchyi et al. (2021)	Emotional Intelligence Specific	The program “Development of Emotional Intelligence of Future Professionals” combined traditional psychological and pedagogical methods with innovative augmented reality (AR) technologies. Conducted within the certification program “Self-Management: Development of Sanogenic Potential of the Personality” via Moodle, the training incorporated cognitive-behavioral, relaxation, art therapy, and case-study techniques alongside gamification through AR. Implemented in a STEAM-Laboratory, the program addressed topics such as the role of emotions in professional and personal life, managing one’s own and others’ emotions, fostering constructive relationships, overcoming emotional interaction barriers, and enhancing self-reflection skills.
40	Mohamed et al. (2022)	Emotional Intelligence and Psychological focus	Each session focused on different emotional intelligence (EI) themes, including self-awareness, self-esteem, emotional expression, empathy, communication, and accepting differences, as outlined by Cotler et al. (2017). In the TEI learning session, students completed a self-reflection check with open-ended questions to assess the EI skills they had learned. Each online session took approximately 15 minutes per student in the computer lab, with the control group receiving the same content through face-to-face instruction. The online group completed tasks asynchronously via Google Classroom, while the control group used PowerPoint and video media in a traditional classroom setting, with the same instructor ensuring consistency in the control group.
41	Mohamadirizi et al. (2015)	Psychological (related terms)	The Pregnancy and Childbirth Apprenticeship Courses (I and II) were conducted over 40 days during the 2011–2012 academic year, with sessions lasting six hours daily, either in the morning or evening. The program involved three trainers, including the researcher, and was delivered using two teaching methods: the standard method and a four-phase teaching method. The latter began with theoretical familiarization, including hands-on interaction with necessary devices. Students were informed about the project’s goals and processes, followed by demonstrations of childbirth procedures using artificial models and real equipment. Practical exercises progressed from working with artificial patients to real patients under supervision, contingent on student performance. The curriculum was based on

standardized materials developed by the Isfahan Midwifery Department. Trainers continuously observed and guided students throughout the learning process.

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| 42 | McGinnis (2018) | Emotional Intelligence and Psychological focus | A semester-long course, Philosophical and Pragmatic Foundations of Music Education, was incorporated into the junior-year music education curriculum, focusing on both instrumental (n = 5) and choral (n = 5) students. A segment of the course emphasized self-awareness and teaching philosophy development through assignments such as Pecha Kucha, Personal Credo, Self-Shaping Project, and an Emotional Intelligence 2.0 unit. Participants completed a pretest Emotional Intelligence Assessment (EIA) and followed Bradberry and Greaves' (2009) Emotional Intelligence 2.0 method, targeting the four EI areas: self-awareness, self-management, social awareness, and relationship management. They developed an Action Plan, selecting one EI skill to improve, identifying three strategies for development, and engaging a mentor for guidance. |
| 43 | Dev et al. (2021) | Emotional Intelligence Specific | The program focused on five key emotional intelligence dimensions: self-awareness, self-management, motivation, empathy, and social skills. It incorporated tools such as the self-understanding matrix, role plays on active listening, positive self-talk exercises, and empathy training to help participants develop these skills effectively. |
| 44 | Kim and Gyeong (2021) | Psychological (related terms) | The maternal nursing course combined content-specific knowledge with strategies for empathizing with mothers in various conditions. The team learning approach included scenario understanding (10 minutes), technical demonstration and training (60 minutes), followed by debriefing (50 minutes). A workbook facilitated the program, and each team worked in separate training rooms to engage in their activities. |
| 45 | Sisman and Buzlu (2022) | Emotional Intelligence Specific | The Emotion-Focused Training Program (EFTP) spanned ten sessions, beginning with getting acquainted and defining expectations, followed by sessions on understanding emotions and their role in life. Participants developed a vocabulary for expressing emotions, explored the relationship between emotions, thoughts, and behavior, and learned to express emotions through body language and "me" language. Later sessions focused on increasing emotional self-expression, listening with empathy, and accepting difficult emotions. The program incorporated psychodrama techniques, such as sociometry, doubling, role-play, and mirroring, to enhance awareness and facilitate behavioral change. |

46	Luy-Montejo (2019)	Psychological (related terms)	The intervention was designed using Problem-Based Learning (PBL) principles, with the educational team providing guidance within the “Personal Development Course I,” part of the first semester’s university curriculum. For the control group, 16 lessons were also conducted within the same course but using traditional learning methods.
47	Loh et al. (2022)	Psychological (related terms)	The brief mindfulness-based intervention (b-MBI) is organized into four key themes: (a) focusing on present-moment experiences, (b) adopting a beginner’s mind, characterized by a child-like curiosity in observing experiences, (c) developing non-judgmental awareness and acceptance of negative thoughts, and (d) cultivating gratitude, self-compassion, and loving-kindness.
48	Kuk et al. (2015)	Psychological (related terms)	The logical workshops consisted of four 8-hour sessions, designed as the most effective teaching modality for adults. The curriculum emphasized communication, team building, assertiveness, and teacher leadership, incorporating elements of interpersonal training and Video Interaction Training (VIT). The interpersonal training focused on personal development, teaching participants to think critically, pay attention, and focus on both themselves and others in social situations.
49	Köppe et al. (2019)	Emotional Intelligence Specific	The Web-Based Emotional Intelligence Training (WEIT) program, based on the four-branch model, builds on the EMO-TRAIN face-to-face program by Herpertz and Schütz (2016). WEIT includes a pre-assignment task, four one-hour modules, and a 4-week online practice period. The modules cover: (a) Emotional Perception (EP) in others, teaching participants to recognize emotions through facial cues; (b) EP in oneself, exploring the connection between situations, cognition, and emotions; (c) Emotional Regulation (ER) in oneself, focusing on managing negative emotions and enhancing positive ones using Gross’ (1998) process model; and (d) ER in others, introducing nonviolent communication concepts (Rosenberg, 2010) through video demonstrations of effective communication strategies. The program emphasizes practical skill-building and emotional understanding.

Note. MSCEIT: Mayer-Salovey-Caruso Emotional Intelligence Test; EQ-i: Emotional Quotient Inventory; ECI: Emotional Competence Inventory; TMMS: Trait Meta-Mood Scale; SSEIT: Schutte Self-Report Emotional Intelligence Test; CERQ: Cognitive Emotion Regulation Questionnaire; ESCI-U: Emotional and Social Competence Inventory - University Edition; ERP-R: Emotion Regulation Profile – Revised; SREIS: Self-Report Emotional Intelligence Scale; ERQ: Emotion Regulation Questionnaire; AES: Assessing Emotions Scale; TEIQue-SF: Trait Emotional Intelligence Questionnaire - Short Form; WLEIS: Wong and Law Emotional Intelligence Scale; TMMS-24: Trait Meta-Mood Scale - 24 Items; EISDI: Emotional Intelligence Self-Description Inventory; EmIn: Emotional Intelligence Inventory; EQ-43Q: Emotional Quotient - 43 Questions; EIA: Emotional Intelligence Appraisal; LEAS: Levels of Emotional Awareness Scale; INTE: Interpersonal Emotional Quotient Inventory; USMEQ-i: University Students’ Emotional Quotient Inventory.

