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Exploring the Mechanisms Mediating the Relationship Between Emotional Intelligence and Subjective Well-Being

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by

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La doyenne
Kristina Schulz

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Abstract

Emotional intelligence (EI)—conceptualized as both a set of abilities (*ability EI*) and self-perceived emotional dispositions (*trait EI*) concerning emotion recognition, understanding and management—is commonly assumed to be associated with higher levels of *subjective well-being* (SWB). However, the mechanisms underlying this association remain poorly understood. Theoretical accounts propose that the association between EI and SWB may rely on two distinct mechanisms: *acute sensitivity*, referring to increased sensitivity to emotion information regardless of valence; and *valence-specific sensitivity*, referring to an increased sensitivity to positive emotion information and a decreased sensitivity to negative emotion information.

Across four empirical studies, this doctoral thesis examined whether acute sensitivity and valence-specific sensitivity mechanisms account for the association between EI (i.e., ability and trait) and SWB (i.e., life satisfaction, positive affect, positive relations), across three emotional processes involved in *emotion information processing*: attentional orienting, emotional reactivity, and emotional memory. Ability EI was expected to operate mainly through acute sensitivity at early stages of emotion information processing (i.e., attentional orienting), and possibly through valence-specific sensitivity at later stages (i.e., emotional reactivity, emotional memory), whereas trait EI was conceptualized as reflecting a stable valence-specific sensitivity across later stages.

Study 1 (N = 155) focused on early attentional processes by assessing attentional orienting toward emotional versus neutral facial expressions using a dot-probe task. Individuals scoring more than one standard deviation above the mean on the emotion understanding facet of ability EI showed stronger attentional orienting toward emotional expressions. However, stronger attentional orienting toward emotional expressions was unrelated to SWB. Study 2 (N = 194) examined typical emotional reactivity using self-report measures of responses to positive and negative everyday events. Trait EI predicted increased reactivity to positive events and

reduced reactivity to negative ones, and both reactivity patterns mediated the association between trait EI and SWB. Study 3 (N = 151) assessed moment-to-moment emotional reactivity in response to emotional images using a continuous affective ratings task. Emotion recognition and understanding facets of ability EI predicted dampened emotional responses and slower affective build-up, whereas emotion management facet predicted faster engagement with emotional images irrespective of valence. However, none of these patterns were related to SWB. Study 4 (N = 186) examined memory for emotional images. Ability EI was associated with greater overall memory accuracy for emotional images. However, memory for emotional images was not associated with SWB.

Overall, the findings indicate that no pathway from ability EI to SWB emerged through the hypothesized mechanisms as expressed within the three emotional processes examined in this thesis. In contrast, trait EI was linked to SWB through a valence-specific sensitivity mechanism expressed within typical emotional reactivity, characterized by increased reactivity to positive events and decreased reactivity to negative ones, as assessed via a self-report questionnaire—which constituted the only supported pathway identified in this thesis.

Keywords: emotional intelligence, subjective well-being, acute sensitivity, valence specific sensitivity, emotional attention, emotional reactivity, emotional memory.

Résumé

L'*intelligence émotionnelle* (IE), conceptualisée à la fois comme un ensemble d'habiletés (*IE habileté*) et comme des dispositions émotionnelles auto-perçues (*IE trait*) liées à la reconnaissance, à la compréhension et à la gestion des émotions, est généralement associée à des niveaux plus élevés de bien-être subjectif. Toutefois, les mécanismes sous-jacents à cette association demeurent mal compris. Les modèles théoriques suggèrent deux mécanismes distincts: la *sensibilité accrue*, qui renvoie à une sensibilité accrue aux informations émotionnelles indépendamment de leur valence, et la *sensibilité spécifique à la valence*, caractérisée par une sensibilité accrue aux informations positives et réduite aux informations négatives.

À travers quatre études empiriques, cette thèse examine dans quelle mesure ces deux mécanismes médiatiseraient l'association entre l'IE (c.-à-d. habileté et trait) et le bien-être subjectif (c.-à-d. satisfaction de vie, affects positifs et relations positives), au sein de trois processus impliqués dans le *traitement de l'information émotionnelle* : l'orientation attentionnelle, la réactivité émotionnelle et la mémoire émotionnelle. Il était attendu que l'IE habileté soit associée à une sensibilité accrue lors de l'orientation attentionnelle, ainsi qu'à une sensibilité spécifique à la valence lors des étapes ultérieures de réactivité et de mémoire émotionnelles. L'IE trait était quant à elle envisagée comme associée à une sensibilité spécifique à la valence relativement stable au cours de ces étapes plus tardives.

L'étude 1 (N = 155) examinait les processus attentionnels précoces, soit l'orientation attentionnelle envers des expressions faciales émotionnelles par rapport à des expressions neutres à l'aide d'une tâche de type dot-probe. Les individus présentant des scores supérieurs à un écart-type au-dessus de la moyenne sur la facette de compréhension émotionnelle de l'IE habileté ont montré une orientation attentionnelle plus marquée envers les expressions émotionnelles. Toutefois, cette orientation attentionnelle accrue n'était pas associée au bien-

être subjectif. L'étude 2 (N = 194) examinait la réactivité émotionnelle typique à travers des mesures auto-rapportées des réactions à des événements émotionnels du quotidien. Les résultats ont montré que l'IE trait était associée une réactivité accrue aux événements positifs ainsi qu'une réactivité réduite aux événements négatifs. Ces deux mécanismes médiatisaient l'association entre l'IE trait et le bien-être subjectif. L'étude 3 (N = 151) évaluait la réactivité émotionnelle moment par moment en réponse à des images émotionnelles à l'aide d'une tâche d'évaluation affective continue. Les facettes de reconnaissance et de compréhension émotionnelle de l'IE habileté prédisaient des réponses émotionnelles atténuées ainsi qu'une montée affective plus lente, tandis que la facette de gestion émotionnelle entrainait un engagement plus rapide envers les images émotionnelles, indépendamment de leur valence. Cependant, aucun de ces mécanismes n'était lié au bien-être subjectif. L'étude 4 (N = 186) portait sur la mémoire en lien avec des images émotionnelles. L'IE habileté était associée à de meilleures performances de reconnaissance des images émotionnelles, sans que celles-ci ne soient ensuite liées au bien-être subjectif.

Dans l'ensemble, les résultats indiquent qu'aucune voie reliant l'IE habileté au bien-être n'émerge à travers les mécanismes hypothétisés, tels qu'ils s'expriment au sein des trois processus émotionnels examinés dans cette thèse. En revanche, l'IE trait apparaît liée au bien-être subjectif par l'intermédiaire d'un mécanisme de sensibilité spécifique à la valence exprimé dans la réactivité émotionnelle typique. Ce mécanisme se caractérise par une réactivité accrue aux événements positifs et diminuée aux événements négatifs, telle qu'évaluée à l'aide d'un questionnaire auto-rapporté. Cette voie constitue le seul mécanisme empiriquement soutenu dans cette thèse.

Mots-clés : intelligence émotionnelle, bien-être subjectif, sensibilité accrue, sensibilité spécifique à la valence, attention émotionnelle, réactivité émotionnelle, mémoire émotionnelle.

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1. Introduction

Understanding why some individuals are happier or experience greater *subjective well-being* (SWB) than others has become an increasingly central question in psychology, particularly with the rise of positive psychology (Seligman & Csikszentmihalyi, 2000). Among the factors proposed to account for these differences, *emotional intelligence* (EI), defined as the capacity to recognize, understand, and manage emotions (Pekaar et al., 2018a; Petrides, 2009; Salovey & Mayer, 1990; Salovey & Sluyter, 1997), has received considerable attention. A central idea in the EI field is that EI shape the way people engage with the emotional demands of everyday life. For instance, when two individuals enter the same social situation, they may differ in how rapidly they attend to emotion information, such as facial expressions, body gestures and posture, or emotional tone of voice. Someone with higher emotional recognition may detect subtle shifts in another person's facial expression and tone of voice early, understand what this change might signal, and regulate their own response, or help the other person regulate theirs, to keep the interaction constructive. These small, differences in how people attend to, react to, and then memorize emotion information may shape the tone of everyday social exchanges. In particular, acute orientation toward emotion information coupled with effective emotional responses and a greater tendency to retain positive emotional moments, may foster smoother interactions, and their repeated accumulation may, over time, contribute higher SWB.

Empirically, a substantial literature supports a positive association between EI and SWB, including higher life satisfaction, better interpersonal relationships, and greater psychological adjustment (Di Fabio & Kenny, 2016; Extremera et al., 2020; Malouff et al., 2014; Martins et al., 2010; Sánchez-Álvarez et al., 2016; Schutte et al., 2007; Zeidner et al., 2012). Yet the strength of this association depends markedly on how EI is conceptualized (Martins et al., 2010; Sánchez-Álvarez et al., 2016). When EI is conceptualized as people's self-perceived emotional dispositions, referred to as trait EI, its link with SWB is generally

moderate to strong and relatively consistent. In contrast, when EI is conceptualize as the ability to reason about emotions (i.e., emotion recognition, understanding and management), known as ability EI, its association with SWB tends to be weaker and more variable across the few studies available to date (Sánchez-Álvarez et al., 2016).

Although studies have documented EI–SWB associations, the mechanisms explaining *why* EI predicts SWB remain largely unexplored. Existing research has primarily reported that the association between trait EI and SWB is mediated by reduced perceived stress, greater perceived social support, and more frequent use of cognitive reappraisal (Kong et al., 2012; Sha et al., 2022; Urquijo et al., 2016). Only one study has directly examined ability EI, suggesting that its association with SWB is mediated by greater use of positive reappraisal and planning-oriented coping strategies (Extremera et al., 2020).

Taken together, prior research leaves several fundamental questions unresolved regarding the EI–SWB relationship. First, while trait EI has been robustly associated with SWB, evidence is considerably less clear and consistent for ability EI. Second, beyond establishing whether EI relates to SWB, little is known about the mechanisms associated with EI and the emotional processes through which these mechanisms may operate. Finally, it remains largely unclear which of these mechanisms, if any, actually mediate the relationship between EI and SWB.

The present doctoral research was conducted within the broader context of a Swiss National Science Foundation (SNSF) project led by Prof. Dr. Marina Fiori (https://data.snf.ch/grants/grant/192443), which partly addressed the gap concerning the mechanisms associated with ability EI. Specifically, the SNSF project examined whether individuals higher in ability EI exhibit *acute sensitivity* to emotional information (Fiori & Ortony, 2021), thereby testing a first, theoretically central mechanism associated with ability EI. This work provided an important step toward a mechanism-oriented account of EI.

However, the SNSF project was initially not designed to examine whether acute sensitivity to emotional information constitutes an adaptive mechanism associated with higher SWB. Nor did it address whether additional mechanisms might operate across different emotional processes. Moreover, by focusing mainly on ability EI, the project left open the question of whether similar or distinct mechanisms characterize trait EI, and whether such mechanisms are related to SWB.

Building on this line of reasoning, the present doctoral research moved well beyond the examination of mechanisms associated with ability EI, adopting a broader and more integrative perspective to clarify how EI relates to SWB. It examined the mechanisms through which this association may emerge across multiple emotional processes, including attentional orienting, emotional reactivity, and emotional memory. In addition to testing acute sensitivity, this research introduced *valence-specific sensitivity* as a complementary and theoretically plausible mechanism, whereby increased sensitivity to positive emotional information is coupled with reduced sensitivity to negative information. Within this framework, EI may relate to higher SWB to the extent that it is associated with increased sensitivity to positive information, alongside decreased reactivity to negative one.

A central contribution of the present doctoral research is to extend the process-oriented framework originally developed for ability EI to trait EI. While the SNSF project primarily focused on ability EI, the present thesis deliberately broadened this framework to include trait EI, enabling a direct and theoretically informed comparison of the mechanisms through which both conceptualizations of EI relate to SWB. This integrative approach provides a more comprehensive account of EI–SWB associations than would be possible by focusing on either conceptualization in isolation.

To operationalize this integrative perspective, the research pursued three interrelated objectives. First, it examined the direct associations between ability EI, trait EI, and different

aspects of SWB (i.e., life satisfaction, positive affect, and positive relations). Second, it assessed whether ability EI and trait EI operate through acute sensitivity or through valence-specific sensitivity mechanisms across three emotional processes—attentional orienting, emotional reactivity, and emotional memory. Third, it tested whether these mechanisms mediate the relationship between EI and SWB.

To address these objectives, the thesis is organized as follows. Chapter 2 outlines the historical development of EI, the distinction between ability and trait EI, and the emergence of process-oriented EI perspectives. It reviews the major EI measures, justifies the selection of the instruments used to measure EI in the present research, while highlighting the empirical distinctiveness of ability EI and trait EI and their differential associations with personality and cognitive ability. Chapter 3 focuses on SWB, by clarifying the main conceptual perspectives that have emerged in the literature, particularly hedonic and eudaimonic approaches, and by examining how these perspectives are operationalized in empirical research. It presents the principal measures of SWB, with particular emphasis on those used in the present thesis, and clarifies their points of convergence and divergence. The chapter also reviews key demographic, personality, and cognitive correlates of SWB, providing essential context for interpreting EI–SWB associations and for selecting appropriate control variables. Chapter 4 reviews empirical evidence linking EI and SWB, distinguishing findings for ability and trait EI across cross-sectional, longitudinal, and intervention studies, while highlighting the limits of this body of work in providing a fine-grained understanding of the underlying mechanisms. Chapter 5 constitutes a conceptual hinge in the present thesis, by focusing on the mechanisms underlying the relationship between EI and SWB. First, it reviews existing evidence on mediators linking both ability and trait EI to SWB, highlighting that relatively few emotional processes have been examined. Second, it introduces a multilevel emotion information-processing framework that allows for a more precise examination of low- and high-level

processes involved in emotion information processing. Third, it synthesizes two candidate mechanisms—acute emotional sensitivity and valence-specific sensitivity—that may plausibly link EI to SWB through specific emotional processes, namely attentional orienting towards emotion information, emotional reactivity, and emotional memory. Finally, the chapter identifies key conceptual and methodological gaps and outlines the research objectives and principles guiding the empirical studies that follow. Chapter 6 summarizes the four empirical studies forming the core of the research program, while Chapter 7 presents supplementary analyses that extend and complement these findings. Chapter 8 integrates the empirical findings with the theoretical framework, evaluates how the results refine existing models of EI and SWB, and acknowledges methodological and conceptual limitations and future research directions. Chapter 9 provides a concise conclusion summarizing the main theoretical and empirical contributions of the thesis.

2. Emotional Intelligence

Emotional intelligence (EI) commonly understood as the set of abilities and dispositions involved in recognizing, understanding, and managing emotions in oneself and others (Petrides & Furnham, 2001; Salovey & Mayer, 1990) has attracted sustained interest in psychology over the past three decades, both in scientific and applied fields. Among the most widely adopted conceptualizations of EI, two dominant perspectives have emerged. *Ability EI* conceptualizes EI as a cognitive–emotional ability assessed through performance-based tasks. *Trait EI* refers to self-perceived emotional dispositions measured through questionnaires. More recently, largely theoretical *process-oriented* perspectives have begun to examine EI by focusing on the emotional processes—particularly emotion perception and attention—that may be associated with higher emotional abilities.

These approaches originate from different scientific traditions, rely on distinct theories of emotion, and employ fundamentally different measurement logics, particularly in the case of ability EI and trait EI. Consequently, they often yield divergent empirical patterns when EI is related to outcomes such as SWB. Without a clear understanding of how these conceptualizations differ, and what each is assumed to capture, it becomes difficult to interpret the empirical literature or to compare findings across studies. Accordingly, this chapter aims to clarify these distinctions in order to facilitate a more precise understanding of how different operationalizations of EI may relate to SWB to different extents.

Before addressing these distinctions in detail, the following section quickly begins by tracing the historical development of EI in order to clarify the origins of the construct and the theoretical debates from which it emerged. This historical perspective aims to better understand how the concept of EI has originated and then evolved over time, and why distinct conceptualizations—ability EI, trait EI—and more recent process-oriented perspectives have developed.

2.1. History and Concepts of EI

2.1.1. Early Foundations of EI

Traditional theories of intelligence were built around general cognitive ability (g) (Spearman, 1927) and emphasized abstract reasoning, logical problem solving, and academic skills. This conception was operationalized in influential psychometric instruments of the time, most notably the Wechsler intelligence scales (Wechsler, 1939; 1946; 1958), as well as other widely used tests such as the Stanford–Binet (Terman & Merrill, 1937; 1960) and Raven's Progressive Matrices (Raven, 1938). These measures primarily assessed verbal comprehension, perceptual reasoning, working memory, processing speed, and visuo-spatial abilities, and demonstrated strong psychometric properties and predictive validity for academic and occupational outcomes.

However, despite their empirical robustness, these models offered a relatively narrow account of human functioning. Successful everyday adaptation also requires navigating interpersonal situations, interpreting emotional and social cues, and managing affective responses in dynamic contexts, capacities that classical IQ tests were not designed to capture. Even subtests involving social content, such as practical judgment or comprehension of social norms[1], focused on normative reasoning (e.g., Wechsler, 1958) rather than on the perception, understanding, or management of emotions. As a result, key aspects of emotional functioning remained largely outside the scope of traditional intelligence models.

Although psychometric models of intelligence rapidly became dominant, concerns about the limits of purely cognitive accounts emerged very early. As early as the 1920s, discussions of social intelligence emphasized that effective functioning also depends on

[1] A typical example of an item assessing comprehension of social norms at the time illustrates this point. Participants were asked: "Why does the state require people to get a marriage license?". Acceptable answers included: "To prevent bigamy", "For census purposes", "To protect the morals of the community", "To protect the honor of the womanhood", "So people will know they are married".

understanding others and managing social interactions (Thorndike, 1920). However, these perspectives remained largely peripheral, in part because they lacked clear operational definitions and reliable measurement tools, which limited their empirical development and integration into mainstream assessment practices. Several decades later, work on *intrapersonal* and *interpersonal* intelligences (Gardner, 1983) reinforced the idea that individuals differ systematically in how they process emotional and social information, and that these differences might reflect a form of intelligence distinct from purely analytic reasoning.

Collectively, these early reflections laid important conceptual groundwork for the emergence of EI by challenging the rigid separation between emotion and reason and by framing emotional reasoning as a legitimate component of intelligent functioning. Building on this intellectual context, Salovey and Mayer (1990) introduced the first scientific definition of EI 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*" (p. 189). This definition provided the foundation for what later became known as ability EI, by explicitly conceptualizing EI as a set of cognitive–emotional abilities. At the same time, its emphasis on individual differences in emotional functioning left open the possibility of broader dispositional interpretations, which would subsequently give rise to the trait EI tradition. The next section examines the emergence and early operationalization of ability EI in more detail.

2.1.2. The Emergence of Ability EI

Building on their initial definition of EI, Mayer and Salovey (1997) proposed the *four-branch model*, conceptualizing EI as a hierarchy of emotional abilities. The first branch, emotion *perception*, refers to the ability to accurately identify emotions in oneself and others. The second branch, emotion *facilitation*, concerns the use of emotions to guide attention and support thinking. The third branch, emotion *understanding*, involves comprehending emotional meanings, causes, and transitions. The fourth branch, emotion *management*, reflects the

capacity to regulate emotions in oneself and others in order to promote adaptive functioning. The model was intended to provide a coherent structure that could guide the development of performance-based measures and clearly differentiate EI from broader constructs rooted in personality or social functioning. Although the *four-branch* framework offered an important conceptual advance, empirical work increasingly suggested that the *facilitation* branch was difficult to recover as a distinct component (Fan et al., 2010; Joseph & Newman, 2010; Palmer et al., 2005; Zeidner et al., 2001). As a result, contemporary research often adopts a more parsimonious structure centered on three core abilities—emotion *recognition*, *understanding*, and *management*—which capture the main cognitive operations underlying ability EI and form the basis of many current performance-based assessments (e.g., Elfenbein & MacCann, 2017; Mayer et al., 2016; Schlegel & Mortillaro, 2019; Vesely Maillefer et al., 2018).

In line with this *three-branch* structure, most performance-based approaches to ability EI evaluate emotional reasoning through tests that target emotion recognition, understanding, or management. Emotion recognition tests (e.g., Mayer et al., 1999; 2002) have historically relied on prototypical, static facial expressions depicting a limited set of six basic emotions—including happiness, sadness, fear, anger, surprise, disgust—reflecting assumptions derived from basic emotions theory (e.g., Ekman, 1992). Over time, however, emotion recognition paradigms have expanded both in scope, by incorporating a broader range of discrete emotions such as amusement, pride, guilt, and embarrassment, and in ecological realism, through the use of dynamic and multimodal cues that more closely approximate everyday emotional communication (Schlegel et al., 2014; Schlegel & Mortillaro, 2019; Schlegel & Scherer, 2016). In contrast, emotion understanding and management have been typically assessed through scenario-based tasks that require participants to infer likely emotional outcomes or identify the most effective regulatory response in a given situation (e.g., MacCann & Roberts, 2008; Schlegel & Mortillaro, 2019).

The scoring of ability EI tests was initially grounded in *consensus*. Accuracy was determined by the degree to which a response matched the modal answer of a normative sample or the evaluations of experts. Although widely employed, consensus scoring raised conceptual concerns, particularly regarding whether agreement reflected genuine emotional reasoning or broader social conventions (Roberts et al., 2001). More recent work has moved toward *appraisal-based scoring* systems informed by contemporary theories of emotion (e.g., Roseman, 2001). These systems define correct responses based on appraisal structures associated with specific emotions, including evaluations of goal relevance or congruence, causal agency, expectedness, certainty, and control potential (e.g., MacCann & Roberts, 2008). This transition has strengthened the theoretical grounding of ability EI by ensuring that scores reflect the cognitive mechanisms posited by contemporary models of emotion rather than collective agreement.

Beyond these methodological considerations, the broader theoretical status of ability EI has also been clarified over time. A pivotal development was its integration into the Cattell–Horn–Carroll (CHC) framework of human cognitive abilities, a hierarchical taxonomy that organizes both fluid and crystallized reasoning (MacCann et al., 2014). Within this structure, ability EI emerged as a second-stratum factor alongside domains such as fluid reasoning and visual–spatial processing. This placement reinforced the view that EI constitutes a genuine form of intelligence grounded in cognitive-emotional processes.

Parallel to advances in ability EI, a dispositional perspective emerged that focused on how individuals typically experience and regulate emotions in daily life, giving rise to the construct of trait EI.

2.1.3. The Emergence of Trait EI

Within the dispositional domain of EI, two partially independent but converging lines of work emerged, both relying on self-report methods to capture individuals' typical emotional

tendencies. The first, and most theoretically explicit, line conceptualized trait EI as a constellation of emotional self-perceptions embedded within established personality frameworks (Petrides, 2009; Petrides & Furnham, 2001; Petrides et al., 2007b). The second line originated from self-report adaptations of ability EI models, which sought to translate performance-based emotional abilities into questionnaire formats and, in doing so, captured individuals' self-perceived emotional abilities rather than objective emotional performance (Brackett et al., 2006; Schutte et al., 1998).

The personality-oriented line of research developed in continuity with, and partly in response to, early EI frameworks that relied on broad sets of emotion-related dispositions, often grouping emotional, social, motivational, and adaptive components under a single umbrella (Bar-On, 1997; Boyatzis et al., 2000). Although these early models played an important role in popularizing EI, their conceptual breadth blurred the boundaries between emotional functioning, personality traits, and general adaptive competencies. Importantly, while these frameworks incorporated numerous dispositional characteristics overlapping with personality traits, they did not explicitly situate EI within a formal personality theory. In this context, a more theoretically focused refinement emerged that sought to anchor dispositional emotional functioning explicitly within personality theory (Petrides, 2009; Petrides & Furnham, 2001; Petrides et al., 2007b). This perspective conceptualized trait EI as a lower-order personality construct composed of emotional self-perceptions. Within this view, trait EI reflects relatively stable patterns in how individuals typically experience and interpret emotional events, as well as beliefs about their emotional efficacy and interpersonal functioning. By situating trait EI explicitly within the personality domain, this refinement clarified the distinction between dispositional emotional functioning and performance-based emotional abilities.

In parallel, a second dispositional line emerged from early attempts to operationalize emotional abilities using self-report formats inspired by the theoretical structure of ability EI

(e.g., Brackett et al., 2006; Schutte et al., 1998). Importantly, this line deliberately restricted its scope to self-perceived emotional abilities, focusing on components such as emotion perception, understanding, and regulation, and did not incorporate broader motivational, social, or well-being-related dispositions. This restricted approach translated core ability EI components into subjective statements about one's typical emotional functioning, asking individuals to indicate how well they believe they usually recognize emotions in themselves or others, make sense of the causes or consequences of their feelings, or regulate their emotions in everyday situations. Over time, this line of work evolved toward greater conceptual differentiation, through the introduction of explicit distinctions between *intrapersonal* and *interpersonal* emotional dispositions (e.g., Brasseur et al., 2013; Pekaar et al., 2018a). Intrapersonal dispositions concern how individuals perceive, interpret, and regulate their own emotions, such as the clarity with which they believe they understand their feelings or the confidence they have in regulating them. Interpersonal dispositions, in contrast, refer to beliefs about one's ability to handle others' emotions, including the capacity to recognize others' affective states, understand emotional dynamics in social situations, or influence others' emotions through communication or support.

Empirically, research on trait EI, particularly within the personality-based tradition, demonstrates consistent associations with psychological adjustment and SWB, in contrast to the scarcer, more heterogeneous and often weaker evidence for ability EI (Burrus et al., 2012; MacCann & Roberts, 2008; Sánchez-Álvarez et al., 2016). However, its overlap with major personality dimensions, particularly neuroticism and extraversion, raises ongoing questions regarding discriminant validity (Andrei et al., 2016), and, like all self-report approaches, trait EI remains susceptible to social desirability and self-efficacy biases (Paulhus & Vazire, 2007; Udayar et al., 2020).

Taken together, the developments surrounding ability and trait EI clarify what each approach captures, emotional abilities on the one hand, emotional dispositions on the other. Yet both perspectives remain descriptive in nature and leave unaddressed the underlying mechanisms through which emotion information is processed, a question taken up by emerging *process-oriented* models.

2.1.4. The Emergence of Process-Oriented Perspectives on EI

As the distinction between ability EI and trait EI became more clearly defined, a common limitation across both approaches also came into focus. Traditional EI measures, whether performance-based or self-reported, capture *what* individuals know about emotions or *how* they perceive their typical emotional functioning, respectively. They provide substantially less insight into *how* emotion information is processed in real time. This issue has been primarily documented for ability EI tests, which largely assess *crystallized* emotional knowledge (e.g., Farrelly & Austin, 2007). While informative, these measures reveal little about the *fluid*, real-time processing of emotion information that underlies everyday functioning. By contrast, whether and how similar limitations apply to trait EI has been far less systematically examined, as trait EI measures were not explicitly designed to capture emotional processing per se but rather individuals' self-perceptions of their typical emotional functioning.

Responding to this gap, recent theoretical perspectives have proposed that EI may involve not only emotional knowledge but also how individuals perceive, attend to, and respond to emotional cues as they unfold (Fiori et al., 2022). This *process-oriented* perspective positions EI within a broader emotion information-processing framework, positing that people higher in ability EI, might exhibit distinct patterns of real-time processing when confronted with emotion information. Theoretical accounts in this area have primarily emphasized links with low-level emotional processes, such as fast attentional orienting toward emotional stimuli, and increased perceptual sensitivity as well as physiological reactivity to emotion information (Fiori &

Ortony, 2021). At the same time, this theoretical perspective acknowledges that EI may also be related to higher-level emotional processes, including subjective emotional reactivity as well as the encoding and retrieval of emotion information. Although these ideas have been developed primarily in relation to ability EI, they also raise broader questions about whether trait EI might be associated with similar or different emotional processes. At present, however, these perspectives remain largely theoretical.

Importantly, although process-oriented models suggest that existing measures may not yet capture the full scope of what EI represents, empirical research currently relies primarily on two validated approaches to assessing EI: ability EI and trait EI. At present, these remain the only established and psychometrically validated ways of measuring EI.

2.2. Measures of EI

The following overview presents the principal instruments used to assess ability and trait EI. Given the multitude of available measures (Bru-Luna et al., 2021), the focus is on how ability and trait EI operationalizations reflect distinct theoretical assumptions about the nature of EI. Because observed associations between EI and outcomes, particularly SWB, depend heavily on the measures used to operationalize EI, mapping this methodological landscape is essential for interpreting variability in EI–SWB findings. In addition to reviewing the main families of EI measurement instruments, this section also specifies which of them were retained in the present thesis and the rationale for their selection based on conceptual clarity, psychometric robustness, and ecological validity.

2.2.1. Ability EI Measurement Instruments

Ability EI measurement instruments assess emotional reasoning through performance-based tests scored using either consensus-based methods or criteria derived from appraisal theories. These instruments are designed to evaluate how accurately individuals perceive, understand, and manage emotions. As ability EI tests rely on objective performance rather than

self-perceptions, they are less susceptible to social desirability bias. However, this advantage often comes at the cost of longer administration times and, in some cases, modest internal consistency (Fiori & Vesely-Maillefer, 2018; Mayer et al., 2008; Zeidner et al., 2012).

Early attempts to assess ability EI begin with the *Multifactor Emotional Intelligence Scale* (MEIS, Mayer et al., 1999) and the *Mayer–Salovey–Caruso Emotional Intelligence Test* (MSCEIT, Mayer et al., 2002). Both instruments were originally designed to operationalize the four-branch model of EI (Mayer & Salovey, 1997)—emotion perception, facilitation, understanding, and management—using tests that require identifying emotions in facial expressions or images, reasoning about emotional causes, and evaluating the effectiveness of different regulatory responses in scenarios. In both cases, responses are scored using *consensus-based* accuracy, meaning that an answer receives a higher score to the extent that it matches either the modal response of a normative sample (general consensus) or the evaluations of an expert panel (expert consensus).

Despite their foundational role in ability EI, both tests exhibit substantial psychometric limitations. Factor-analytic studies rarely recover the intended four-branch structure, with facilitation in particular failing to emerge as an independent ability (Fan et al., 2010; Joseph & Newman, 2010; Palmer et al., 2005; Zeidner et al., 2001). Additional concerns relate to the reliance on consensus-based scoring, which may reflect social norms more than genuine emotional reasoning (Roberts et al., 2001), and to limited sensitivity, especially among individuals with medium to high levels of EI (Fiori et al., 2014). A further limitation is that acceptable reliability is typically found only at the global score level, whereas branch-level scores show relatively weak internal consistency and limited interpretability (Mayer et al., 1999; 2002).

Instead, and following recent advances in the field, the present thesis measure ability EI using three complementary performance-based tests (described below) that each assess a core

component of the construct consistent with contemporary three-branch models of ability EI, namely emotion recognition, understanding, and management (e.g., Elfenbein & MacCann, 2017; Mayer et al., 2016; Schlegel & Mortillaro, 2019; Vesely Maillefer et al., 2018). Together, these instruments provide a more granular and ecologically valid assessment of emotional abilities than earlier omnibus tests.

The *Geneva Emotional Recognition Test*[2] (GERT, Schlegel et al., 2014), uses dynamic, multimodal stimuli combining facial, vocal, and bodily cues to assess emotion recognition in realistic interactions. Participants view short video clips, each depicting one of 14 discrete emotions (e.g., anger, pride, amusement, fear, sadness) and select the label that best matches the expression. Compared to earlier recognition tasks (e.g., MEIS, MSCEIT) based on static facial photographs and a restricted set of basic emotions, the GERT offers broader theoretical coverage by including both basic and socially relevant emotions. The selected emotions were chosen not only for their theoretical relevance but also for their empirical discriminability, in that each emotion could be portrayed reliably by trained actors and recognized consistently by observers. Target emotions were validated through a combination of expert ratings, standardized actor training procedures, and extensive pilot testing, resulting in high agreement on the intended emotional expressions and good overall reliability (Schlegel et al., 2014; Schlegel & Scherer, 2016).

The *Situational Test of Emotion Understanding* (STEU; MacCann & Roberts, 2008) assesses the ability to infer appropriate emotional outcomes and to choose the most effective regulatory strategies across everyday scenarios. A key methodological strength of the STEU lies in its appraisal-based scoring system. Rather than defining correct answers through consensus or expert agreement, responses are evaluated against predictions derived from

[2] A demo version of the GERT is available via the Swiss Center for Affective Sciences at the University of Geneva: https://fpse.qualtrics.com/jfe/form/SV_9ylDca6EC2FMSQl.

Roseman's (2001) appraisal theory, which specifies that discrete emotions arise from particular configurations of appraisal dimensions, including motive consistency, causal agency, expectedness, certainty, and control potential.

For instance, in a scenario such as: "*Xavier completes a difficult task on time and under budget. Xavier is most likely to feel?*", with response options "*Surprise*", "*Pride*", "*Relief*", "*Hope*", or "*Joy*", pride constitutes the theoretically appropriate response. This is because the situation is appraised as goal-congruent, self-caused, intentional, and characterized by high certainty and control. This appraisal pattern differentiates pride from alternative emotions such as relief, which typically follows the avoidance of a negative outcome, or joy, which more often arises from externally caused, goal-congruent events. By anchoring correctness in explicit appraisal mechanisms, the STEU provides a more theoretically grounded assessment of emotion understanding than earlier scenario-based measures that relied on consensus or expert scoring (e.g., MEIS, MSCEIT).

Finally, the *Situational Test of Emotion Management* (STEM; MacCann & Roberts, 2008)[3], assess the ability to choose the most effective regulatory strategies across everyday scenarios. Participants are presented with short interpersonal scenarios that involve emotionally challenging circumstances and are asked to choose the response that would lead to the most adaptive emotional outcome.

For example, one scenario describes the situation: *"Wai-Hin and Connie have shared an office for years but Wai-Hin gets a new job and Connie loses contact with her. What action would be the most effective for Connie?"* Response options include strategies such as: "*Just*

[3] Although STEM is generally conceptualized as maximal-performance test, emotion management, can also be assessed within typical-performance paradigms. In these designs, participants are instructed to select the option they would have a tendency to use in their everyday life rather than the one considered objectively most effective, shifting the focus from optimal emotional reasoning to habitual regulatory tendencies. This distinction was introduced by Freudenthaler and Neubauer (2007) and later discussed for the STEM by Mohorić et al. (2024).

accept that she is gone and the friendship is over", "*Ring Wai-Hin an ask her out for lunch or coffee to catch up*", "*Contact Wai-Hin and arrange to catch up but also make friends with her replacement*", or "*Spend time getting to know the other people in the office, and strike up new friendships*". In this example, the most effective regulatory strategy is: "*Contact Wai-Hin and arrange to catch up but also make friends with her replacement"*. This option is considered optimal because it balances the maintenance of an emotionally meaningful relationship with the development of new social resources, thereby supporting adaptive emotional adjustment. In the STEM, such judgments are grounded in expert consensus, with emotion researchers evaluating response options based on their expected emotional consequences, contextual appropriateness, and capacity to promote effective emotion regulation. Responses are assigned weighted accuracy scores reflecting the degree of agreement with expert evaluations.

Although ability EI tests provide validated and widely used measures of emotional abilities, research has shown that performance on emotion recognition and emotional reasoning test may vary modestly across cultural groups (e.g., Elfenbein & Ambady, 2002; Karim & Weisz, 2010). These variations do not undermine the assumption of broadly universal emotional processes, but rather highlight the influence of culturally shaped conventions in emotional expression, interpretation, and social norms. Consequently, the use of ability EI tests that are culturally appropriate and validated for the target population is important to ensure accurate and meaningful assessment.

2.2.2. Trait EI Measurement Instruments

Trait EI questionnaires constitute the second major family of EI assessments. Within this family, trait EI can be approached either as a personality-based construct, encompassing broad affect-related dispositions (Petrides, 2009; Petrides & Furnham, 2001; Petrides et al., 2007b), or as a more restricted framework focused exclusively on self-perceived emotional functioning (Brackett et al., 2006; Brasseur et al., 2013; Pekaar et al., 2018a; Schutte et al.,

1998), as originally defined in early EI definitions[4] (Mayer & Salovey, 1997; Salovey & Mayer, 1990).

Focusing first on personality-based trait EI measurement instruments, the *Trait Emotional Intelligence Questionnaire* represents the most explicit and theoretically articulated operationalization of this approach. Its strong theoretical grounding and widespread use motivate the adoption of its short form (TEIQue-SF; Petrides, 2009) at the beginning of the present thesis[5]. The TEIQue-SF assesses four broad dimensions. Emotionality captures dispositions related to the perception, expression, and experience of emotions, including emotional awareness, and empathy (e.g., "*Expressing my emotions with words is not a problem for me*"). Self-control reflects dispositions linked to emotion regulation, stress management, and impulse control (e.g., "*On the whole, I'm able to deal with stress*"). Sociability refers to interpersonal dispositions encompassing assertiveness, social awareness, and the perceived ability to influence others' emotions (e.g., "*I can deal effectively with people*"). Finally, well-being encompasses dispositions related to positive self-evaluation and life satisfaction, such as optimism, self-esteem, and general happiness (e.g., "*On the whole, I'm pleased with my life*"). Participants are asked to indicate the extent to which each statement describes their typical feelings or behavior using a 7-point Likert-type scale ranging from 1 (*completely disagree*) to 7 (*completely agree*).

[4] Trait EI measures largely align with what Mayer and colleagues (2008) described as *mixed EI* measures, as well as with *Streams 2* and *3* in the typology proposed by Ashkanasy and Daus (2005). This broad category includes self-report instruments that assess both self-perceived emotional functioning and additional constructs such as personality traits, motivational tendencies, and socio-emotional dispositions (Bar-On, 1997, 2004; Petrides & Furnham, 2003). Despite their conceptual heterogeneity, these instruments share a common methodological characteristic: they rely exclusively on self-report formats. Within this tradition, trait EI measurement instruments differ in scope and focus. Some retain a broad mixed-model orientation by embedding EI within personality trait hierarchies (e.g., TEIQue), whereas others adopt a more restricted measurement focus centered on self-perceived emotional functioning exclusively (e.g., PEC, REIS). Importantly, several scholars have questioned whether *mixed-model* approaches provide a theoretically sound basis for labeling these constructs as forms of EI at all (Matthews et al., 2007; Mayer et al., 2008, Zeidner et al., 2008, 2012).

[5] The TEIQue-SF was selected for the first study, and more broadly within the initial framework of the SNSF project, as it represented the most widely used and psychometrically validated self-report measure of trait EI at the time, just preceding the decision to investigate the mediating role of emotional mechanisms in the EI–SWB relationship.

Nevertheless, a key limitation of the TEIQue-SF concerns its well-being dimension, which may partially overlap with SWB and thus blur conceptual and statistical distinctions between predictors and criteria. Although excluding this dimension is feasible, doing so would fragment the theoretical structure of the construct and undermine its integrative logic. Accordingly, the present thesis progressively shifted its focus toward trait EI questionnaires that more narrowly capture self-perceived emotional functioning.

Within the trait EI measurement tradition focusing on self-perceived emotional functioning exclusively, the earliest tool was the *Trait Meta-Mood Scale* (TMMS; Salovey et al., 1995). The TMMS was developed in line with the initial definition of EI proposed by Salovey and Mayer (1990), and, accordingly, focuses on self-perceived emotional awareness, clarity, and regulation of one's own emotional states, prior to the formal articulation of the four-branch model. Subsequent questionnaires were developed after the four-branch model was formally articulated (Mayer & Salovey, 1997) and explicitly translated it into self-report formats. The *Self-Report Emotional Intelligence Test* (SREIT; Schutte et al., 1998) and similarly, the *Self-Rated Emotional Intelligence Scale* (SREIS; Brackett et al., 2006) measure self-perceived ability in perceiving, understanding, using, and managing emotions. However, these early self-report instruments were not designed to discriminate between intrapersonal and interpersonal emotional competencies.

More recent instruments addressed this limitation by explicitly incorporating the self–other distinction into their structure. The *Profile of Emotional Competence* (PEC; Brasseur et al., 2013) measures five dimensions, including identification, expression, comprehension, regulation, and utilization, within both intrapersonal and interpersonal domains. As acknowledged by the authors, the comprehensive structure of the PEC involves numerous closely related dimensions, which increases model complexity and may limit its suitability for isolating specific mechanisms in explanatory models. For these reasons, the present thesis relied

rather on the *Rotterdam Emotional Intelligence Scale* (REIS; Pekaar et al., 2018a), which adapts a concise two-by-two framework that crosses appraisal[6] and regulation with intrapersonal and interpersonal dimensions. In this questionnaire, participants are asked to indicate the extent to which each statement describes their typical emotional functioning, using a 5-point Likert-type response scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Example items include: "*I always know how I feel.*" (intrapersonal appraisal), "*I know which feelings others experience."* (interpersonal appraisal), *"I am in control of my own emotions."* (intrapersonal regulation), *"I can make someone else feel differently."* (interpersonal regulation). As noted by the authors, the REIS provides detailed dimensional scores along with a global trait EI index, offering strong psychometric properties, conceptual clarity, and practical brevity.

Finally, as with ability EI, trait EI measures are not entirely independent of cultural context. A meta-analysis spanning 42 countries (Yang et al., 2025) reported systematic but moderate mean-level differences in trait EI associated with cultural values such as individualism–collectivism and self-construal.

Having outlined the principal measures of ability and trait EI, the next section examines how they relate to each other's.

2.2.3. Convergence and Divergence Among EI Measurement Instruments

EI measures within the same conceptualization (e.g., within ability EI or within trait EI) tend to show moderate convergence, reflecting a shared underlying construct (Elfenbein & MacCann, 2017; Van der Linden et al., 2017; Van der Linden et al., 2012). Convergence is particularly strong when measurement instruments share a similar format or content. For example, situational judgment tests of emotion understanding and management correlate more

[6] The term "appraisal" in the REIS does not correspond to appraisal in the sense used in Scherer's (2009) Component Process Model, which refers to a sequence of evaluative checks that determine the unfolding of an emotional episode. In the REIS framework, "appraisal" denotes a broader cluster of self-reported abilities related to emotion awareness, recognition, and understanding, rather than a formal evaluative process as defined in contemporary appraisal theories.

closely with each other than with emotion recognition tests (Elfenbein & MacCann, 2017). Similarly, trait EI questionnaires grounded in narrower self-report emotional functioning (e.g., REIS, PEC) show stronger convergence with each other than with trait EI instruments embedded in personality frameworks (e.g., TEIQue) (Pekaar et al., 2018a).

By contrast, correlations between ability and trait EI instruments are weak to non-significant, underscoring their conceptual distinctiveness (Austin, 2010). Rather than indicating a lack of coherence within the EI construct, this pattern is consistent with integrative models that conceptualize EI as a multi-level phenomenon. In particular, the *three-level model* distinguishes between emotion-related knowledge, emotional abilities, and emotional dispositions[7] (Mikolajczak, 2009). Within this framework, limited convergence between EI measures is expected, as instruments operate at different levels of analysis.

In sum, ability and trait EI measures capture related yet non-redundant aspects of emotional functioning, and considering both provides a more comprehensive understanding of the construct. Because these measures reflect partially overlapping but distinct aspects of EI, they are also expected to differ in how they relate to other major dimensions of individual differences. This naturally raises the question of how ability and trait EI are associated with broader individual-difference variables such as demographic characteristics, personality traits, and cognitive ability.

2.3. Demographic, Personality, and Cognitive Correlates of EI

EI show systematic associations with demographic, cognitive, and personality variables. Gender differences are generally small but consistent. Women tend to score slightly higher than men on both ability EI tests (Cabello et al., 2016; Fernández-Berrocal et al., 2012; Kafetsios,

[7] Within Mikolajczak's framework, emotion-related knowledge refers to individuals' declarative understanding of emotions, including emotion concepts, causes, and regulation strategies. Emotional abilities denote the capacity to effectively apply this knowledge in emotionally salient situations, as assessed by performance-based ability EI measures. Emotional dispositions, in turn, reflect stable patterns in how individuals typically perceive, experience, and regulate emotions across contexts, as captured by trait EI questionnaires.

2004; Salguero et al., 2012; Schlegel et al., 2014), and on trait EI questionnaires (Brasseur et al., 2013; Salovey et al., 1995).

Age effects are similarly modest but consistent across EI approaches. In ability EI, middle-aged adults typically outperform younger and older groups, suggesting that life experience enhances emotion knowledge (Cabello et al., 2016; Schlegel et al., 2014). Evidence regarding trait EI is more limited, yet available studies indicate that older adults tend to score higher than younger ones (Brasseur et al., 2013).

In terms of cognitive correlates, ability EI shows positive associations with general and crystallized intelligence (Hendel & Brysbaert, 2024; Udayar et al., 2020), consistent with its grounding in cognitive ability models. Experimental evidence further indicates that ability EI facilitates fluid cognitive functioning, particularly working memory, under affective load. Individuals scoring higher in ability EI, particularly in emotion management, demonstrate greater working-memory efficiency during emotional ("hot") tasks, but not during neutral ("cool") ones (Gutiérrez-Cobo et al., 2016, 2017). By contrast, trait EI does not appear to be related to crystallized of fluid intelligence (Brasseur et al., 2013; Gutiérrez-Cobo et al., 2016, 2017; Udayar et al., 2020).

Differences between ability EI and trait EI are further reflected in their distinct patterns of association with personality traits. Ability EI shows weak or inconsistent links with the Big Five (Caruso et al., 2002; Udayar et al., 2020), although specific facet such as emotion recognition display modest association with openness and neuroticism (Schlegel et al., 2017). In contrast, trait EI displays robust and systematic association with personality dimensions, particularly higher extraversion and agreeableness and lower neuroticism, with especially stronger correlations for personality-embedded trait EI measures compared with those focused exclusively on self-perceived emotional functioning (Pekaar et al., 2018a; Petrides et al., 2007b; Van der Linden et al., 2017; Van der Linden et al., 2012). Furthermore, trait EI (i.e., TEIQue)

is negatively associated with maladaptive traits such as Machiavellianism and psychopathy (Petrides et al., 2011).

In sum, demographic variables such as age and gender account for little variance in both ability and trait EI, whereas cognitive ability and personality exert stronger and theoretically coherent influences. Ability EI aligns closely with crystallized intelligence and emotional reasoning, while trait EI captures self-perceived emotional dispositions that are partly rooted in, but not reducible to, broader personality traits. These patterns are outlined here to inform the selection of potential control variables in subsequent analyses. Beyond these considerations, the present work turns to examining the positive outcomes associated with both ability and trait EI.

2.4. Broader Consequences and Applied Relevance of EI

Meta-analytic evidence indicates that the strength of associations between EI and adaptive outcomes depends on whether EI is operationalized as an ability or as a trait. In academic contexts, ability EI tends to be more strongly associated with performance outcomes, suggesting that performance-based emotional abilities are particularly relevant for academic achievement (MacCann et al., 2020b).

By contrast, in occupational settings, trait EI shows stronger associations with job performance than ability EI (O'Boyle et al., 2011). This divergence becomes even more pronounced for job satisfaction (Miao et al., 2017). Similarly, in the health domain, trait EI show substantially stronger associations with mental, psychosomatic, and physical health than ability EI (Martins et al., 2010).

Most importantly for the present thesis, a substantial body of research indicates that higher EI is associated with higher SWB, with this relationship being consistently stronger, more robust, and more extensively documented for trait EI than for ability EI (Sánchez-Álvarez et al., 2016). Accordingly, the present work aims to examine in detail how ability EI and trait

EI relate to SWB, as this constitutes a crucial initial step for the mediation analyses developed in subsequent chapters. To support this aim, it is necessary to clearly define what is meant by subjective well-being, thereby providing the conceptual foundation for interpreting the EI–SWB associations examined in this thesis.

3. Subjective Well-Being

Subjective well-being (SWB) is broadly defined as individuals' evaluations of their lives (Diener, 1984; Diener et al., 2018; Diener et al., 1999). Traditionally, SWB refers to two main components, namely, cognitive judgments of life satisfaction and affective experiences reflecting the balance of positive and negative emotions (Diener, 1984).

In this thesis, however, the term *subjective well-being* is understood in a broader sense, encompassing any self-perceived evaluation of well-being, as opposed to objective indicators such as income, health, or social status. This broader definition integrates both *hedonic* aspects, as pleasure and life satisfaction (e.g., Diener, 1984), and *eudaimonic* dimensions as meaning, authenticity, and personal growth (e.g., Ryff, 1989), consistent with contemporary SWB conceptions (Brulé & Maggino, 2017). To fully understand the conceptual foundations of SWB, the following section traces its historical evolution, from early philosophical conceptions of the "good life" and happiness to the emergence of modern, empirically grounded models linking emotion, cognition, and self-realization.

3.1. History and Concepts of SWB

3.1.1. Classical and Philosophical Origins of SWB

Concerns with human happiness[8] and SWB long predate their scientific investigation and can be traced back to classical antiquity. Early philosophical reflections already grappled with a fundamental question that continues to structure contemporary research: whether well-being should be understood primarily in terms of pleasure and positive experience, or in terms of virtue, purpose, and the realization of human potential.

[8] The term "happiness" is used here in its historical and philosophical sense. Its meaning varied substantially across eras, reflecting shifting views about what constitutes a good or fulfilled life. Although these early conceptions do not align directly with contemporary psychological models, their evolution provides an important foundation for understanding how modern frameworks such as SWB emerged.

In ancient Greece, this tension was articulated through two broad conceptions of the good life. One emphasized *hedonia*, defined as the pursuit of pleasure and the avoidance of pain, whereas the other emphasized *eudaimonia*, understood as a deeper form of fulfillment grounded in virtue, meaning, and self-realization, most notably articulated in Aristotelian philosophy lines (Aristotle, ca. 4th century BCE/2021). Subsequent philosophical traditions further refined these ideas. Epicurean thought highlighted moderation and inner peace, valuing freedom from pain and mental disturbance as central to a good life (Epicurus, ca. 3rd century BCE/1994), whereas Stoic philosophy progressively internalized well-being, conceptualizing it as the product of rational judgment and moral discipline rather than external fortune (Epictetus, ca. 108 CE/2014; Seneca, 58 CE/2014).

Following the classical era, conceptions of happiness were increasingly reframed within religious traditions, where fulfillment was portrayed as a divine or transcendent state accessible primarily through spiritual alignment rather than worldly circumstances (Augustine, 426 CE/2003). A decisive shift occurred during the Enlightenment, as philosophical inquiry turned toward human-centered accounts of well-being. Fulfillment was reinterpreted as attainable through rational understanding and virtuous living (Spinoza, 1677/1996), while utilitarian philosophy sought to define happiness in more measurable terms, as the maximization of pleasure and the minimization of pain (Bentham, 1789/1988).

This perspective was later refined through the distinction between lower and higher pleasures, where lower pleasures refer to sensory and physical gratification, whereas higher pleasures encompass intellectual, aesthetic, and moral forms of satisfaction considered more conducive to enduring human fulfillment (Mill, 1861/1998). Together, these developments progressively moved the philosophical conceptions of happiness toward a structure that anticipates contemporary distinctions between positive and negative affect. Bentham's emphasis on balancing pleasure and pain, together with Mill's differentiation between

qualitatively distinct forms of pleasure, foreshadow the modern view that SWB depends on the relative predominance of pleasant over unpleasant experiences.

Collectively, these evolving perspectives provided the philosophical foundations for modern conceptions of SWB and introduced *hedonic* and *eudaimonic* approaches that continue to inform contemporary empirical research. As the focus gradually shifted from philosophical reflection to systematic observation, the groundwork was laid for the scientific study of SWB. This transition became especially pronounced with the emergence of psychology as an empirical discipline at the turn of the twentieth century.

3.1.2. Foundations of Scientific Approaches to SWB

The scientific study of SWB emerged in the early twentieth century, alongside the consolidation of psychology as an empirical discipline. During this period, well-being began to be approached not merely as a philosophical or moral ideal, but as a psychological phenomenon that could be systematically observed and measured. A central feature of this intellectual shift was the integration of bodily processes, emotional experience, and meaning into a unified account of psychological life.

Within this framework, early theoretical developments emphasized the embodied and experiential nature of SWB. The idea that physiological reactions precede emotional awareness, as well as the view that happiness is grounded in lived experience, everyday habits, and the voluntary direction of attention (James, 1884/2002, 1902/2002) provided a foundation for later research linking affective and cognitive processes in the study of SWB.

During the mid-twentieth century, two complementary approaches took shape. The first, then dominant, rooted in the *hedonic* tradition, conceptualized SWB as the balance between positive and negative affect combined with the overall life satisfaction (Diener, 1984). This perspective established the idea that well-being could be systematically studied as a psychological construct reflecting how people feel and how they evaluate their lives. Over time,

this conceptualization laid the foundation for the empirical study of SWB as a measurable phenomenon, as reflected in large national and international surveys that systematically assess life satisfaction and affective experiences (Barry, 2014; Helliwell et al., 2025).

In parallel, the *eudaimonic* perspective developed within humanistic psychology emphasized fulfillment, authenticity, and self-realization rather than pleasure alone. Within this perspective, *Maslow's* (1943/1987) hierarchy of needs provided an early conceptual foundation for understanding SWB as a developmental process, in which psychological functioning and fulfillment depend on the progressive satisfaction of human needs. This process beginning with basic needs such as physiological and safety, followed by psychological needs, including love, belongingness, and esteem. At the upper levels emerge the growth needs, encompassing curiosity, knowledge, creativity, and aesthetic appreciation, ultimately leading to self-actualization, corresponding to the realization of one's fullest potential and an integrated sense of self. Specifically, self-actualization corresponds to "*the desire to become more and more what one is, to become everything that one is capable of becoming*" (Maslow, 1943/1987, p. 382).

A complementary view soon emphasized that well-being cannot be reduced to reaching a developmental "summit" but must be understood as an ongoing experiential process that supports optimal functioning. From this perspective, psychological functioning reflects a continuous movement toward greater congruence between one's lived experience and one's sense of self, fostered by openness, flexibility, and authentic engagement with one's emotions and relationships (Rogers, 1961/1995). A fully functioning person is therefore not someone who has achieved maturity once and for all, but someone who remains actively involved in this dynamic process of becoming.

Taken together, these humanistic perspectives framed well-being in eudaimonic terms, emphasizing autonomy, personal growth, authenticity, meaningful relationships, and purpose

in life as central components of optimal psychological functioning. These core principles were later formalized in a multidimensional framework comprising autonomy, environmental mastery, personal growth, positive relations, purpose in life, and self-acceptance (Ryff, 1989). This framework offered psychology the first systematic operationalization of eudaimonic well-being, complementing the traditional hedonic focus on affect and life satisfaction. By the end of the 1990s, hedonic and eudaimonic perspectives represented the two primary pillars through which SWB was conceptualized.

3.1.3. Expansion and Integration of SWB Research

Around the early 2000s, research on SWB expanded rapidly, driven by the emergence of *positive psychology*. Originating from the work of Seligman and Csikszentmihalyi (2000), this movement redirected attention toward human strengths and optimal functioning, positioning SWB as a central construct and generating extensive empirical work on positive emotion, resilience, meaning, and personal development. This expansion also stimulated the development of applied interventions aimed at enhancing well-being, including interventions to enhance gratitude, mindfulness, and strengths use (Lyubomirsky et al., 2005).

Beyond this empirical growth, an important conceptual shift involved efforts to integrate hedonic and eudaimonic traditions within a common explanatory framework. A particularly influential contribution was provided by the *Self-determination theory* (STD, Ryan & Deci, 2000) which moved the focus away from defining what well-being consists of and toward identifying the psychological conditions under which it emerges. By proposing that human SWB depends on satisfying three basic psychological needs—autonomy, competence, and relatedness—SDT offered a common framework for understanding why both positive affect and life satisfaction (hedonic aspects) as well as vitality, authenticity, and psychological growth (eudaimonic aspects) tend to emerge when these needs are fulfilled (Ryan & Deci, 2000, 2001).

Building on this integrative lens, later frameworks within positive psychology further broadened the conceptual scope of SWB. The *flourishing* (Diener et al., 2010) and the *PERMA* frameworks (Seligman, 2011) emphasized multidimensional profiles of optimal functioning, including positive emotion, engagement, relationships, meaning, and accomplishment. Closely related concept of *thriving* extended this integrative orientation, highlighting resilience, vitality, and the capacity to maintain growth even under adverse conditions (Goodman et al., 2018; Su et al., 2014). Together, these frameworks reflect a strong integrative trend within positive psychology, in which hedonic and eudaimonic elements are increasingly combined to capture broader profiles of optimal functioning. SWB is thus conceptualized not merely as a balance of pleasure and displeasure, but as a dynamic configuration involving affective experience, engagement, meaning, and personal growth.

In parallel with developments within positive psychology, a complementary line of research emerging from the mental health literature proposed a broader perspective on SWB. Rather than focusing primarily on optimal functioning and the cultivation of strengths, this tradition examined how positive functioning relates to the broader structure of mental health. Within this framework, the two-continua model (Keyes et al., 2002) proposes that mental health cannot be reduced either to the mere absence of psychological distress, as traditionally emphasized in clinical psychology, or to high levels of positive functioning alone, as often emphasized in positive psychology. Instead, mental health is conceptualized as the combination of both: the presence of positive functioning (often referred to as flourishing) and the absence of mental disorder or psychological distress. Instead, positive functioning and psychological distress represent two partially independent dimensions rather than opposite poles of a single continuum (Keyes, 2002, 2005, 2016).

Taken together, the different conceptualizations of SWB outlined above illustrate the main ways in which SWB is currently understood in contemporary psychology. Some

approaches adopt a hedonic perspective, focusing on affective experience and life satisfaction, whereas others emphasize eudaimonic well-being, highlighting meaning, personal growth, and self-realization. Integrative models within positive psychology combine these elements in broader accounts of flourishing and optimal functioning, while the mental health literature conceptualizes positive functioning and psychological distress as two partially independent dimensions.

Against this conceptual background, the present thesis adopts a perspective grounded in positive psychology and focuses specifically on the distinction between hedonic and eudaimonic well-being. Accordingly, SWB is examined primarily through indicators of positive functioning, without directly assessing the illness dimension typically emphasized in mental health approaches.

3.2. Measures of SWB

The overview below provides a selective, non-exhaustive presentation of key instruments used within the hedonic and eudaimonic traditions. It emphasizes their conceptual focus and methodological features, and provides a basis for understanding the measures later selected in the experimental part of this thesis.

3.2.1. Hedonic Well-Being Measurement Instruments

A major contribution to the hedonic dimension of well-being is the *Positive and Negative Affect Schedule* (PANAS, Watson et al., 1988), which is used in the present thesis to operationalize its affective component. The PANAS measures discrete emotional states (e.g., *excited*, *inspired*, *nervous*, *hostile*) over varying time frames (e.g., *in the present moment*, *today*, *past few days*, *past week*, *past few weeks*, *past years*, or *in general*) using a 5-point intensity scale ("*very slightly or not at all*" to "*extremely*"). In the context of the present thesis, the time frame was selected during the *past two weeks* in order to capture participants' typical affective

experiences with sufficient temporal breadth while remaining sensitive to meaningful fluctuations in daily emotional life.

Crucially, the PANAS conceptualizes positive and negative affect as two independent yet moderately correlated dimensions, a view strongly supported by decades of research showing that these two forms of affect function as distinct constructs shaped by partly different antecedents (Argyle & Crossland, 1987; Diener & Emmons, 1984; Watson & Tellegen, 1985). This dimensional structure is consistent with the two-continua perspective outlined above, which posits that well-being and ill-being are not opposite ends of a single spectrum but partially independent components of mental health (Keyes, 2002, 2016). Accordingly, positive and negative affect were treated as separate outcome variables rather than combined into a single balance index. This approach allows a more precise examination of whether EI are associated with the promotion of positive affect, the attenuation of negative affect, or both processes simultaneously. The PANAS demonstrates good test-retest reliability frames over long intervals and acceptable internal consistency (Terraciano et al., 2003), making it the benchmark for affective SWB assessment. More recent alternative instruments exist, such as the *Scale of Positive and Negative Experience* (SPANE, Diener et al., 2009), which assesses the frequency of broadly defined positive and negative experiences. However, because the SPANE assesses general affective tone (e.g., *good, bad, pleasant, unpleasant*) rather than discrete emotional states, and is therefore less commonly used to operationalize the affective component of hedonic SWB, it was not retained in the present thesis.

Parallel efforts addressed the *cognitive* evaluation of life as a whole. The *Self-Anchoring Striving Scale* (Cantril, 1965) asks respondents to rate their current life on a ladder from 0 ("worst possible life") to 10 ("best possible life"). Its simplicity and adaptability make it well suited for large-scale and cross-cultural surveys, with short-term reliability confirmed over two to four weeks. However, as a single-item measure, it lacks the psychometric robustness of

multi-item scales. A major advance followed with the *Satisfaction With Life Scale* (SWLS, Diener et al., 1985), which was used to operationalized cognitive SWB in this thesis. Comprising five items (e.g., "In most ways my life is close to my ideal") rated on a 7-point Likert scale (from *strongly disagree* to *strongly agree*), the SWLS demonstrates strong internal consistency and excellent test–retest reliability, over a month (Steger et al., 2006) and even over one year (Ilies et al., 2019). It offers a reliable global index of life satisfaction, though it does not capture satisfaction within specific domains such as family, work, or health.

3.2.2. Eudaimonic Well-Being Measurement Instruments

Within the eudaimonic tradition, the *Psychological Well-Being Scales* (PWB; Ryff, 1989) represent one of the most influential instruments for operationalizing well-being. The PWB conceptualizes eudaimonia across six theoretically grounded dimensions: autonomy, environmental mastery, personal growth, positive relations, purpose in life, and self-acceptance. Respondents evaluate on a 6-point Likert scale (from *strongly disagree* to *strongly agree*) how well statements describe their functioning (e.g.,*"I have confidence in my opinions, even if they are contrary to the general consensus"*, autonomy; *"In general, I feel I am in charge of the situation in which I live"*, environmental mastery; "*I think it is important to have new experiences that challenge how you think about yourself and the world",* personal growth; *"People would describe me as a giving person, willing to share my time with others",* positive relations; *"Some people wander aimlessly through life, but I am not one of them"*, purpose in life; or *"When I look at the story of my life, I am pleased with how things have turned out",* self-acceptance). Although the PWB framework is deliberately broad, the present thesis used only the positive relations dimension. This dimension was selected because it was expected to be the most closely related to emotional intelligence and therefore the most relevant for the research questions addressed. This choice is further supported by ongoing debates about the distinctiveness of several other PWB dimensions—particularly autonomy, environmental

mastery, personal growth, and purpose in life—which have shown inconsistent factor-analytic support across studies (Abbott et al., 2006; Burns & Machin, 2009; Kafka & Kozma, 2002; Springer et al., 2006; Van Dierendonck, 2004).

More specific instruments also exist, such as the *Meaning in Life Questionnaire* (MLQ; Steger et al., 2006) which distinguishes between the presence of meaning (e.g., *"My life has a clear sense of purpose"*) and the search for meaning in life (e.g., *"I am always looking to find my life's purpose"*). However, the MLQ was not retained in the present thesis, as the search dimension has been shown to positively correlate with psychological distress (Schulenberg et al., 2011), and methodological concerns have been raised regarding the use of reverse-scored items, which may reduce sensitivity at higher levels of meaning (Schutte et al., 2016).

Having outlined the principal measures of hedonic and eudaimonic well-being[9], the next section examines how they relate to each other.

3.2.3. Convergence and Divergence Among SWB Measures

Although hedonic and eudaimonic approaches are conceptually distinct, it is important to determine whether this distinction is also meaningful at the empirical level. The present section therefore examines the extent to which these approaches converge or diverge across commonly used measures.

Overall, hedonic instruments correlate moderately to highly with eudaimonic ones, indicating that they may capture overlapping aspects of higher order SWB (Disabato et al., 2016; Joshanloo, 2016). Individuals reporting higher life satisfaction and positive affect also tend to experience a stronger sense of purpose, self-acceptance, and personal growth

[9] Beyond these instruments, numerous other measures of SWB have been developed, reflecting the diversity of conceptual and methodological approaches in the field. Comprehensive reviews cataloging these tools and their psychometric properties can be found in Ruch, W., Bakker, A. B., Tay, L., & Gander, F. (2023). *Handbook of Positive Psychology Assessment*. Hogrefe Publishing. https://doi.org/10.1027/00619-000.

(Joshanloo, 2016). This convergence indicates that different SWB approaches are not independent silos, but rather reflect partially shared psychological functioning.

At the same time, consistent evidence supports their discriminant validity. Hedonic indicators, such as positive and negative affect or life satisfaction, primarily reflect experiential states and are sensitive to short-term emotional fluctuations and changing life circumstances. In contrast, eudaimonic measures like the PWB tap into enduring orientations toward meaning, authenticity, and self-realization, which evolve more slowly over time and reflect deeper motivational structures (Huta & Ryan, 2010). Factor-analytic studies confirm this distinction, showing that hedonic and eudaimonic items load on related yet separable dimensions (Disabato et al., 2016; Linley et al., 2009).

Taken together, these findings indicate that hedonic and eudaimonic approaches converge in their assessment of overall well-being while diverging in emphasis, temporal stability, and underlying emotional processes. Having clarified this measurement structure, the following section turns to the factors that shape individual differences in SWB.

3.3. Demographic, Personality and Cognitive Correlates of SWB

Examining correlates of SWB serves to identify factors that influence SWB and may act as potential confounds in analyses linking EI to SWB.

Gender differences in SWB are generally modest but consistent. Women tend to report higher negative affect and slightly lower positive affect, as well as greater emotional frequency overall, experiencing both positive and negative emotions more often than men (Brebner, 2003; Sprecher & Sedikides, 1993). Yet, when evaluating their lives as a whole, women often report equal or even higher life satisfaction. This apparent discrepancy between affective experiences and cognitive evaluations has been termed the *female happiness paradox* (Batz-Barbarich et al., 2018; Blanchflower & Bryson, 2024). Eudaimonic measures similarly reveal few systematic gender gaps, though differences occasionally emerge at the dimensional level. Men tend to

score higher in autonomy and self-acceptance, whereas women report greater personal growth and positive relations (García-Castilla et al., 2020; Matud et al., 2019; Ryff, 1989; Ryff & Keyes, 1995).

Age-related patterns vary across components of SWB. Affective experience generally improves with age, as older adults report fewer negative emotions and similar or slightly higher positive affect, consistently with *socioemotional selectivity theory* emphasizing enhanced emotion regulation and prioritization of positive experiences in later life (Carstensen, 1995; Stone et al., 2010). Life satisfaction often follows a *U-shaped curve*, declining in midlife before rising again in later years (Blanchflower & Oswald, 2008; Cheng et al., 2017; Stone et al., 2010). Eudaimonic dimensions also evolve with age. Self-acceptance, environmental mastery, and positive relations typically increase, while purpose in life and personal growth tend to decline with age, suggesting a shift from striving to acceptance (Ryff & Keyes, 1995). Similarly, the presence of meaning increases with age, while the search for meaning decreases (Steger et al., 2009).

Personality traits are more consistently related to SWB than demographic factors. Specifically, extraversion is associated with positive affect and life satisfaction, whereas neuroticism strongly correlates with negative affect and lower well-being (Steel et al., 2008). Conscientiousness is consistently associated with higher life satisfaction and with eudaimonic dimensions such as purpose in life and environmental mastery. In comparison, agreeableness and openness show smaller yet positive links, agreeableness being more strongly related to relational well-being, and openness to personal growth and self-development (Anglim et al., 2020). The honesty–humility trait, reflecting sincerity, fairness, and modesty (Aghababaei & Arji, 2014), shows little relation to hedonic indicators but consistent links to eudaimonic well-being (Ashton & Lee, 2007; Lee & Ashton, 2013).

In contrast, cognitive ability shows little to no association with SWB (Ma & Chen, 2024; Veenhoven & Choi, 2012).

Taken together, demographic and personality factors explain substantial variance in SWB, with extraversion and neuroticism emerging as the most reliable predictors. Cognitive ability, by contrast, exerts little direct influence.

Given that the relationship between EI and SWB constitutes a central focus of the present thesis, the following chapter provides a detailed review of empirical findings on this association.

4. Relationship Between EI and SWB

The present chapter reviews empirical evidence linking EI to SWB across two complementary levels of inquiry. The first section provides an overview of the strength and pattern of associations between EI and SWB, distinguishing between ability and trait EI as well as hedonic and eudaimonic aspects of SWB. The second section then examines longitudinal and intervention evidence to clarify the directionality of these relationships, a theoretical prerequisite for examining how EI may influence SWB[10].

4.1. Empirical Evidence for Associations between EI and SWB

Evidence for the influence of ability EI on SWB remains limited and mixed. Some studies report modest associations between ability EI (i.e., MSCEIT) and hedonic (i.e., life satisfaction) and eudaimonic well-being (i.e., psychological functioning) (Brackett et al., 2006; Extremera et al., 2011), whereas others find no significant links with positive and negative affect, life satisfaction, or meaning in life (Di Fabio & Kenny, 2016). At the facet level, findings are inconsistent. Particularly, emotion recognition tends to show weak or negligible associations with life satisfaction and positive relations (Schlegel et al., 2021; Sommer & Schlegel, 2024), emotion understanding is linked with life meaning but not life satisfaction (Floman et al., 2023; MacCann & Roberts, 2008), and emotion management is related to more frequent positive affect and less frequent negative affect (Burrus et al., 2012; MacCann et al., 2020a) but not to life satisfaction (MacCann & Roberts, 2008).

By contrast, trait EI displays stronger and more consistent associations. Meta-analyses reveal moderate positive correlations with life satisfaction and positive affect, and negative

[10] In mediation analyses, the specification of directional paths is necessarily theory-driven and relies heavily on prior empirical evidence. In the present thesis, the direction of effects in mediation models is informed by existing longitudinal and intervention studies, which provide support for treating emotional intelligence as a predictor of subsequent changes in subjective well-being rather than the reverse. Without such guidance from the literature, alternative causal directions would remain equally plausible.

correlations with negative affect (Sánchez-Álvarez et al., 2016; Schutte et al., 2007). Evidence for eudaimonic indicators is comparatively more limited; however, available studies suggest that trait EI is positively related to greater psychological well-being (Extremera et al., 2011) and life meaning (Di Fabio & Kenny, 2016; Luo et al., 2024). Of note, the stronger correlations for trait EI, compared to ability EI, may partly reflect *common method variance,* that is, the inflation of associations that occurs when both constructs are assessed using similar self-report formats, which tend to share response styles and biases (Podsakoff et al., 2003).

Overall, the literature reveals a consistent pattern whereby trait EI shows robust associations with hedonic well-being, ability EI tends to exhibit weaker and less consistent effects, and associations with eudaimonic outcomes remain comparatively underexplored. A critical next step is therefore to examine whether these associations reflect mere covariation or systematic directional relationships between EI and SWB.

4.2. Directionality of the Link Between EI and SWB

Evidence for the predictive value of ability EI for SWB remains limited. To date, only one longitudinal study has shown that higher ability EI predicts both hedonic and eudaimonic SWB one year later (Extremera et al., 2011). In contrast, trait EI displays more consistent predictive validity. Cross-sectional studies indicate that it significantly predicts positive affect, negative affect, and life satisfaction (Di Fabio & Kenny, 2016; Di Fabio & Saklofske, 2014; Gallagher & Vella-Brodrick, 2008) as well as psychological well-being beyond personality (Augusto Landa et al., 2010). Intervention research further strengthens causal inferences suggesting that trait EI plays a contributory role in shaping SWB. Studies show first that trait EI can be enhanced through targeted training (Nelis et al., 2009), and then that such improvements are followed by increases in life satisfaction and quality of interpersonal relationships (Kotsou et al., 2011).

Taken together, existing longitudinal and intervention studies provide converging, albeit uneven, support for a directional link from EI to SWB. While evidence for ability EI remains limited, the available longitudinal findings suggest that it may contribute prospectively to both hedonic and eudaimonic SWB. In contrast, trait EI shows more robust and consistent predictive validity across cross-sectional, longitudinal, and intervention designs, including effects that extend beyond established personality traits.

Importantly, although longitudinal and intervention studies show that EI tends to temporally precede subsequent variations in SWB, they do not explain *how* higher emotional abilities and dispositions translate into higher SWB. The relationship between both aspects of EI and SWB is more likely to operate through intermediate mechanisms than to be direct. As a result, clarifying the mechanisms mediating this relationship represents a critical next step for advancing theory in this domain.

5. Mechanisms Linking EI and SWB

The present chapter moves beyond global associations and focuses on the mechanisms mediating the relationship between EI and SWB. First, it reviews existing evidence on mediators of the relationship between both ability and trait EI, and SWB. Second, it builds on a framework that enables a more precise examination of the mechanisms operating within different emotional processes that may mediate this relationship. Third, the chapter introduces two candidate mechanisms, namely, *acute sensitivity* and *valence-specific sensitivity* to emotion information. Finally, it delineates the key gaps that currently limit progress in understanding the mechanisms linking EI to SWB and outlines the methodological principles and research objectives guiding the empirical studies that follow.

5.1. Empirical Evidence for Mediation

Existing research has primarily demonstrated that the association between trait EI and hedonic SWB is mediated by reduced perceived stress, greater perceived social support, and more frequent use of cognitive reappraisal (Kong et al., 2012; Sha et al., 2022; Urquijo et al., 2016). In addition, evidence suggests that the association between trait EI and eudaimonic SWB is also mediated by reduced perceived stress (Urquijo et al., 2016). To my knowledge, only a limited number of studies have directly examined the mediators of the relationship between ability EI and subjective well-being. For instance, its association with both hedonic and eudaimonic well-being has been shown to be mediated by greater use of adaptive coping strategies, such as positive reappraisal and planning-oriented coping (Extremera et al., 2020). Similarly, the relationship between ability EI (e.g., STEU, STEM) and psychological well-being has been found to be partly explained by lower reliance on avoidant coping strategies (MacCann et al., 2022).

Taken together, previous findings have identified broad indicators of psychological functioning as pathways linking EI to SWB. While these findings are informative, they provide limited insight into which specific emotional processes are involved. In particular, such indicators seem to aggregate multiple processes and do not clarify whether EI is associated to low-level emotional processes, more deliberate and controlled processes, or both.

For example, reduced perceived stress may reflect lower-level processes such as attenuated perception of, or attentional orienting toward negative emotional stimuli, as well as higher-level processes such as more effective modulation of negative responses once they have been elicited. Similarly, greater perceived social support may reflect enhanced perception of positive social cues (e.g., signs of support), acute reactivity to positive interpersonal signals (e.g., smiles, gestures, attention from close others), or a positive memory bias favoring the recall of previous supportive interactions. These examples illustrate that broad mediators such as perceived stress or social support may arise from mechanisms operating at different stages of emotion information processing[11].

Accordingly, the following section introduces a framework designed to capture the broad range of emotional processes involved in emotion information processing that may explain the relationship between EI and SWB. The goal is not to provide an exhaustive account, but to propose where specific mechanisms may be examined across emotional processes ranging from lower-level to higher-level functioning.

[11] Throughout this chapter, the term *mechanism* is used to refer to a theoretically specified functional pattern linking EI to SWB (e.g., acute emotional sensitivity, valence-specific sensitivity). By contrast, *emotional processes* refer to general stages of emotion information processing (e.g., attentional orienting toward emotion information, emotional reactivity, or emotional memory). Within this framework, a mediator is conceptualized as the manifestation of a particular mechanism operating on a specific emotional process involved in emotion information processing.

5.2. A Multilevel Perspective on Emotional Processes in EI

Evidence from affective neuroscience and psychology supports the idea that emotional functioning relies on multiple emotional processes unfolding across successive stages, rather than on a single, unitary process, as illustrated in Figure 1.

Figure 1: Multilevel processing of emotion information from low level, spontaneous emotional processes to high level reflective ones.

Lower-level emotional processes involve early perceptual and attentional operations that determine which emotion information is detected, prioritized, and spontaneously responded to. In contrast, higher-level emotional processes support more elaborated forms of processing, including conscious appraisal, meaning construction, and emotion regulation, thereby shaping how emotion information is experienced, subsequently remembered, and used to guide decision making (Brosch et al., 2013; McGaugh, 2018; Okon-Singer et al., 2015; Pourtois et al., 2013). Importantly, these stages differ not only in their temporal position but also in the degree of automaticity they involve. Low levels processes are generally assumed to operate in a rapid and largely spontaneous manner, with limited conscious control. As processing unfolds over time, processes may become increasingly deliberate and controllable, allowing for more reflective forms of appraisal and regulation (Kahneman, 2011). Together, these approaches converge on the idea that emotion information is not processed in a single step but unfolds across qualitatively distinct levels of functioning over time, where distinct mechanisms may modulate how emotion information is processed.

Building on this multilevel perspective of emotion information processing, recent theoretical developments have proposed that EI can be understood in terms of both how people reason about emotions and how they engage with emotion information across different stages of processing. Specifically, Fiori et al. (2022) conceptualized EI as comprising two interrelated but distinct components: emotional intelligence knowledge (EI_K), most often captured by ability EI tests and reflecting acquired, culturally shaped knowledge about emotions[12], and emotion information processing (EI_P), assessed through tasks which reflect how individuals perceive and process emotion information. Although the initial formulation primarily situated EI_P in early, spontaneous stages of emotion information processing, it leaves open that EI may be also related to later stages of emotion information processing. Moreover, while emotion information processing has been primarily assumed to relate to ability EI, the framework does not preclude its partial association with trait EI.

The present framework was introduced to provide a conceptual basis for the idea that ability EI and trait EI may be associated with how individuals process emotion information at different stages. The remaining step is therefore to specify the mechanisms operating at different stages of emotion information processing that are relevant to both ability and trait EI, and that plausibly contribute to SWB. Examining such shared mechanisms makes it possible to clarify how distinct aspects of EI may relate to SWB.

5.3. Theoretical Mechanisms Linking EI to SWB

The present section synthesizes two mechanisms, namely, *acute sensitivity* and *valence-specific sensitivity*, that emerge from converging but previously disconnected research on EI

[12] Importantly, emotional intelligence knowledge (EI_K) should not be conflated with declarative emotion knowledge as defined in other frameworks, such as the tripartite model of emotional intelligence (Mikolajczak, 2009). In contrast to the "emotion knowledge" component in the tripartite model, which primarily refers to explicit or declarative understanding of emotions, EI_K in Fiori's model captures the ability to mobilize, integrate, and apply emotion-related knowledge in a reasoned manner to solve emotion-laden problems, consistent with the core definition of ability EI.

and SWB, which may help explain how ability and trait EI relate to SWB. Importantly, distinctions between these mechanisms have primarily been specified with respect to different aspects of EI (i.e., ability versus trait EI), rather than with respect to hedonic versus eudaimonic components of well-being. Accordingly, rather than distinguishing mechanisms specific to hedonic and eudaimonic SWB, the present framework considers these mechanisms at a general SWB level, given the current lack of theoretical and empirical work supporting mechanism-level differentiation across these dimensions. Together, these mechanisms provide a theoretically grounded basis for explaining how ability EI and trait EI may relate to SWB through specific way of processing emotion information at different stages.

One mechanism through which higher ability EI might contribute to higher SWB is *acute sensitivity* to emotion information, independently of its valence or pleasantness.

Fiori and Ortony (2021) proposed that ability EI may be associated to a mechanism of acute sensitivity[13] to emotion information, particularly at early stages of emotional processing (i.e., attention and perception). Concretely, this acute sensitivity is hypothesized to manifest as faster attentional orienting toward emotional stimuli and greater perception of emotion information (e.g., facial expressions or affective scenes). Such sensitivity might improve situational awareness and support timelier and context-appropriate emotional responses. From an evolutionary perspective, this sensitivity is consistent with evolutionary perspectives in which fast attunement to emotion information confers adaptive value by prioritizing biologically relevant cues (Darwin & Darwin, 1872). Importantly, the mechanism of acute

[13] The present thesis uses the term acute sensitivity rather than the original label *hypersensitivity* introduced by Fiori and Ortony (2021). Although the latter was initially intended to capture the idea of acute sensitivity to emotion information, the term hypersensitivity often carries negative connotations and may evoke notions of generalized emotional vulnerability (e.g., sensory or clinical hypersensitivity). The term acute sensitivity is therefore preferred here, as it more precisely conveys the notion of increased sensitivity to emotion information without implying maladaptive or generalized emotional overreactivity.

sensitivity to emotion information has been primarily theorized in relation to ability EI, whereas its relevance for trait EI remains largely unexplored.

Although acute sensitivity to emotion information may be adaptive at early stages of processing from an evolutionary perspective, it is far less likely to promote higher SWB when it persists at later, more elaborative stages of emotional functioning. At later stages of emotional processing, acute sensitivity may increase exposure to emotional load, particularly when negative cues are salient. Pronounced sensitivity to negative information has been associated with heightened stress reactivity, rumination, and greater vulnerability to anxiety and depression (Bar-Haim et al., 2007; Nolen-Hoeksema et al., 2008). This concern echoes work on the so-called "*dark side*" of EI, which has suggested that acute emotional awareness, when not accompanied by effective regulation, may in some contexts be associated with overinvolvement in emotional situations, interpersonal strain, or maladaptive coping[14] (Austin et al., 2007; Davis & Nichols, 2016).

Taken together, these considerations suggest that acute sensitivity may be beneficial at strictly attentional and perceptual stages, but is unlikely to remain adaptive at later, more elaborative stages of processing. These limitations point toward the need for another mechanism that may selectively modulate emotional input as processing unfolds (Fiori et al., 2023).

Building on this idea, the present thesis introduces the concept of *valence-specific sensitivity* to integrate converging evidence suggesting that emotional functioning may become increasingly differentiated over time, with negative[15] information being down-regulated and positive information preferentially maintained or amplified.

[14] Of note, the "dark side" perspective remains debated, as the majority of empirical studies report adaptive or neutral associations between EI and SWB.

[15] Throughout this thesis, the terms *positive* and *negative* are generally used to refer to the affective *valence* of emotion information. This choice is made to maintain conceptual clarity when discussing valence-related mechanisms.

From this perspective, valence-specific sensitivity constitutes a plausible mechanism through which EI—particularly at more deliberate stages of emotion information processing—may contribute to higher SWB. A first source of support comes from research on emotion regulation. Individuals scoring higher in EI report to use more adaptive regulatory strategies and lower levels of perceived stress when dealing with emotionally challenging situations (Chan, 2006; Extremera et al., 2020; Kong et al., 2012; Sha et al., 2022; Urquijo et al., 2016). Although the use of more adaptive regulatory strategies does not necessarily imply a reduction in emotional reactivity per se, it does suggest a greater capacity to down-regulate the impact of negative experience, which constitutes one potential pathway through which both ability and trait EI contributes to SWB.

However, SWB might not sustained solely by reducing the impact of negative experiences. Positive psychology frameworks further highlight that SWB also depends on the capacity to capitalize on positive experiences. The *Broaden-and-Build Theory* (Fredrickson, 2001) proposes that positive emotions expand cognitive and social resources and promote long-term growth, while the *Vantage Sensitivity framework* (Lionetti & Pluess, 2024; Pluess, 2017; Pluess & Belsky, 2013), suggests that some individuals benefit disproportionately from positive environments. In addition, *savoring*, that is, the capacity to attend to, prolong, and mentally elaborate positive experiences, has been identified as a robust predictor of subjective happiness and resilience (Bryant, 2021; Bryant & Veroff, 2007; Jose et al., 2021; Jose et al., 2012; Smith & Bryant, 2016; Tugade & Fredrickson, 2004). Consistent with these perspectives, empirical evidence have already shown that individuals high in trait EI engage more intensively in savoring processes, which in turn is associated with higher life satisfaction and subjective happiness (Szczygieł & Mikolajczak, 2017).

Taken together, existing theoretical accounts and partial empirical evidence suggest that ability EI and trait EI may lead to SWB through different roads. Ability EI might be primarily

associated with early acute sensitivity to emotion information, which might subsequently be modulated or transformed into a more valence-specific profile at later, more deliberate stages of emotional processing. Trait EI, in contrast, may be more directly associated with valence-specific mechanisms operating at reflective stages of emotional functioning.

Importantly, this distinction is introduced here as a working theoretical framework rather than as a settled conclusion, as the proposed mechanisms have not yet been systematically tested, particularly within a multilevel emotion information-processing perspective. Building on this rationale, the next section focuses on three emotional processes which provide concrete and empirically pathways through which the two mechanisms outlined above, namely, acute sensitivity and valence-specific sensitivity to emotion information, can be examined.

5.4. Emotional Processes and Embedded Mechanisms Linking EI to SWB

The three emotional processes selected were attentional orienting, emotional reactivity, and emotional memory. These processes were selected because they may provide identifiable stages at which mechanisms related to ability or trait EI are expressed and at which mechanisms relevant to SWB may operate. In several cases, both conditions are met.

Focusing on these three emotional processes allows a more precise localization of mechanisms associated with ability and trait EI and an assessment of their relevance for SWB. The following sections therefore describe each emotional process in detail, explain how it constitutes a plausible bridge between EI and SWB within an emotion information-processing framework, and summarize the relevant theoretical and empirical evidence available at the time of the present doctoral research[16].

[16] The framework presented here thus reflects a cumulative research program that evolved across successive studies conducted between late 2021 and early 2025.

5.4.1. Attentional Orienting

Attentional orienting refers to the rapid allocation of attention toward salient stimuli in the environment. Emotional stimuli hold a privileged status within this process, as they capture attention faster than neutral stimuli (Öhman et al., 2001; Pool et al., 2016; Pourtois et al., 2013). In this context, the relevant mechanism is an increased sensitivity to emotion information, which biases attentional orienting toward emotionally salient cues. This early attentional prioritization is widely considered adaptive, as it facilitates the swift detection of biologically or socially significant signals, including threats and affiliative information (Darwin & Darwin, 1872; Lang & Bradley, 2010). Enhanced orienting toward positive cues has also been linked to greater resilience and well-being (Thoern et al., 2016). Taken together, evidence suggests that optimal functioning involves an early attentional bias toward both positive and negative emotion information.

Within this framework, attentional orienting represents a plausible process through which EI may relate to SWB. More specifically individuals high in ability EI might exhibit a mechanism of acute sensitivity to emotion information—as proposed by Fiori and Ortony (2021)—resulting in faster attentional orienting toward emotionally emotion information, which in turn might be associated to higher levels of SWB. From an evolutionary perspective, such rapid detection of emotion information might be adaptive, as it might facilitate timely responses to biologically significant signals. When this early acute sensitivity remains relatively balanced between positive and negative stimuli, it might enhance the availability of emotion information for subsequent evaluative and regulatory processes, thereby potentially promoting SWB.

By contrast, existing theoretical accounts of trait EI do not, at present, envision the notion of acute sensitivity at early stages of emotion information processing. Rather, trait EI is primarily conceptualized as reflecting more deliberate, reflective, and regulatory aspects of

emotional functioning, rather than enhanced early attentional sensitivity to emotion information (Vesely Maillefer et al., 2018). Similarly, there is no empirical evidence demonstrating an association between trait EI and increased early attentional orienting toward emotional stimuli. Accordingly, the association between trait EI and SWB might be more plausibly explained by processes engaged at later, more deliberate stages of emotional experience.

Having considered attentional orienting as an early emotion information-processing stage, the next step is to examine subjective emotional reactivity as a subsequent processing stage through which the relationship between EI and SWB might be mediated.

5.4.2. Subjective Emotional Reactivity

Subjective emotional reactivity refers to how individuals experience and respond to emotionally salient stimuli, encompassing affective reactions to both positive and negative stimuli[17] (Becerra et al., 2019; Larsen & Diener, 1987). Because these emotional responses shape how individuals engage with their environment, emotional reactivity represents a central affective pathway through which EI might influence SWB.

A large body of research shows that positive reactivity supports SWB by broadening attention, facilitating approach behaviors, and promoting the accumulation of social and psychological resources (Fredrickson, 2001; Pluess, 2017; Tugade & Fredrickson, 2004). Particularly, individuals who report reacting more strongly to everyday positive events experience greater life satisfaction and happiness (Diener et al., 2009; Kong & Zhao, 2013; Sun et al., 2023), and experimental inductions of positive affect reliably increase satisfaction and interpersonal connectedness (Fredrickson et al., 2008), and quality of interpersonal relationships (Bazzini et al., 2007). In contrast, increased negative reactivity is consistently linked to poorer adjustment, including increased vulnerability to stress, anxiety, and depression

[17] For conciseness, reactivity to positively valenced stimuli is referred to as positive reactivity, whereas reactivity to negatively valenced stimuli is referred to as negative reactivity throughout this thesis.

(Huang et al., 2023; Zorn et al., 2017), and lower satisfaction in close relationships (Randall & Bodenmann, 2017). Taken together, these findings suggest that the most adaptive emotional profile to support SWB combine increased positive reactivity with decreased negative reactivity.

Recent theoretical developments proposed that ability EI facets may contribute to such valence-specific reactivity profile at more deliberate stages of emotion information processing (Fiori et al., 2023). This proposal subsequently received empirical support. Experimental studies showed that individuals higher in emotion management exhibit increased positive and decreased negative reactivity (Fiori et al., 2024; Gillioz et al., 2025). In contrast, individuals high in emotion recognition and understanding tend to react more strongly to both positive and negative stimuli, a pattern broadly consistent with acute sensitivity. Together, these findings suggest that ability EI—particularly the emotion management facet—may be associated with valence-specific sensitivity mechanisms operating at later stages of emotional processing.

A similar valence-specific reactivity profile has been empirically observed for trait EI. Individuals high in trait EI report more frequent and intense positive emotions in daily life (Moroń & Biolik-Moroń, 2021) and amplified positive feelings (Kafetsios & Zampetakis, 2008). At the same time, they show lower negative reactivity, reflected in reduced fear, anxiety, and stress (Moroń & Biolik-Moroń, 2021; Petrides et al., 2007a), fewer negative emotional episodes (Kafetsios & Zampetakis, 2008), diminished reactions to induced negative events (Schutte et al., 2002) and greater resilience following major stressors (Armstrong et al., 2011).

All in all, existing research indicates that emotional reactivity might represent a pathway through which EI, particularly the emotion management facet of ability EI and global trait EI, relate to SWB.

5.4.3. Emotional Memory

Emotional memory refers to the processes through which emotional stimuli are encoded, maintained, and later retrieved, shaping how affective experiences continue to influence individuals over time (Mikels & Reuter-Lorenz, 2019). Because memory determines which episodes remain salient once the emotion has passed, it provides a plausible pathway through which EI may contribute to SWB. By promoting the consolidation of positive episodes or reducing the persistence of negative ones, emotional memory can tilt the remembered past toward resilience and long-term SWB (Matt et al., 1992; Walker et al., 2003).

As theoretical perspectives increasingly proposed that EI is associated with valence-specific sensitivity mechanisms at later stages of emotional processing (Fiori et al., 2023). It therefore became conceptually plausible that both ability EI and trait EI could foster a positive memory bias[18].

Although empirical evidence directly linking EI to emotional memory was essentially absent, the process remained theoretically promising. No study had examined whether ability EI predicted a positive memory bias, and the limited findings available for trait EI were inconclusive (e.g., Mikolajczak et al., 2009).

Despite this absence of evidence, several conceptual and empirical considerations suggested that emotional memory, especially bias towards positive stimuli, might constitute a meaningful pathway worthy of investigation. Indeed, research on affective working memory has shown that preferential updating of positive stimuli predicts higher life satisfaction and happiness (Pe et al., 2013), pointing to the possibility that selectively memorizing positive information may play a meaningful role in SWB. Aging research further reinforces this idea by consistently documenting a positivity effect in memory, whereby older adults tend to recall

[18] This positive memory bias may reflect selective encoding, consolidation, or retrieval processes favoring positive over negative information, however, disentangling the relative contribution of these processes remains methodologically challenging.

proportionally more positive than negative material (e.g., words, images, Charles et al., 2003; Laulan et al., 2020; Laulan et al., 2022; Mather & Carstensen, 2005), a pattern that parallels age-related increases in SWB. This effect, interpreted within *Socioemotional Selectivity Theory* (Carstensen, 1995; Carstensen et al., 1999), suggests that individuals may gradually come to prioritize emotionally meaningful and rewarding information.

In summary, emotional memory represented the most exploratory emotional process examined, within which valence-specific sensitivity was considered as a potential mechanism mediating the relationship between both ability and trait EI, and SWB.

5.5. Gaps in the Literature

Taken together, the literatures on EI, emotion information processing, and SWB point to several plausible mechanisms—such as acute sensitivity and valence-specific sensitivity—that may operate through attentional, reactive, and mnemonic processes to link EI to SWB. Yet empirical examinations of these pathways remain limited and fragmented, leaving a substantial gap in our understanding of how higher levels of EI translates into higher levels of SWB.

A first gap concerns the precise nature of the relationship between EI and SWB. Empirical evidence remains difficult to interpret for at least three reasons. First, for *ability EI*, the available evidence is limited and often examined at a low level of conceptual resolution. Many studies rely on global indices such as the MSCEIT total score (e.g., Brackett et al., 2006; Di Fabio & Kenny, 2016; Extremera et al., 2011), which not only obscure the distinct contribution of specific ability EI facets but also suffer from limited discrimination at the upper end of the scale, making it difficult to meaningfully identify individuals with genuinely high ability EI (Fiori et al., 2014). This issue is compounded by the small number of studies that have examined ability EI associations with SWB. Second, for *trait EI*, the true strength of its association with SWB remains uncertain because conceptual and measurement overlap with broader personality traits and SWB indicators may inflate observed correlations (e.g., Zeidner

et al., 2012). Widely used self-report instruments, such as the TEIQue, include items reflecting constructs like optimism, self-esteem, or extraversion (Petrides et al., 2007b; Van der Linden et al., 2017; Van der Linden et al., 2012), which may blur the conceptual boundary with outcomes such as SWB. Third, studies examining the EI–SWB link have focused almost exclusively on *hedonic* indicators of SWB, leaving *eudaimonic* dimensions largely unexplored. Consequently, very little is known about whether ability as well as trait EI relates to eudaimonic SWB.

A second gap lies in the scarce empirical evidence directly linking EI to identifiable emotional mechanisms within the broader landscape of emotion information processing (Robinson, 2024; Zeidner et al., 2012). Theoretical models suggest that EI should be related to specific mechanisms at different stages of emotion information processing (Fiori & Ortony, 2021; Fiori et al., 2023), yet few studies have directly tested these mechanisms, and even fewer have done so while considering both ability and trait EI within the same study.

A third gap concerns the mechanisms underlying the link between EI and SWB. Although both trait EI and, to a lesser extent, ability EI show consistent positive associations with SWB, the mechanisms operating through specific emotional processes that account for these associations remain poorly understood. Existing research has largely focused on correlations between EI and SWB (Di Fabio & Kenny, 2016; Extremera et al., 2020; Lopes et al., 2004; Malouff et al., 2014; Martins et al., 2010; Sánchez-Álvarez et al., 2016; Schutte et al., 2007; Smith et al., 2008; Zeidner et al., 2012), direct predictions of SWB from EI (Augusto Landa et al., 2010; Di Fabio & Kenny, 2016; Di Fabio & Saklofske, 2014; Extremera et al., 2011; Gallagher & Vella-Brodrick, 2008), or the effect of EI training on SWB (Kotsou et al., 2011), rather than identifying the mechanisms operating at different stages of emotion information processing through which ability and trait EI might contribute to higher SWB.

5.6. Methodological Considerations

This doctoral thesis was designed in direct response to the gaps identified above, with the aim of providing a conceptually precise and methodologically rigorous examination of *how* EI contributes to SWB. The methodological approach was structured around five central considerations, each addressing a key limitation in the existing literature.

First, the conceptual resolution at which EI is examined was refined. Rather than relying on global composite scores, this thesis distinguishes between specific ability EI facets (e.g., emotion recognition, understanding, and management), for which facet-level analyses have proven particularly informative (Burrus et al., 2012; Floman et al., 2023; MacCann & Roberts, 2008; Schlegel et al., 2021; Sommer & Schlegel, 2024). For trait EI, exploratory analyses focused on the questionnaire's underlying dimensions, enabling a more fine-grained assessment of whether its subcomponents show differentiated associations with SWB.

Second, conceptual overlap between trait EI and SWB was minimized. To ensure that observed associations reflected genuine emotional dispositions rather than shared content, trait EI was assessed using instruments explicitly designed or adapted to reduce overlap with SWB indicators. Specifically, the *well-being* dimension of the TEIQue (Petrides, 2009) was excluded in Study 1, and the REIS (Pekaar et al., 2018a) was employed in Studies 2–4 as a theoretically grounded and psychometrically robust alternative.

Third, the measurement of SWB was expanded beyond a unidimensional framework. Rather than treating SWB as a unidimensional construct, this work adopts a framework distinguishing *hedonic* components (i.e., life satisfaction, positive and negative affect) from *eudaimonic* dimensions (i.e., positive relations). This allows a broader assessment of the potential pathways through which ability and trait EI may support each aspect of SWB.

Fourth, the scarcity of empirical evidence directly linking EI to specific mechanisms was addressed by examining the emotional processes through which these mechanisms are

theorized to operate. The studies included in this thesis explicitly targeted attentional, reactive, and mnemonic processes—those proposed to provide observable entry points for acute and valence-specific sensitivity mechanisms—by combining validated experimental paradigms with self-report measures capturing responses to both challenging and rewarding emotional events.

Finally, the fifth consideration addressed the methodological fragmentation that has characterized prior research. Whereas existing studies typically examine either ability or trait EI in isolation and rely on a single methodological domain, the present work systematically investigates both forms of EI across complementary levels of analysis. This thesis provides a more comprehensive understanding of how ability and trait EI are associated with mechanisms embedded within emotion information processing assessed through both experimental tasks and self-report questionnaires, and how these mechanisms are in turn associated with different aspects of SWB.

5.7. Research Objectives

Building directly on the gaps and methodological considerations outlined above, this research pursued three main objectives. The first was to examine the direct association between EI and SWB. The second was to investigate how EI relates to specific mechanisms embedded within emotion information processing. The third was to test whether these mechanisms mediate the association between EI and SWB.

These objectives were addressed across four empirical studies forming a cumulative research program. The first three studies, under review or published in peer-reviewed journals, fulfil the doctoral publication requirements, and a fourth study currently under preparation completes the overall investigation. Supplementary and exploratory analyses were also conducted to provide a more comprehensive perspective on the findings, including results

concerning both ability and trait EI that could not be fully reported within individual publications.

Across the project, ability EI was initially hypothesized to follow a trajectory from acute sensitivity at early, spontaneous stages of emotion information processing to valence-specific sensitivity at later, more deliberate stages. Subsequent theoretical and empirical developments supported this general trajectory (Fiori et al., 2024; Gillioz et al., 2025), while also indicating that ability EI facets are not uniformly associated with the same mechanisms at a given stage of emotion information processing. Trait EI, in contrast, was expected to display a stable valence-specific sensitivity profile at reflective stages, with minimal involvement at early stages.

Study 1 examined whether ability EI predicts *attentional orienting* towards emotional expressions, using a dot-probe paradigm, and included an exploratory analysis of whether trait EI relates to any patterns of attentional orienting. When an orienting bias was identified, additional analyses tested whether this bias accounted for the association between EI and SWB. Study 2 focused on *subjective emotional reactivity*, assessed through a self-report questionnaire, namely, the Perth Emotional Reactivity Scale (PERS-S, Preece et al., 2019). It examined whether ability and trait EI show associations with increased positive reactivity and decreased negative reactivity, and whether these reactivity patterns are in turn linked to SWB. Study 3 extended this investigation of subjective emotional reactivity using a Dynamic Affective Rating Task (DART, Robinson et al., 2021) designed to capture real-time fluctuations in emotional experience. Drawing on recent empirical findings and theoretical refinements (Fiori et al., 2024; Gillioz et al., 2025), this study examined whether emotion recognition and understanding are associated with stronger reactivity to both pleasant and unpleasant images. It also explored whether the emotion management facet of ability EI, and trait EI are linked to increased reactivity to pleasant images and decreased reactivity to unpleasant ones, and whether these

reactivity profiles relate to higher SWB. Finally, Study 4 examined *emotional memory*, which was assumed to represent the most reflective stage of emotion information processing assessed in this research. This study investigated whether ability and trait EI are associated with a positive memory bias, that is, a better recognition of positive relative to negative images, following their initial presentation, and whether such a bias is related to higher SWB.

6. Summary of Studies

In the following, the four studies conducted as part of this thesis are briefly summarized. The full manuscripts of the published or under review articles can be found in Appendix.

6.1. Study 1

Nicolet-dit-Félix, M., Gillioz, C., Mortillaro, M., Sander, D., & Fiori, M. (2023). Emotional Intelligence and Attentional Bias to Emotional Faces: Evidence of Hypersensitivity Towards Emotion Information. *Personality and Individual Differences, 201,* 111917. https://doi.org/10.1016/j.paid.2022.111917.

When this project was initiated in 2021, no empirical evidence had yet demonstrated that EI operates through acute sensitivity to emotion information at early stages of processing. Only one theoretical framework had proposed this possibility for ability EI (Fiori & Ortony, 2021).

The first empirical study of this doctoral thesis therefore sought to address this gap by examining whether ability EI—and, on an exploratory basis, trait EI—predicts the most bottom-up component of emotion information processing, namely, *attentional orienting* towards emotional stimuli. As preregistered (https://osf.io/gnrm5), higher scores of ability EI, including emotion recognition, understanding and management, were expected to be associated with a stronger attentional bias towards emotional relative to neutral stimuli.

The study was conducted online with a sample of 157 English-speaking adults recruited via Prolific (M_{age} = 29.2, SD_{age} = 10.0; 67% women). Participants first completed a battery of questionnaires and one week later performed the attentional orienting task. Attentional orienting toward emotional stimuli was assessed using a modified dot-probe paradigm, originally developed by Posner (1980). In this task, participants were asked to identify as quickly as possible target letters appearing behind pairs of faces, one displaying an emotional

expression and the other a neutral expression, selected from the Karolinska Directed Emotional Faces database (KDEF, Lundqvist et al., 1998). Attentional bias was operationalized as shorter reaction times when the probe replaced an emotional expression (congruent trial) rather than a neutral one (incongruent trial).

Measures of ability EI included three performance-based tests measuring emotion recognition with the Geneva Emotion Recognition Test Short version (GERT-S, Schlegel & Scherer, 2016), emotion understanding with the Situational Test of Emotion Understanding Brief (STEU-B, Allen et al., 2014), and emotion management with the Situational Test of Emotional Management Brief (STEM-B, Allen et al., 2015). Trait EI was assessed using the Trait Emotional Intelligence Questionnaire Short Form (TEIQue-SF, Petrides, 2009). To complement the objective assessment of sensitivity to emotion information provided by the dot-probe task, subjective emotional sensitivity was assessed using the Affect Intensity Measure (AIM, Larsen, 1985). This questionnaire captures individual differences in the typical intensity with which people experience emotions. Finally, fluid intelligence was assessed using a short version of Raven's Standard Progressive Matrices (RSPM, Raven et al., 1989), to ensure that observed effects of ability EI were not confounded by differences in general cognitive ability.

Results revealed that the emotion understanding facet of ability EI predicted attentional bias towards emotional faces. Specifically, individuals scoring one standard deviation (sd) above from the mean on emotion understanding were faster to respond when the probe appeared behind an emotional (happy or angry) expression compared to a neutral one, relative to their lower-scoring counterparts. This pattern was observed for both anger and happy expressions, although it emerged at different levels of emotion understanding—around 0.5 sd above the mean for angry expressions and around 1.5 sd above the mean for happy expressions. This pattern suggests that acute sensitivity to negative expressions emerges at lower levels of emotion understanding than acute sensitivity to positive expressions. By contrast, participants

scoring higher in emotion recognition, management, self-reported emotional sensitivity or trait EI did not show faster responses to probes appearing behind emotional expressions.

These findings provide the first evidence that ability EI, specifically emotion understanding, predicts a stronger attentional bias towards emotion information, consistent with the acute sensitivity framework (Fiori & Ortony, 2021).

In addition to the analyses presented in the paper, data on SWB were collected to enable exploratory tests of the links between EI and SWB outcomes. Further analyses also explored potential valence-specific attentional orienting process associated with trait EI. These extended analyses are presented in section 7.1

6.2. Study 2

Emotional Intelligence and Subjective Well-Being: The mediating Effects of Positive and Negative Emotional Reactivity. Nicolet-dit-Félix, M., Gillioz, C., Fiori, M., Clément, F. [Manuscript currently under review].

Conducted in 2023, Study 2 built upon the initial findings from Study 1, which showed that ability EI, particularly emotion understanding, predicts stronger attentional orienting towards emotion information. Because trait EI showed no association with any attentional bias, its potential effects were expected to emerge at later stages of emotion information processing, such as emotional reactivity. Study 2 therefore tested whether valence-specific *emotional reactivity*, namely heightened responses to positive events and reduced responses to negative ones, mediates the relationship between trait EI and SWB.

A sample of 194 French-speaking adults (M_{age} = 23.07, SD = 4.16; 72% women) completed validated self-report measures assessing trait EI with the Rotterdam Emotional Intelligence Scale (REIS, Pekaar et al., 2018a), emotional reactivity with the Perth Emotional Reactivity Scale Short version (PERS-S, Preece et al., 2019), and SWB with the Satisfaction

with Life Scale (SWLS, Diener et al., 1985) and the Positive Relations subscale of Ryff's Psychological Well-Being Scales (Ryff, 1989).

Results indicated that trait EI was positively associated with positive relations, though not directly with life satisfaction. In both cases, however, emotional reactivity significantly mediated the associations. Higher trait EI predicted increased positive reactivity and decreased negative reactivity, which in turn related to greater life satisfaction and positive relations. Exploratory analyses at the level of the trait EI dimensions further revealed that self-focused emotion appraisal and other-focused regulation were linked to greater positive relations through enhanced positive reactivity, whereas self-focused regulation was associated to both greater life satisfaction and positive relations through reduced negative reactivity.

Overall, these findings position valence specific emotional reactivity as a central mechanism through which trait EI may promote SWB.

As emotion recognition and emotion understanding[19] were also measured additional exploratory analyses examined whether they were associated with emotional reactivity and SWB. The results are reported in section 7.2.

6.3. Study 3

Ability Emotional Intelligence and the Temporal Dynamics of Emotional Experience: Evidence for Dampened Reactivity at Reflective Stages of Processing. Nicolet-dit-Félix, M., Gillioz, C., & Fiori, M. [Manuscript submitted for publication].

Conducted in 2025, Study 3 extended the findings of Study 2 by examining *moment-to-moment subjective emotional reactivity* in response to direct exposure to emotional stimuli using a continuous affective rating task.

[19] Of note, emotion management was not included in study 2 and 4 due to time constraints but was reintroduced in Study 3 to examine its specific contribution to valence-specific emotional reactivity assessed using a dynamic affective rating task (DART).

Building on prior work suggesting that ability EI enhances sensitivity at early stage of emotion information processing (Fiori et al., 2024; Gillioz et al., 2023; Nicolet-dit-Félix et al., 2023), this study examined whether emotion recognition, understanding, and management predict emotional reactivity, assessed through continuous pleasantness–unpleasantness ratings of emotional images. Emotion recognition and understanding facets were expected to be linked to stronger emotional reactivity overall. In contrast, emotion management was expected to show a valence-specific pattern, with stronger responses to positive images (up-regulation) and weaker responses to negative ones (down-regulation)—in line with recent theoretical refinements highlighting the regulatory nature of this facet at deliberate stages of emotion information processing (Fiori et al., 2023; Gillioz et al., 2025).

A total of 151 participants (M_{age} = 22.13, SD_{age} = 3.24; 83% women) completed an online questionnaires session, followed within one week by an in-lab experiment. Ability EI was measured using three performance-based tests: emotion recognition (GERT-S, Schlegel & Scherer, 2016), emotion understanding (STEU-B, Allen et al., 2014), and emotion management (STEM-B, Allen et al., 2015). Emotional reactivity was assessed with a modified version of the Dynamic Affective Rating Task (DART, Robinson et al., 2021), in which participants dynamically rated the pleasantness of emotional images on a continuous bipolar scale ranging from –500 (very unpleasant) to +500 (very pleasant). This procedure allowed capturing fine-grained temporal dynamics of affective experience, including the onset of the emotional response, the peak amplitude of pleasantness or unpleasantness, and the velocity with which this peak was reached. A stronger emotional response corresponds to a quicker onset, a higher peak amplitude, and a faster velocity toward that peak.

Results showed that higher emotion recognition and understanding were associated with dampened reactivity and a slower build-up of affective responses, suggesting a more reflective modulation of emotion, which does not support the acute sensitivity hypothesis (Fiori & Ortony,

2021). Emotion management predicted faster engagement with emotional images, regardless of valence, without amplifying response amplitude, which does not support the valence-specific hypothesis. Taken together, the results suggested that ability EI is characterized by reduced emotional reactivity coupled with a preserved rapid readiness to respond. Overall, these findings suggest that ability EI operates through top-down, reflective control once emotional experience reach more reflective stage of emotion information processing, consistent with dual-process models in which deliberate regulation tempers automatic reactivity (Metcalfe & Mischel, 1999).

Supplementary analyses extended the scope of this study to explore the associations between trait EI, emotional reactivity, and SWB. The results are presented in section 7.3.

6.4. Study 4

Ability Emotional Intelligence and Emotional Memory: No Evidence for a Positive Bias, but Enhanced Memory Accuracy. Nicolet-dit-Félix, M., Gillioz, C., Fiori, M., & Clément, F. [Manuscript in preparation].

Conducted in 2023, Study 4 examined a later stage of emotion information processing, namely memory. This study tested whether ability EI, especially emotion recognition and understanding, influence the encoding and retrieval of emotional stimuli. More precisely, Study 4 tested whether these facets were associated with a positive memory bias, that is, higher retrieval of positive compared to negative emotional images, which in turn might contribute to higher levels of SWB. Hypotheses were pre-registered (https://osf.io/6qb43?view_only=true).

A total of 186 French-speaking participants (M_{age} = 22.81, SD_{age} = 3.91; 74% women) completed an online session including ability EI tests measuring emotion recognition (GERT-S, Schlegel & Scherer, 2016) and emotion understanding (STEU-B, Allen et al., 2014), and self-report measures of life satisfaction (SWLS, Diener et al., 1985) positive relations (Ryff, 1989) and mood (Mayer & Gaschke, 1988). Participants completed an emotional memory task,

which constituted the main task of the study, and performed a working memory task (Corsi Block-Tapping Task, Corsi, 1972).

The memory task, developed specifically for this study, required participants to attentively view 42 images during an initial encoding phase. This set consisted of 28 emotional images (14 positive and 14 negative) and 14 neutral images selected from the Nencki Affective Picture System (NAPS, Marchewka et al., 2014). Approximately ten minutes later, during the recognition phase, participants were presented with 84 images in total, half of which had been previously shown and half were novel but matched in valence, arousal, and content. Participants were asked to indicate whether each image had been seen before ("already seen") or was new.

Results did not support the pre-registered hypotheses. Neither emotion recognition nor understanding predicted a memory bias toward positive over negative and SWB was likewise unrelated to such bias. Consequently, mediation analyses could not be conducted, as no significant association was found between ability EI and positive memory bias.

Trait EI was also assessed, allowing for exploratory analyses of its association with emotional memory and SWB. These results are reported in section 7.4.

6.5. Integrated Summary of Findings

Across the four studies, ability EI partly predicted emotion information processes captured through experimental tasks but not those measure by self-reported questionnaires. Specifically, emotion understanding predicted enhanced attentional orienting toward emotional stimuli (Study 1), while emotion recognition and understanding were linked to reduced moment-to-moment emotional reactivity, and emotion management to increased readiness to respond (Study 3). By contrast, ability EI showed no relationship with self-reported reactivity assessed via the PERS-S questionnaire (Study 2) or with a memory bias toward positive over negative images (Study 4). The statistical and conceptual prerequisites for mediation analyses were not met for the ability EI facets, either because they were not associated with the relevant

mechanisms embedded within the examined emotional processes, or because the latter were not themselves associated with SWB. This prevented further examination of potential pathways linking ability EI to SWB. These patterns are evident in the correlation matrices and regression analyses reported in the supplementary analyses in Chapter 7.

In contrast, trait EI was primarily associated with emotional processes assessed via the PERS-S questionnaire. Specifically, higher trait EI predicted increased positive reactivity and decreased negative reactivity, which in turn were associated to greater life satisfaction and positive relations (Study 2). No evidence was found for effects of trait EI on emotional processes, such as attentional orienting, reactivity and memory captured through experimental tasks (Studies 1, 3, and 4). These null findings are reported in Chapter 7.

Together, these findings highlight the distinct yet complementary pathways through which ability and trait EI contribute to SWB. To provide a comprehensive and transparent overview of the empirical evidence, the following chapter presents supplementary analyses, including the non-significant results and additional tests that were not included in the published or under-review articles. These analyses further clarify the scope and limits of the associations between EI, emotional processes, and SWB.

7. Supplementary Analyses

7.1. Study 1

The main manuscript derived from Study 1 (Nicolet-dit-Félix et al., 2023) tested whether ability EI and trait EI predicted attentional orienting toward emotional versus neutral expressions in a dot-probe task.

This section presents supplementary analyses extending the main findings in two directions. First, the associations between both ability and trait EI, and SWB were examined. SWB included life satisfaction (SWLS, Diener et al., 1985), positive affect, and negative affect (PANAS, Watson et al., 1988). Given the conceptual overlap between the TEIQue-SF well-being dimension and the SWB, additional regressions tested whether the other TEIQue-SF dimensions, emotionality, self-control, and sociability, predicted life satisfaction, and positive and negative affect beyond the well-being dimension. Complementary analyses also assessed whether higher trait EI was associated with stronger attentional orienting toward emotional expressions, following the same analytic approach as for ability EI. Although no significant associations emerged between trait EI and initial orienting indices, the full results (not reported in the manuscript) are presented here for transparency. These analyses also confirmed that the statistical prerequisites for mediation testing were not met, as was the case for the ability EI facets.

7.1.1. Correlational Overview

The overview of Pearson's correlations between EI and SWB (Table 1) reveals a clear contrast between ability and trait EI. Ability EI facets exhibited often weak and inconsistent associations with SWB, whereas trait EI was positively associated with both life satisfaction and positive affect, and negatively associated with negative affect.

Table 1: Correlations among ability EI facets, trait EI, and SWB indicators

	M	SD	1	2	3	4	5	6	7
1. Gender	–	–							
2. GERT	0.58	0.15	0.10						
3. STEU	0.62	0.13	0.16*	0.59***					
4. STEM	0.60	0.12	0.10	0.38***	0.30***				
5. Trait EI	4.59	0.74	0.04	-0.20*	-0.15	-0.01			
6. SWLS	3.82	1.37	0.12	-0.11	-0.03	0.08	0.43***		
7. PA	3.16	0.78	0.02	-0.33***	-0.20*	-0.07	0.53***	0.45***	
8. NA	2.50	0.78	0.02	0.13	-0.03	-0.10	-0.50***	-0.30***	-0.17*

Note: Gender was dummy-coded with the 'masculine' category as the reference. GERT: Geneva Emotion Recognition Test. STEU: Situational Test of Emotion Understanding. STEM: Situational Test of Emotion Management. Trait EI: Trait Emotional Intelligence Questionnaire Short Form (TEIQue-SF). SWLS: Satisfaction with Life Scale. PA: Positive affect. NA: Negative affect. *$p < .05$. **$p < .01$. ***$p < .001$.

Further correlational analyses confirmed strong associations between the TEIQue-SF well-being dimension and SWB (Table 2). The well-being dimension displayed large positive correlations with life satisfaction and positive affect and a large negative correlation with negative affect. Emotionality, self-control, and sociability also positively correlated with SWB, though more modestly. Self-control stood out as the strongest predictor of lower negative affect.

Table 2: Correlations among trait EI dimensions and SWB indicators

	M	SD	1	2	3	4	5	6
1. Emotionality	4.84	0.92	–					
2. Self-control	4.14	0.95	0.36***					
3. Sociability	4.41	1.02	0.32***	0.39***				
4. Well-being	4.94	1.07	0.51***	0.48***	0.32***			
5. SWLS	3.82	1.37	0.24**	0.27***	0.17*	0.55***		
6. PA	3.16	0.78	0.38***	0.22**	0.31***	0.55***	0.45***	
7. NA	2.50	0.78	-0.22**	-0.50***	-0.30***	-0.48***	-0.30***	-0.17*

Note: Emotionality, Self-control, Sociability and Well-being corresponds to the four dimensions of the TEIQue-SF. SWLS: Satisfaction with Life Scale. PA: Positive affect. NA: Negative affect. *$p < .05$. **$p < .01$. ***$p < .001$.

When examined simultaneously the four dimensions of trait EI in regression models controlling for shared variance (Table 3), the well-being dimension remained the only predictor of life satisfaction (b = 0.75, SE = 0.11, $t(146) = 6.91$, $p < .001$, 95% CI [0.54, 0.96]) and positive affect (b = 0.37, SE = 0.06, $t(146) = 5.88$, $p < .001$, 95% CI [0.24, 0.49]), whereas both well-being (b = -0.24, SE = 0.06, $t(146) = -3.85$, $p < .001$, 95% CI [-0.36, -0.12]) and self-

control (b = -0.28, SE = 0.07, $t(146)$ = -4.02, p < .001, 95% CI [-0.42, -0.15]) dimensions predicted lower negative affect.

Table 3: Models testing the effect of the four dimensions of trait EI on SWB indicators, controlling for age and gender

	Life satisfaction		**Positive affect**		**Negative affect**	
Predictors	**Estimates**	**95% CI**	**Estimates**	**95% CI**	**Estimates**	**95% CI**
(Intercept)	0.35	[-0.90, 1.60]	0.81*	[0.09, 1.52]	4.91***	[4.20, 5.61]
Emotionality	-0.16	[-0.40, 0.09]	0.13	[-0.01, 0.27]	0.10	[-0.04, 0.24]
Self-control	0.07	[-0.18, 0.31]	-0.13	[-0.27, 0.01]	-0.28***	[-0.42, -0.15]
Sociability	0.01	[-0.20, 0.22]	0.12	[-0.00, 0.24]	-0.07	[-0.19, 0.05]
Well-being	0.75***	[0.54, 0.97]	0.37***	[0.24, 0.49]	-0.24***	[-0.36, -0.12]
Age	0.00	[-0.02, 0.02]	0.00	[-0.01, 0.01]	-0.01	[-0.02, 0.00]
Gender	0.23	[-0.18, 0.64]	-0.13	[-0.36, 0.11]	0.01	[-0.23, 0.24]
Model fit						
Num.Obs.	153		153		153	
R^2	0.34		0.35		0.34	
Adjusted R^2	0.31		0.32		0.32	
RMSE	1.11		0.63		0.63	

Note: Emotionality, Self-control, Sociability and Well-being corresponds to the four dimensions of the TEIQue-SF. Gender was dummy-coded with the 'masculine' category as the reference. Predictors were standardized. SWB indicators remained in original units. Num. Obs. refers to the number of observations. R^2 and adjusted R^2 represent explained variance. RMSE indicates model prediction error. 95% CI represents 95% confidence interval. * p < 0.05, ** p < 0.01, *** p < 0.001.

7.1.2. Trait EI and Attentional Orienting Towards Emotion Information

As noted in the published article's footnote, trait EI did not predict an attentional bias towards emotional versus neutral expressions. To examine whether trait EI might instead relate to a valence-specific attentional bias, additional analyses tested its interaction with emotion type (happy vs. angry) in predicting reaction times, while controlling for age, fluid intelligence, mood, and trial number (Table 4).

Table 4: Models testing the interaction effect between Trait EI and Emotion on inverse-transformed reaction time in the dot-probe task, controlling for age, intelligence, mood, and trial number

	Inverse-transformed reaction time			
	Model 1 (linear)		**Model 2 (quadratic)**	
Predictors	**Estimates**	**95% CI**	**Estimates**	**95% CI**
(Intercept)	-20.62***	[-21.01, -20.23]	-20.62***	[-21.01, -20.22]
Trait EI (linear)	0.17	[-0.29, 0.63]	15.57	[-28.91, 60.06]
Trait EI (quadratic)			30.68	[-7.53, 68.88]
Emotion	-0.05	[-0.12, 0.02]	-0.05	[-0.12, 0.02]
Trait EI (linear) x Emotion	-0.01	[-0.08, 0.07]	-0.72	[-7.75, 6.31]
Trait EI (quadratic) x Emotion			0.65	[-6.37, 7.68]
Age	0.75***	[0.35, 1.16]	0.74***	[0.33, 1.15]
Intelligence	-0.94***	[-1.35, -0.54]	-0.95***	[-1.35, -0.54]
Mood	0.32	[-0.14, 0.77]	0.34	[-0.12, 0.79]
Trial Number	-0.24***	[-0.31, -0.17]	-0.24***	[-0.31, -0.17]
Model fit				
Num.Obs.	9331		9331	
Marginal R^2	0.105		0.110	
Conditional R^2	0.391		0.393	
RMSE	3.55		3.55	

Note: Intelligence refers to participants' performance on the Raven's Progressive Matrices test. Emotion was coded using a contrast coding scheme (−1 = anger, +1 = happiness), allowing the regression coefficients to be interpreted as the average difference between the two emotional conditions rather than as comparisons to a reference category. Trait EI refers to the TEIQue-SF. Predictors were standardized. Inverse-transformed reaction time remained in original units. Num. Obs. refers to the number of observations. The marginal R^2 reflects variance explained by fixed effects only, whereas the conditional R^2 reflects variance explained by both fixed and random effects. RMSE indicates model prediction error. Model 2 was rejected in favor of Model 1 because the latter provided a better fit. 95% CI represents 95% confidence interval. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

No significant main or interaction effects of trait EI emerged, indicating that reaction times did not differ as a function of trait EI or emotion valence. The same pattern was obtained when trait EI score was recalculated without the well-being dimension (Table 5), ruling out the possibility that conceptual overlap masked an existing effect.

Table 5: Models testing the interaction effect between Trait EI without well-being dimension and Emotion on inverse-transformed reaction times in the dot-probe task, controlling for age, intelligence, mood, and trial number

	Inverse-transformed reaction time			
	Model 1 (linear)		**Model 2 (quadratic)**	
Predictors	**Estimates**	**95% CI**	**Estimates**	**95% CI**
(Intercept)	-20.62***	[-21.01, -20.22]	-20.62***	[-21.01, -20.22]
Trait EI (linear)	0.12	[-0.32, 0.55]	11.21	[-31.01, 53.44]
Trait EI (quadratic)			24.58	[-13.79, 62.96]
Emotion	-0.05	[-0.12, 0.02]	-0.05	[-0.12, 0.02]
Trait EI (linear) x Emotion	-0.01	[-0.09, 0.06]	-1.28	[-8.30, 5.75]
Trait EI (quadratic) x Emotion			-0.01	[-7.04, 7.01]
Age	0.76***	[0.35, 1.17]	0.74***	[0.33, 1.15]
Intelligence	-0.95***	[-1.35, -0.54]	-0.96***	[-1.37, -0.55]
Mood	0.35	[-0.08, 0.79]	0.35	[-0.08, 0.79]
Trial Number	-0.24***	[-0.31, -0.17]	-0.24***	[-0.31, -0.17]
Model fit				
Num.Obs.	9331		9331	
Marginal R^2	0.105		0.108	
Conditional R^2	0.391		0.393	
RMSE	3.55		3.55	

Note: Intelligence refers to the Raven's Progressive Matrices test. Emotion was coded using a contrast coding scheme (−1 = anger, +1 = happiness), allowing the regression coefficients to be interpreted as the average difference between the two emotional conditions rather than as comparisons to a reference category. Trait EI refers to the TEIQue-SF excluding the well-being dimension. Predictors were standardized. Inverse-transformed reaction time remained in original units. Num. Obs. refers to the number of observations. Model 2 was rejected in favor of Model 1 because the latter provided a better fit. 95% CI represents 95% confidence interval. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Given these consistent null results, no mediation analyses were conducted, as the prerequisite association between the predictor and the mediator was not met. These findings suggest that trait EI does not influence the early perceptual stages of emotional processing.

7.2. Study 2

The main manuscript derived from Study 2 (Nicolet-dit-Félix, Gillioz, Fiori, & Clément, submitted) demonstrated that trait EI predicts higher life satisfaction and positive relations through valence-specific emotional reactivity, that is, stronger responses to positive events and weaker responses to negative ones. The present section reports additional analyses conducted on the same dataset to extend these findings. Specifically, the goals were to (1) include ability-EI facets (emotion recognition and understanding), (2) broaden SWB indicators to positive and

negative affect (PANAS; Watson et al., 1988), and (3) test whether valence-specific emotional reactivity also mediates the link between trait EI, and positive and negative affect. Finally, as all constructs were assessed using self-report instruments, exploratory analyses were conducted to evaluate the dimensional structure and shared variance of the combined measures, in line with recommendations for assessing potential method-related variance in survey research (Podsakoff et al., 2003).

7.2.1. Correlational Overview

As shown in Table 6, a clear dissociation emerged between ability and trait EI regarding their association with SWB. Neither emotion recognition nor emotion understanding correlated with SWB indicators. In contrast, trait EI showed robust associations with higher positive affect and lower negative affect. Ability EI facets were also unrelated to positive and negative reactivity, when assessed via the PERS-S questionnaire, precluding further mediation analyses for ability EI.

Table 6: Correlations among ability EI facets, trait EI, SWB indicators and subjective emotional reactivity

	M	SD	1	2	3	4	4.1	4.2	4.3	4.4	5	6	7	8	9
1. Sex	-	-													
2. GERT	0.66	0.12	0.09												
3. STEU	0.65	0.12	0.06	0.31***											
4. Trait EI	3.49	0.48	-0.13	-0.03	0.03										
4.1. SFEA	3.38	0.82	-0.06	0.08	0.08	0.62***									
4.2. SFER	3.18	0.78	-0.31***	-0.15*	0.02	0.64***	0.20**								
4.3. OFEA	3.92	0.65	0.13	0.03	0.02	0.67***	0.21**	0.14*							
4.4. OFER	3.47	0.69	-0.07	-0.02	-0.04	0.70***	0.13	0.29***	0.51***						
5. SWLS	5.05	1.19	0.06	0.04	-0.03	0.11	0.11	0.02	0.08	0.09					
6. PA	3.28	0.65	-0.07	-0.05	0.02	0.40***	0.30***	0.22**	0.20**	0.32***	0.23**				
7. NA	2.46	0.67	0.14	0.07	-0.05	-0.17*	-0.14*	-0.22**	0.01	-0.06	-0.35***	-0.13			
8. Positive relations	4.70	0.85	0.13	0.10	0.03	0.19**	0.20**	-0.09	0.24***	0.19**	0.50***	0.37***	-0.13		
9. Positive reactivity	3.82	0.75	0.16*	-0.04	-0.02	0.20**	0.25***	-0.11	0.23**	0.19**	0.31***	0.37***	-0.21**	0.45***	
10. Negative reactivity	3.42	0.86	0.18*	0.07	-0.04	-0.28***	-0.21**	-0.32***	-0.08	-0.09	-0.32***	-0.30***	0.50***	-0.25***	-0.18*

Note: Sex was dummy-coded with men as the reference category. GERT: Geneva Emotion Recognition Test. STEU: Situational Test of Emotion Understanding. GERT: Geneva Emotion Recognition Test. Trait EI: Rotterdam Emotional Intelligence Scale. SFEA: Self-focused emotion appraisal. SFER: Self-focused emotion regulation. OFEA: Other-focused emotion appraisal. OFER: Other-focused emotion regulation. SWLS: Satisfaction with Life Scale. PA: Positive affect. NA: Negative affect. *$p <$ .05. **$p <$ .01. ***$p <$ .001

7.2.2. Hierarchical Regression and Mediation Analyses

Hierarchical regression analyses examined whether positive and negative reactivity accounted for the associations between trait EI, and positive and negative affect (Table 7). For positive affect, sex and trait EI were significant predictors at Step 1. Adding positive reactivity in Step 2 substantially improved the prediction of positive affect ($\Delta R^2 = .09$), and higher trait EI remained a significant predictor. In Step 3, positive and negative reactivity jointly predicted positive affect, with positive reactivity emerging as the strongest predictor. For negative affect, trait EI showed a small negative association at Step 1, but this effect disappeared once positive reactivity was added. The inclusion of positive and negative reactivity markedly increased explained variance ($\Delta R^2 = .19$), with negative reactivity emerging as the dominant predictor of negative affect.

Table 7: Hierarchical regression analysis predicting positive and negative affect

	Positive Affect			**Negative Affect**		
Predictors	**Step 1**	**Step 2**	**Step 3**	**Step 1**	**Step 2**	**Step 3**
(Intercept)	3.34	3.48	3.41	2.15	2.05	2.25
Sex	-0.03	-0.12	-0.08	0.18	0.24*	0.12
Trait EI	0.26***	0.21***	0.19***	-0.10*	-0.07	0.00
POS		0.21***	0.19***		-0.14**	-0.09*
NEG			-0.11*			0.31***
Model fit						
F	18.25***	21.31***	17.98***	4.17*	5.71**	17.15***
R^2	0.16	0.25	0.28	0.04	0.08	0.27
ΔR^2		0.09	0.03		0.04	0.19

Note: Sex was dummy-coded with men as the reference category. Trait EI: Rotterdam Emotional Intelligence Scale. POS: Positive reactivity, NEG: Negative reactivity. Predictors were standardized. Positive and negative affect remained in original units. F denotes the F statistic testing overall model significance. R^2 represents the proportion of variance explained. ΔR^2 indicates the increase in explained variance relative to the previous model. * $p < .05$, ** $p < .01$, *** $p < .001$.

Bootstrapped mediation analyses (Table 8) further tested whether valence-specific emotional reactivity mediated the effects of trait EI on positive and negative affect. For positive affect, the indirect effect through positive reactivity was significant, indicating that individuals higher in trait EI reported greater positive reactivity, which in turn is associated to higher

positive affect. The indirect pathway through negative reactivity was smaller and only marginal. The indirect pathway through negative reactivity was non-significant. For negative affect, the indirect effect through negative reactivity was significant. Higher trait EI was associated to reduced negative reactivity, which in turn was link to lower negative affect. The indirect pathway through positive reactivity was non-significant.

Table 8: Summary of two bootstrapped mediation models examining the indirect effects of trait EI on (a) positive affect and (b) negative affect through positive and negative emotional reactivity (N = 194; 5000 bootstraps)

Model Paths	**SPC**	**SE**	**95% Confidence Interval**	
			Lower	**Upper**
Trait EI→POS→PA	0.09*	0.04	0.03	0.18
Trait EI→ NEG→PA	0.06	0.03	0.01	0.13
Trait EI→POS→NA	-0.04	0.03	-0.12	-0,00
Trait EI→ NEG→NA	-0.16**	0.05	-0.28	-0.07

Note: Paths were estimated while controlling for sex. POS: Positive reactivity, NEG: Negative reactivity, PA: Positive affect. NA: Negative affect. SPC: Standardized path coefficient, SE: Standard error. * $p < .05$, ** $p < .01$, *** $p < .001$.

The final mediation models (Figures 2-3) illustrate the indirect pathways through which trait EI relates to positive and negative affect via valence-specific emotional reactivity.

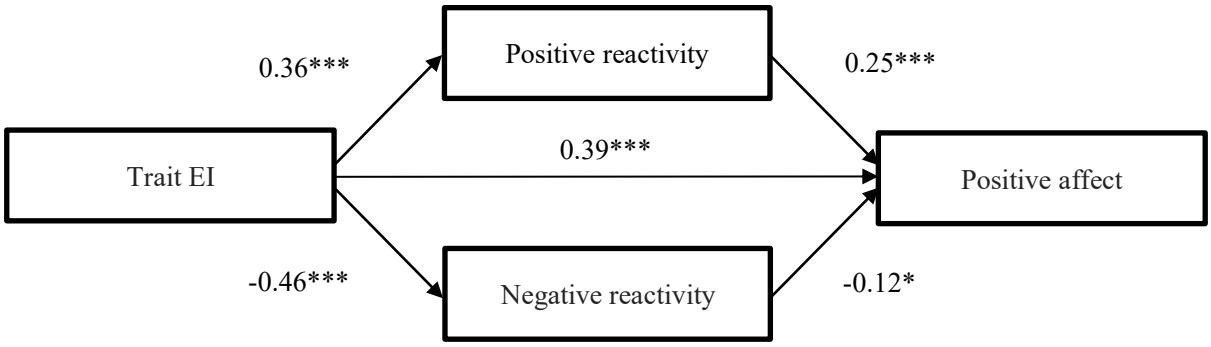

Figure 2: Relationships between trait EI, positive reactivity, negative reactivity and positive affect. All path coefficients are reported in their standardized form (β). * $p < .05$, ** $p < .01$, *** $p < .001$.

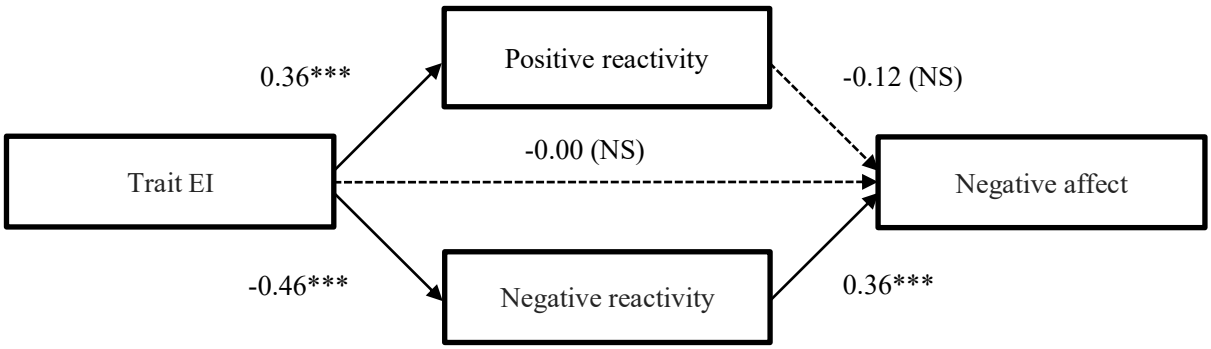

Figure 3: Relationships between trait EI, positive reactivity, negative reactivity and negative affect. All path coefficients are reported in their standardized form (β). * $p < .05$, ** $p < .01$, *** $p < .001$. NS: Non significant.

7.2.3. Assessment of Common Method Variance

Given that all variables in Study 2 were assessed using self-report questionnaires, additional analyses were conducted to examine the extent of shared variance among the measures. These analyses were performed at the item level in order to evaluate the dimensionality of the combined measurement structure. Specifically, four separate exploratory factor analyses (EFA) were conducted, corresponding to the four outcomes examined in the mediation analyses (i.e., life satisfaction, positive relations, positive affect, and negative affect). In each case, the EFA included all items corresponding to the variables entered in the respective mediation model. Three indicators were examined: (a) the proportion of variance explained by the first unrotated factor, (b) the number of eigenvalues greater than 1 (Kaiser criterion), and (c) the number of factors suggested by parallel analysis.

Across models, the first unrotated factor accounted for between 15.4% and 16.2% of the total variance. In each case, multiple eigenvalues exceeded 1 (ranging from 10 to 13 depending on the outcome), and parallel analysis consistently suggested the presence of seven to eight factors (Table 9).

Table 9: Exploratory factor analyses of Trait EI, emotional reactivity, and SWB

Outcome	Total items	Variance explained by Factor 1 (%)	Eigen value > 1	Number of factors
Life satisfaction	51	15.4	10	7
Positive relations	53	15.6	12	7
Positive affect	56	16.2	13	7
Negative affect	56	14.5	12	8

Note: Four separate exploratory factor analyses were conducted to examine the potential influence of common method variance (Harman's single-factor test). Each analysis included the items of trait EI, positive emotional reactivity, negative emotional reactivity, and one of the four SWB indicators (i.e., life satisfaction, positive relations, positive affect, or negative affect).

Overall, these findings indicate that the covariance structure among the measures reflects a multidimensional configuration and cannot be reduced to a single dominant factor (> 50% variance explained). The proportion of variance accounted for by the first factor was modest across models (≈ 15%), and multiple factors were consistently identified through parallel analysis.

In addition, several attempts were made to estimate a common latent method factor within a structural equation modeling framework. Specifically, models were specified in which trait EI dimensions, positive and negative emotional reactivity dimensions, and SWB were each represented as latent variables defined by their respective items, and an additional latent factor was included to capture shared method variance by loading simultaneously on the same indicators. Sex was included as a control variable, consistent with the primary mediation models. However, these extended models either failed to converge or yielded extremely poor fit indices. Given the large number of items and free parameters relative to the available sample size (N = 194), the inclusion of an additional method factor substantially increased model complexity and led to estimation difficulties. Under these conditions, the models exceeded what could be reliably estimated with the present data.

7.3. Study 3

The main manuscript derived from Study 3 examined how different facets of ability EI shape the temporal dynamics of emotional experience. Using continuous affective ratings, the

study showed that higher emotion recognition and understanding were associated with dampened, rather than acute, reactivity, while emotion management facilitated faster engagement with emotional images irrespective of valence, thus failing to support both the acute sensitivity and valence-specific sensitivity hypotheses.

The present section reports complementary analyses extending these findings in two directions. First, it explores how ability and trait EI relate to SWB. Trait EI was measured with the Rotterdam Emotional Intelligence Scale (REIS, Pekaar et al., 2018a), and SWB with the Satisfaction with Life Scale (SWLS, Diener et al., 1985) and the Positive Relations (Ryff, 1989). Second, it tests whether trait EI predicts dynamic affective reactivity, specifically greater reactivity to positive images and reduced reactivity to negative ones, and whether such effects might mediate its relationship with SWB.

7.3.1. Correlational Overview

Correlations among EI, SWB, and DART indices (Table 10) revealed that trait EI showed a modest association with life satisfaction, but not with positive relations. Emotion understanding and management facets of ability EI were modestly associated with positive relations, but not with life satisfaction. None of the temporal indices of emotional reactivity were related to SWB indicators. Consequently, mediation analyses were not conducted, as the necessary associations between potential mediators and outcomes were not met. Finally, correlations suggested that individuals higher in trait EI displayed slightly lower peak amplitudes for unpleasant images, but these effects were weak and inconsistent.

Table 10: Correlations among ability EI facets, trait EI dimensions, SWB indicators and dynamic affective reactivity indices

	M	SD	1	2	3	4	5	5.1	5.2	5.3	5.4	6	7
1. Gender	-	-											
2. GERT	0.66	0.13	-0.05										
3. STEU	0.65	0.11	-0.01	0.30***									
4. STEM	0.52	0.11	0.02	0.27***	0.21**								
5. Trait EI	3.53	0.37	0.20*	-0.03	0.10	0.05							
5.1 SFEA	3.46	0.72	0.22**	-0.06	0.17*	-0.02	0.63***						
5.2 SFER	3.15	0.73	0.16	0.08	-0.06	-0.01	0.53***	0.04					
5.3 OFEA	4.00	0.49	-0.05	-0.04	0.08	0.17*	0.57***	0.17*	-0.04				
5.4 OFER	3.51	0.56	0.10	-0.06	0.05	0.02	0.65***	0.16	0.07	0.45***			
6. SWLS	5.01	1.20	-0.01	0.03	0.04	0.10	0.17*	0.08	0.10	0.14	0.08		
7. Positive relations	4.77	0.91	0.11	0.11	0.18*	0.30***	0.11	0.03	-0.07	0.27***	0.09	0.35***	
Pleasant condition													
8. Onset time	1.70	0.45	0.17*	0.27***	0.03	-0.12	0.07	0.16*	0.06	-0.12	0.00	0.00	-0.11
9. Peak amplitude	297.17	93.69	-0.02	-0.19*	-0.29***	-0.08	-0.15	-0.12	-0.09	-0.05	-0.08	0.06	0.02
10. Velocity	258.92	153.73	0.07	-0.02	-0.29***	-0.17*	-0.06	-0.08	-0.03	-0.05	0.03	-0.08	-0.12
Unpleasant condition													
11. Onset time	1.62	0.41	0.04	0.13	-0.08	-0.16	0.08	0.14	0.10	-0.09	-0.02	0.03	-0.14
12. Peak amplitude	413.23	69.99	-0.20*	-0.07	-0.22**	-0.03	-0.16*	-0.18*	-0.12	0.04	-0.08	0.11	-0.05
13. Velocity	404.39	215.20	-0.10	-0.03	-0.21*	-0.04	-0.10	-0.09	-0.18*	0.06	0.04	0.02	-0.09

Note: Gender was dummy-coded with the 'feminine' category as the reference. GERT: Geneva Emotion Recognition Test. STEU: Situational Test of Emotion Understanding. STEM: Situational Test of Emotion Management. Trait EI: Rotterdam Emotional Intelligence Scale. SFEA: Self-focused emotion appraisal. SFER: Self-focused emotion regulation. OFEA: Other-focused emotion appraisal. OFER: Other-focused emotion regulation SWLS: Satisfaction with Life Scale. Correlations among the emotional reactivity indices are not reported here, as they have been presented in the corresponding article. * $p < .05$. ** $p < .01$. *** $p < .001$.

7.3.2. Regression Analyses with Trait EI and Dynamic Affective Reactivity Indices

Linear mixed-effects models including valence, trait EI, and their interaction, while controlling for gender and trial number, did not reveal any significant effects of trait EI on onset, peak amplitude, or velocity, nor any interaction between trait EI and valence (Table 11).

Table 11: Linear mixed-effects models testing the main and interaction effects of trait EI and valence on dynamic affective reactivity indices

	Onset time		**Peak amplitude**		**Velocity**	
Predictors	**Estimates**	**95% CI**	**Estimates**	**95% CI**	**Estimates**	**95% CI**
(Intercept)	0.41***	[0.33, 0.48]	417.79***	[381.68, 453.91]	5.62***	[5.43, 5.81]
Trait EI	0.02	[-0.02, 0.07]	-9.27	[-20.49, 1.95]	-0.06	[-0.16, 0.03]
Valence	0.05	[-0.04, 0.13]	-115.86***	[-166.27, -65.45]	-0.48***	[-0.72, -0.23]
Trait EI x Valence	-0.01	[-0.04, 0.02]	-2.50	[-14.20, 9.20]	0.01	[-0.06, 0.08]
Gender	0.04	[-0.06, 0.15]	-29.77	[-60.45, 0.92]	-0.14	[-0.38, 0.10]
Trial	0.02	[-0.02, 0.06]	-7.04	[-31.73, 17.64]	-0.01	[-0.13, 0.11]
Model fit						
Num.Obs.	4118		4263		4141	
Marginal R^2	0.01		0.15		0.07	
Conditional R^2	0.49		0.59		0.51	
RMSE	0.27		95.81		0.64	

Note: Gender was dummy-coded with the 'feminine' category as the reference. Valence was coded using centered effect coding (−0.5 = unpleasant, +0.5 = pleasant). Num. Obs. refers to the number of observations. The marginal R^2 reflects variance explained by fixed effects only, whereas the conditional R^2 reflects variance explained by both fixed and random effects. 95% CI represents 95% confidence interval. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

7.4. Study 4

The main manuscript derived from Study 4 (in preparation) tested whether ability EI predicts SWB through a positive memory bias, defined as superior recognition of positive compared to negative emotional images. Contrary to preregistered expectations, higher ability

EI did not predict enhanced memory for positive images, nor was it associated with life satisfaction or positive relations.

The present section extends these findings by (1) examining correlations between ability EI measures and additional indices of emotional memory performance, (2) and exploring potential links with trait EI, which was also assessed in this study.

7.4.1. Correlational Overview

Neither ability nor trait EI was related to a positive memory bias, as reflected by the ratio of correctly recognized positive to negative images (Table 12). However, both emotion recognition and emotion understanding were positively correlated with the proportion of correctly recognized emotional images. Trait EI, in contrast, showed no meaningful association with any memory index.

Since the fundamental prerequisite for mediation was not met, no further mediation analyses were pursued.

Table 12: Correlations among ability EI facets, trait EI dimensions, SWB indicators and memory indices

	M	SD	1	2	3	4	4.1	4.2	4.3	4.4	5	6	7	8
1. Sex	-	-												
2. GERT	0.66	0.11	0.05											
3. STEU	0.65	0.11	0.06	0.32***										
4. Trait EI	3.49	0.49	-0.13	-0.05	0.01									
4.1. SFEA	3.40	0.83	-0.06	0.05	0.05	0.63***								
4.2. SFER	3.15	0.78	-0.29***	-0.17*	0.01	0.64***	0.20**							
4.3. OFEA	3.91	0.64	0.11	0.02	-0.01	0.67***	0.21**	0.13						
4.4. OFER	3.49	0.69	-0.04	-0.03	-0.04	0.71***	0.14	0.28***	0.54***					
5. SWLS	5.03	1.20	0.06	-0.02	-0.07	0.11	0.09	0.02	0.09	0.13				
6. PA	3.27	0.66	-0.11	-0.08	0.03	0.41***	0.31***	0.25***	0.18*	0.33***	0.23**			
7. NA	2.48	0.67	0.13	0.1	-0.01	-0.15*	-0.14	-0.22**	0.04	-0.06	-0.37***	-0.13		
8. Positive relations	4.72	0.82	0.07	0.02	0.04	0.20**	0.21**	-0.09	0.22**	0.22**	0.48***	0.36***	-0.13	
Memory task														
9. Positive – negative ratio	1.15	0.87	-0.23**	-0.03	-0.01	-0.01	0.05	-0.07	-0.08	0.06	-0.15*	0.06	0.05	-0.16*
10. Positive recognition score	68.70	17.00	-0.06	0.16*	0.21**	-0.06	0.13	-0.11	-0.11	-0.1	-0.02	-0.02	-0.12	-0.01
11. Negative recognition score	67.56	18.19	0.15*	0.18*	0.16*	-0.1	0.02	-0.02	-0.09	-0.21**	0.08	-0.12	-0.17*	0.06
12. Emotional recognition score	68.13	14.82	0.06	0.20**	0.22**	-0.1	0.09	-0.07	-0.12	-0.18*	0.04	-0.08	-0.17*	0.03
13. Neutral recognition score	56.57	17.87	0.03	0.14*	0.06	-0.03	0.11	-0.07	-0.03	-0.12	-0.08	-0.13	-0.09	0.04

Note: Sex was dummy-coded with men as the reference category. GERT: Geneva Emotion Recognition Test. STEU: Situational Test of Emotion Understanding. Trait EI: Rotterdam Emotional Intelligence Scale. SFEA: Self-focused emotion appraisal. SFER: Self-focused emotion regulation. OFEA: Other-focused emotion appraisal. OFER: Other-focused emotion regulation. SWLS: Satisfaction with Life Scale. PA: Positive affect. NA: Negative affect. Positive-negative ratio: Ratio of correct recognition for positive images to correct recognition for negative images. Positive recognition score: Proportion of correctly recognized positive images. Negative recognition score: Proportion of correctly recognized negative images. Emotional recognition score: Proportion of correctly recognized emotional images. Neutral recognition score: Proportion of correctly recognized neutral images. *$p < .05$. **$p < .01$. ***$p < .001$.

7.4.2. Regression Analyses with Ability EI and the Proportion of Correctly Recognized Emotional Images

Based on the correlations showing that higher scores on emotion recognition and understanding facets of ability EI were associated with better memory for emotional images, the next step was to test whether these abilities predicted memory for emotional images, while controlling for sex, mood and working memory. As shown in Table 13, emotion recognition (*b* = 3.28, *SE* = 1.08, *t*(179) = 2.68, *p* < .01, 95% CI [1.15, 5.41]) and emotion understanding (*b* = 2.90, *SE* = 1.08, *t*(179) = 3.04, *p* < .01, 95% CI [0.76, 5.04]) predicted a higher proportion of correctly recognized emotional images.

Table 13: Linear models testing the main effects of emotion recognition (Model 1) and emotion understanding (Model 2) on the proportion of correctly recognized emotional images

	Proportion of correctly recognized emotional images			
	Model 1		**Model 2**	
Predictors	**Estimates**	**95% CI**	**Estimates**	**95% CI**
(Intercept)	65.55***	[56.79, 74.31]	65.43***	[56.63, 74.24]
GERT	3.28**	[1.15, 5.41]		
STEU			2.90**	[0.76, 5.04]
Sex	1.48	[-3.41, 6.38]	1.55	[-3.37, 6.48]
Mood	1.23	[-0.90, 3.36]	1.25	[-0.89, 3.39]
Working memory	1.24	[-0.93, 3.40]	1.00	[-1.18, 3.18]
Model fit				
Num.Obs.	185		185	
R^2	0.07		0.05	
Adjusted R^2	0.04		0.03	
RMSE	14.42		14.34	

Note: GERT: Geneva Emotion Recognition Test. STEU: Situational Test of Emotion Understanding. Sex was dummy-coded with men as the reference category. Working memory: Corsi task. Predictors were standardized. The proportion of correctly recognized emotional images remained in original units. Num. Obs. refers to the number of observations. 95% CI represents 95% confidence interval. * p < 0.05, ** p < 0.01, *** p < 0.001.

8. Discussion

This doctoral thesis examined how ability and trait EI relate to SWB, and through which mechanisms these relationships may emerge across successive stages of emotion information processing, from attentional orienting to reactivity and memory processes.

8.1. Overall Association Between EI and SWB

Across studies, ability EI showed weak and inconsistent associations with SWB, echoing prior evidence that its relation to life satisfaction, and positive and negative affect is small or non-existent (Brackett et al., 2006; MacCann & Roberts, 2008; Schlegel et al., 2021; Sommer & Schlegel, 2024). A modest exception appeared in Study 3, where emotion understanding and management related positively to positive relations, in line with prior work emphasizing the role of ability EI in social functioning (Lopes et al., 2004; Lopes et al., 2011; Lopes et al., 2005; Lopes et al., 2003).

Trait EI, by contrast, showed stronger and more consistent links with SWB. When measured by the TEIQue (Study 1, supplemental analyses section 7.1), trait EI correlated positively with life satisfaction and positive affect, and negatively with negative affect, aligning with extensive meta-analytic evidence (Sánchez-Álvarez et al., 2016; Schutte et al., 2007). However, Study 1 confirmed that part of the TEIQue–SWB association reflects conceptual overlap, especially through the well-being dimension of the TEIQue (Zeidner et al., 2012).

Subsequent studies therefore relied on the REIS, which yielded more conservative yet still positive associations with SWB, although not consistently across life satisfaction and positive relations (See supplemental results section 7.2 and 7.3).

Overall, the results support a clearer and more consistent relationship between trait EI and SWB, than between ability EI and SWB, consistently with prior evidence (Sánchez-Álvarez et al., 2016). The following section addresses *how* these associations might arise.

8.2. Mechanisms Linking EI and SWB

Drawing on contemporary emotion information processing frameworks (Fiori et al., 2022), ability EI was hypothesized to be associated with acute sensitivity mechanism at early stages of emotion information processing. More specifically, higher ability EI was expected to predict stronger attentional orienting towards emotional expressions, compared to neutral ones. By contrast, trait EI was not expected to be associated with mechanisms operating at these early attentional stages. The project initially assumed that both ability and trait EI would be associated with a valence-specific sensitivity mechanism at later stages of emotion information processing (Studies 2 and 4). However, at this stage, it remained unclear whether all ability EI facets would contribute to such a shift toward valence-specific sensitivity. Emotion management was the first facet to be explicitly hypothesized (Fiori et al., 2023) as supporting increased sensitivity to positive stimuli and reduced sensitivity to negative stimuli, an assumption that was subsequently supported by experimental findings (Fiori et al., 2024; Gillioz et al., 2025). For emotion recognition and understanding, the timing and nature of the transition from acute sensitivity to valence-specific sensitivity remained less clearly specified. In Study 4, which focused on memory processes, this transition was further hypothesized for recognition and understanding, although whether and when such a shift occurs across processing stages remained an open question.

The results of the current research confirmed that ability EI, particularly emotion understanding, predicted stronger attentional orienting towards emotional expressions (Study 1, Nicolet-dit-Félix et al., 2023), in line with the acute sensitivity hypothesis (Fiori & Ortony, 2021). These findings are consistent with the view that ability EI may be involved in adaptive processes supporting rapid responses to emotionally relevant information, potentially serving survival-related functions, such as threat detection and the facilitation of affiliative responses. However, these early sensitivity to emotion information was unrelated to life satisfaction or

positive and negative affect. Trait EI did not predict attention orienting, consistent with the view that it might be associated with more reflective stages of emotion information processing.

At more reflective stages, Study 2 indicated that a valence-specific sensitivity mechanism operating within emotional reactivity processes – assessed via the PERS-S questionnaire – may constitute a key pathway through which trait EI relates to SWB. Individuals higher in trait EI reported both stronger positive reactivity and dampened negative reactivity, and these two processes were jointly associated with greater life satisfaction and more positive relations. These two outcomes arguably capture broader evaluations of one's life and social functioning, which depend on both the capacity to benefit from positive experiences and a reduced impact of adverse ones (Lionetti & Pluess, 2024; Pluess, 2017; Pluess & Belsky, 2013; Tugade & Fredrickson, 2004). The link between EI and positive affect was exclusively mediated by increased positive reactivity, whereas the link between EI and negative affect was exclusively mediated by reduced negative reactivity (see Supplemental analyses section 7.2).

By contrast, ability EI did not predict emotional reactivity assessed via the PERS-S. This pattern likely reflects a mismatch between a measure indexing optimal emotional abilities under structured conditions and a self-reported questionnaire capturing typical, retrospectively evaluated emotional responding in everyday contexts.

To better align the level of measurement with moment-to-moment emotional processes and reduce reliance on retrospective memory, Study 3 examined emotional reactivity using a dynamic, real-time measure. Subjective emotional reactivity was assessed in a controlled laboratory setting with the Dynamic Affective Rating Task (Robinson et al., 2021), which provides a more direct index of unfolding emotional experience and minimizes reliance on memory. Unlike previous studies relying on a single retrospective rating collected during a second viewing (Fiori et al., 2024; Lea et al., 2025), the present design recorded continuous ratings during the first exposure to each stimulus.

Emotion recognition and understanding were expected to predict an acute reactivity to both pleasant and unpleasant images, whereas emotion management was expected to show a valence-specific sensitivity profile, as greater reactivity to pleasant images and reduced reactivity to unpleasant ones. Contrary to these hypotheses, emotion recognition and understanding predicted *dampened* reactivity (i.e., lower peak amplitudes and slower velocities), suggesting deliberate down-regulation rather than amplified sensitivity as in previous studies (Fiori et al., 2024; Lea et al., 2025). In contrast, emotion management was associated with faster reactivity (i.e., faster onset times), suggesting quicker emotional engagement. Together, these findings support that emotion recognition and understanding might operate as a top-down regulatory system, at deliberate stage of emotion information processing, consistent with dual-process models in which a controlled "cool" system modulates the output of the automatic "hot" system (Metcalfe & Mischel, 1999). This interpretation complements previous views positioning ability EI as a marker of emotional sensitivity, primarily at early, automatic stages of processing (Fiori et al., 2024; Gillioz et al., 2023; Nicolet-dit-Félix et al., 2023).

Trait EI, by contrast, showed only a weak negative association with peak amplitude for unpleasant images, and did not predict onset time, peak amplitude more generally, velocity, or any interaction with image valence (see Supplemental Analyses, Section 7.3). This pattern aligns with recent experimental findings showing limited associations between self-perceived emotional competence and affective responses to emotionally valenced social media content (Lea et al., 2025).

Taken together with the findings from Study 2, these results reveal a meaningful distinction. Trait EI predicts patterns of emotional reactivity when individuals rely on reflective evaluations of their everyday emotional experiences, whereas ability EI emerges as the stronger predictor when emotional responses are captured spontaneously in real time, as in the DART.

This distinction emphasizes the need to consider the temporal level at which emotional processes are measured, since immediate, stimulus-bound reactions might differ fundamentally from reflective judgments shaped by memory, appraisal, and broader self-perceptions.

Dynamic emotional reactivity showed no association with SWB in Study 3. At first sight, this appears inconsistent with theories proposing that stronger engagement with positive experiences and reduced reactivity to negative ones promote SWB (Fredrickson, 2001; Pluess, 2017). However, this apparent discrepancy can be resolved by considering the temporal level at which emotional processes are assessed. The DART primarily captures the *initial unfolding* of emotional responses, whereas theories of SWB emphasize *later regulatory phases*, such as recovery, integration, and savoring. These later processes are assumed to play a central role in sustaining positive affect and translating emotional experiences into enduring well-being (e.g., through savoring, Bryant & Veroff, 2007; Szczygieł & Mikolajczak, 2017) and might therefore occur beyond the temporal window assessed by the DART. In this sense, the absence of an association with SWB is consistent with temporal models of emotion regulation, which distinguish early emotional responses from later, more deliberate regulatory adjustments (Gross, 1998, 2001, 2015; Ochsner & Gross, 2005). Finally, since none of the dynamic reactivity indices were related to SWB, the conditions required for mediation were not met.

The final part of this research program examined a later, deliberate stage of emotional processing, focusing on memory as a potential pathway linking EI to SWB. In Study 4, it was expected that emotion recognition and understanding would promote a bias toward remembering positive over negative images, or at least, reduce the negativity bias. The results did not support this prediction. Instead of showing a selective positive memory bias, recognition and understanding predicted a higher proportion of correctly recognized emotional images (see Supplemental Analyses, Section 7.4). This pattern is consistent with findings that ability EI

enhances the processing of emotion information, whether through acute perceived intensity (Fiori et al., 2024) or reactivity (Lea et al., 2025).

An alternative explanation nevertheless remains plausible. The higher proportion of correctly recognized images might partly reflect a broader cognitive advantage, particularly for individuals with higher emotion understanding, who tend to also perform better on general cognitive tasks (Hendel & Brysbaert, 2024) and potentially on related capacities such as working memory. This possibility cannot be ruled out, as the working-memory task planned as a control (i.e., the Corsi block-tapping task) did not function as intended and showed no association with memory performance across image categories.

By contrast, trait EI and SWB showed no association with any memory indices. This absence of association may reflect the fact that, although emotional memory was initially conceptualized as indexing the latest stage of emotion information processing examined in this thesis, the present paradigm likely captured only a limited subset of this stage. Specifically, the rapid and decontextualized presentation of stimuli, combined with a brief exposure duration (500 ms), may have constrained the engagement of reflective and elaborative processes, which typically require extended processing time (Grandjean & Scherer, 2008; Scherer, 2009). Under these conditions, memory performance may have been primarily driven by early perceptual and attentional mechanisms rather than by higher-level interpretative processes, which are more closely implicated in SWB enhancement (e.g., Tugade & Fredrickson, 2004).

Stepping back, the overall pattern observed across Studies 1 to 4 appears more differentiated than initially anticipated. While several theoretically grounded associations were supported (particularly those linking ability EI to emotional mechanisms, and trait EI to SWB) a number of expected relationships did not emerge. In particular, the analyses did not reveal significant associations between ability EI and SWB, between trait EI and task-based indices of emotional processing, or between task-based mechanisms and SWB. These findings

naturally raise a legitimate interpretative question: do these null results reflect a genuine absence of substantive relationships, or might they be attributable to issues related to the psychometric reliability of the measures or to data quality? The available evidence suggests that the latter explanation is unlikely. Several methodological safeguards were implemented across studies to ensure adequate measurement quality and task validity. Performance-based ability EI measures have demonstrated acceptable test–retest reliability in prior research (Libbrecht & Lievens, 2012), whereas trait EI and SWB measures showed good internal consistency in the present studies, consistent with previous psychometric findings (Diener et al., 1985; Pekaar et al., 2018a; Ryff, 1989; Watson et al., 1988). Task paradigms were designed with sufficient temporal precision to capture attentional and dynamic emotional processes. Online tasks (i.e., attentional and memory tasks) were administered via Gorilla, and laboratory-based task (i.e., the reactivity task) were implemented in PsychoPy, both of which have demonstrated reliable stimulus presentation and response timing in experimental research (e.g., Anwyl-Irvine et al., 2020; Peirce et al., 2019). Attention checks and minimum performance thresholds were applied in online paradigms to exclude insufficiently engaged respondents. Standard data-screening procedures were implemented across studies, including the exclusion of aberrant trials based on commonly established criteria. Finally, response patterns were examined to ensure adequate variability and to rule out marked ceiling or floor effects.

Taken together, these elements suggest that the measures and experimental paradigms employed in the present studies provide a sound basis for examining the relationships between EI, emotional information processing, and SWB.

More broadly, the present findings suggest that ability and trait EI operate at different levels of emotional functioning: ability EI appears to be primarily involved in the processing of emotional information in task-based contexts, whereas trait EI appears more closely related to typical patterns of emotional responding reported in everyday life.

Despite these insights into the relationship between EI, emotion information processing, and SWB, several limitations of the present research should be acknowledged.

8.3. Overall Limitations

First, although Study 1 relied on a heterogeneous Prolific sample, Studies 2–4 were conducted primarily with university students in Switzerland, with a strong overrepresentation of women. As EI and SWB often vary across age and gender (Brasseur et al., 2013; Cabello et al., 2016; Fernández-Berrocal et al., 2012; Kafetsios, 2004; Salguero et al., 2012; Salovey et al., 1995; Schlegel et al., 2014), this demographic imbalance may limit generalizability.

A second limitation concerns the possibility of unmeasured confounding factors in the association between EI and SWB, particularly for trait EI measures. Trait EI instruments embedded within the personality domain, such as the TEIQue-SF, overlap substantially with broad traits—especially extraversion and neuroticism (Petrides et al., 2007b; Udayar et al., 2020; Van der Linden et al., 2017; Van der Linden et al., 2012). As these traits are themselves robust predictors of SWB (Anglim et al., 2020; DeNeve & Cooper, 1998), part of the association between trait EI and SWB may reflect shared variance with underlying personality dimensions that were not explicitly controlled for. Although the REIS was selected to reduce such overlap and shows little association with extraversion, it remains moderately related to agreeableness and neuroticism (Pekaar et al., 2018a). By contrast, ability EI measures show weak and inconsistent associations with the Big five (Caruso et al., 2002; Udayar et al., 2020), suggesting that personality confounding is less pronounced for performance-based EI.

Third, the mediation analyses in Study 2 relied on cross-sectional data, limiting causal inference. Although the proposed model was grounded in established theoretical frameworks and prior empirical findings, including intervention studies supporting a directional link from EI to SWB (e.g., Nelis et al., 2011), cross-sectional designs cannot establish temporal precedence. Methodological research has shown that cross-sectional mediation models may

yield biased estimates of indirect effects and reproduce statistically significant mediation even when the true underlying causal structure differs from the one specified (Maxwell & Cole, 2007; Maxwell et al., 2011). Accordingly, the indirect effects observed should be interpreted as consistent with the proposed mechanism, but not as definitive evidence of causality. Stronger inferences would require longitudinal or experimental designs (Antonakis et al., 2010; Selig & Preacher, 2009).

Fourth, Study 2 relied exclusively on self-report measures for trait EI, emotional reactivity, and SWB, raising concerns about common method variance. When constructs are assessed using the same format, source, and time frame, associations may partly reflect shared measurement context rather than substantive relationships (Podsakoff et al., 2003). Common method variance may arise from several sources, including consistency motifs, implicit theories linking constructs, or general response styles such as acquiescence or social desirability. Methodological research emphasizes that the most effective strategies for addressing common method variance are procedural remedies implemented at the study design stage, such as collecting data from different sources or introducing temporal separation between predictors and outcomes (Podsakoff et al., 2003; Podsakoff et al., 2012; Podsakoff et al., 2024).

In Study 2, the cross-sectional design and the focus on subjective emotional experiences limited the feasibility of implementing such procedural remedies. As an initial diagnostic approach, several post hoc analyses were therefore conducted. Item-level exploratory factor analyses were performed for each mediation model (see Supplemental Analyses, Section 7.2.3). The absence of a single dominant factor suggests that the observed associations were unlikely to be primarily driven by a pervasive common response tendency. However, such analyses provide only a limited diagnostic and cannot formally partition method-related variance from substantive variance. More sophisticated statistical approaches, such as models including an unmeasured latent method factor, were also considered. Yet these techniques substantially

increase model complexity and typically require large samples to obtain stable estimates. Given the moderate sample size of Study 2, attempts to estimate such models resulted in non-convergence.

Fifth, the assessment of SWB remained selective in its coverage of hedonic and eudaimonic dimensions. Although positive and negative affect were assessed as distinct constructs, the PANAS primarily captures high-arousal affect and may underrepresent calmer positive states (e.g., serenity, contentment) as well as low-arousal negative states. On the cognitive-hedonic side, the SWLS provides a global evaluation of life satisfaction. From a bottom-up SWB perspective, such global judgments are assumed to reflect an aggregation of satisfaction across different life domains, meaning that domain-specific variations may remain obscured when only global measures are considered (e.g., McAdams et al., 2012; Nakamura et al., 2022; Soylu, 2023). On the eudaimonic side, only the positive relations subscale of Ryff's model was retained due to psychometric concerns with other dimensions (Abbott et al., 2006; Burns & Machin, 2009; Kafka & Kozma, 2002; Springer et al., 2006; Van Dierendonck, 2004), thereby narrowing the scope of eudaimonic functioning examined. Consequently, several facets of both hedonic and eudaimonic SWB remain to be explored in relation to EI.

A related limitation concerns the reliance on global retrospective indicators of SWB. Although such measures generally demonstrate strong psychometric properties, including high internal consistency and substantial temporal stability (Diener et al., 1985; Diener et al., 2013), they do not necessarily represent a simple aggregation of individuals' moment-to-moment emotional experiences. Global evaluations of SWB are often partly reconstructed from memory, salient episodes, personal beliefs, and broader self-concepts (Kahneman & Riis, 2005; Lucas, 2018). As a result, these measures may rely on a limited subset of information—such as recent or particularly memorable events, personal beliefs about what constitutes a good life, or comparisons with relevant others—and may therefore reflect processes of memory retrieval,

cognitive appraisal, and social comparison rather than a comprehensive aggregation of everyday affective experiences.

Finally, isolating mechanisms embedded within specific stages of emotion information processing posed both conceptual and methodological challenges. Emotion regulation processes may intervene at multiple stages of emotional information processing, including early attentional and perceptual stages, intermediate stages of emotional reactivity, and later evaluative or integrative processes. At each of these stages, different regulation strategies may be engaged, ranging from antecedent-focused strategies such as situation selection and reappraisal to response-focused strategies such as expressive suppression (Fiori et al., 2023; Ochsner & Gross, 2005).

Such pervasive opportunities for regulation made it challenging to determine whether observed differences reflect genuine spontaneous sensitivity to emotion information, downstream regulatory adjustments, or an interplay of both (Fiori et al., 2024; Gillioz et al., 2025; Nicolet-dit-Félix et al., 2023).

8.4. Future Directions

The present findings open several theoretically and methodologically grounded avenues for future research. Beyond addressing the limitations outlined above, these directions aim to further clarify the emotional mechanisms through which EI relates to SWB, refine the measurement of specific EI components, broaden the assessment of SWB, diversify the sources of information used to assess these constructs, and shift the level of analysis toward more dynamic within-person approaches.

8.4.1. Refining the Measurement of EI

Accordingly, a first important step concerns the measurement of EI itself. Across studies, performance-based ability EI tests showed limited and inconsistent associations with SWB, despite demonstrating good reliability and consistent links with specific mechanisms

embedded within emotion information processing. These results suggest that the aspects of emotion knowledge captured by maximal-performance measures may not be those most directly implicated in the experience and evaluation of SWB. The capacity to reason accurately about emotions under optimal testing conditions may therefore be conceptually distinct from the forms of emotional functioning that contribute to sustained SWB. SWB may depend less on emotional reasoning per se than on how emotional abilities are translated (or not) into emotional competencies in everyday life.

Future research might therefore benefit from further developing and employing *typical-performance* measures of EI (e.g., Freudenthaler & Neubauer, 2007; Mohorić et al., 2024), particularly for facets such as emotion management. In contrast to maximal-performance tests, which require individuals to identify the most effective response in emotionally evocative scenarios, typical-performance measures present comparable situations but ask how individuals would usually respond (e.g., "*What would you usually do in this situation?"* rather than "*What is the most effective response*?"). This distinction is theoretically meaningful, as individuals may possess accurate knowledge of adaptive regulation strategies without consistently implementing them.

As typical-performance measures capture habitual patterns of emotional functioning rather than optimal reasoning capacity, they may be more closely aligned with the processes that sustain SWB and may therefore offer greater ecological validity. Importantly, as typical-performance measures are anchored in concrete behavioral tendencies rather than global self-evaluations, they may also be less susceptible to self-efficacy or self-enhancement biases than trait EI questionnaires (Freudenthaler & Neubauer, 2007), which often blur the distinction between enacted emotional functioning and favorable self-perceptions.

Rather than treating maximal and typical performance as competing approaches, future research should integrate both within the same design. From a multi-component perspective

(e.g., Mikolajczak, 2009), EI emerges from the interplay between emotional potential and its consistent enactment. Joint assessment would allow identification of distinct profiles, such as individuals who possess high emotional ability and consistently display emotionally adaptive behavior ("high potential, high enactment"), or those who show high emotional ability but rarely apply it in everyday contexts ("high potential, low enactment")[20], either because they struggle to translate this potential into effective emotional competence or because they do not necessarily choose to mobilize these abilities across situations. Examining these profiles would allow researchers to test whether SWB is more strongly associated with maximal or typical emotional performance, or with the degree of congruence between both. In particular, such an approach could clarify whether pronounced discrepancies between maximal and typical performance constitute a source of psychological cost, whereas aligned profiles—especially high–high configurations—might be more conducive to higher SWB. Moreover, integrating performance-based and typical-performance measures within the same design may also reduce common method variance by diversifying response formats and limiting reliance on global self-evaluations.

In parallel to distinctions within ability EI, similar refinements may be needed for trait EI. Theoretical work suggests that different dimensions of trait EI may carry distinct functional implications, such that individuals with similar global EI scores may nonetheless differ in how specific emotional tendencies relate to outcomes (Pekaar et al., 2020). Empirical findings support the functional relevance of these distinctions. For example, self-focused emotion regulation has been associated with lower subjective stress but higher physiological activation

[20] It is worth noting that some combinations may be theoretically very unlikely depending on the conceptual model of EI adopted. In hierarchical models of emotional competence (e.g., Mikolajczak, 2009), knowledge is assumed to underlie skills, which in turn underlie dispositions. Accordingly, while higher levels are expected to entail lower levels, the reverse does not necessarily hold. In other words, consistently adaptive emotional behavior would typically imply the presence of underlying emotional abilities, whereas possessing such abilities does not necessarily guarantee that they will be enacted in everyday contexts.

during emotionally demanding tasks, whereas other-focused emotion regulation appears more closely related to interpersonal task performance (Pekaar et al., 2019). Consequently, future research may benefit from examining trait EI at the level of its specific dimensions rather than relying solely on global scores.

8.4.2. Broadening the Assessment of Emotional Processes

A second avenue concerns the emotional processes through which EI relates to SWB. The present findings suggest that SWB may be more closely linked to reflective and regulatory stages of emotional processing than to immediate stimulus-bound reactions. Future research may therefore benefit from further examining how EI shapes emotional processes across later stages of emotion information processing.

One promising direction concerns the temporal unfolding of emotional responses. Dynamic paradigms assessing emotional reactivity in real time (e.g., DART), as in Study 3, could be extended to capture additional phases of emotional responding, such as the speed of recovery following negative emotional activation or the maintenance of positive affect over time. Parameters such as recovery latency—the time required for an emotional response to return to baseline after reaching its peak—may provide valuable insight into how different facets of EI operate. In particular, such indicators may be especially informative for understanding the role of the emotion management facet of ability EI, or self-focused emotion regulation within trait EI. In the context of negative emotions, these processes are expected to facilitate the dampening and recovery of emotional responses once they have reached their peak. By contrast, in the context of positive emotions, they may instead support the prolongation of positive experiences, for instance through processes related to savoring.

Future work could also examine whether distinct facets of ability and trait EI differentially shape emotional processes directed toward the self-versus others. For instance, some EI components may primarily influence the amplification or regulation of one's own

affective responses, whereas others may be more closely related to the perception and interpretation of emotional intensity in others. Clarifying these potentially divergent processes would help refine our understanding of how EI contributes both to the regulation of personal emotional reactions and to sensitivity to emotions expressed by others.

Another important avenue concerns appraisal processes that underlie both emotional reactions and the perception of emotional intensity. Appraisal theories emphasize that emotional responses depend on how individuals interpret events along dimensions such as goal relevance, control, responsibility, or coping potential. In this respect, instruments such as the Geneva Appraisal Questionnaire (GAQ, Scherer et al., 2001), may be particularly informative, as they may allow researchers to assess how emotional events are cognitively evaluated and described. Examining how EI relates to these appraisal processes could help clarify the mechanisms through which EI influences both emotional experience and the perception of others' emotions, and ultimately how these processes relate to SWB.

8.4.3. Broadening the Assessment of Well-being

A third avenue for future research concerns the assessment of well-being. Rather than relying solely on global and decontextualized indicators (e.g., life satisfaction), future studies may benefit from adopting a more differentiated approach to SWB. Prior work suggests that the relative importance of different well-being components may vary across developmental stages and life circumstances (e.g., McAdams et al., 2012; Nakamura et al., 2022; Soylu, 2023). Examining multiple components of SWB may therefore provide a more nuanced understanding of how EI relate to SWB in particular areas of life (e.g., family, health, leisure, work).

Future research could also extend the assessment of SWB by considering broader profiles of functioning. Contemporary perspectives increasingly conceptualize SWB as a multidimensional construct integrating emotional, psychological, and social aspects of functioning, often described in terms of flourishing and encompassing elements traditionally

associated with both hedonic and eudaimonic SWB (Diener et al., 2010; Huppert & So, 2013; Seligman, 2011; VanderWeele, 2017). This integrative perspective may be particularly informative in light of the present findings, as associations between EI and SWB showed largely similar patterns across hedonic and eudaimonic indicators.

Future work could draw more directly on the two-continua model of mental health, which conceptualizes optimal functioning as the combination of high levels of positive functioning and low levels of psychological distress (Keyes, 2002, 2005). Adopting this perspective would help move beyond approaches that focus primarily on positive indicators of SWB, a tendency frequently noted in positive psychology. In this framework, the negative pole may be indexed by indicators of mental disorder or depressive symptoms, but could also be extended to difficulties in social functioning. For instance, perceived loneliness, the subjective experience of insufficient or unsatisfactory social connections (Cacioppo & Cacioppo, 2018; Hawkley & Cacioppo, 2010), may provide a useful indicator of distress in the social domain. Examining well-being as well as ill-being indicators would allow researchers to better capture the dual structure of mental health. Person-centered approaches may further help identify profiles reflecting different configurations of positive functioning and distress.

8.4.4. Incorporating Multi-Informant Assessments

Future research could also benefit from diversifying the sources of information used to assess EI and well-being. Combining self-reports with external informant reports may provide a more comprehensive assessment of these constructs. Such approaches have already been implemented in several studies. For instance, trait EI has been assessed through supervisors' evaluations of trainees' emotional functioning in professional contexts (e.g., Pekaar et al., 2018b), while interpersonal outcomes related to well-being have been reported by close interaction partners such as romantic partners (e.g., Lopes et al., 2004).

Self-reports primarily capture individuals' internal experiences and subjective evaluations, whereas informants may provide insight into how these tendencies manifest in observable behaviors and interpersonal functioning, particularly when informants have sufficient familiarity with the target individual and access to relevant behavioral cues (Connelly & Ones, 2010; Funder, 1995; Vazire, 2010). Informant reports may therefore offer a complementary perspective on aspects of well-being that are expressed in social interactions and perceived by others. This complementarity is reflected in the typically moderate agreement observed between self- and informant reports of well-being ($r \approx .42$) (Schneider & Schimmack, 2009). Considering both perspectives may therefore provide a more complete picture of how emotional functioning and well-being are experienced internally and expressed in everyday social contexts.

Beyond providing complementary perspectives, multisource designs may also offer methodological advantages. In particular, relying on independent informant reports may serve as an effective procedural strategy for mitigating common method variance when predictors, mediators, and outcomes are otherwise assessed via self-report (Podsakoff et al., 2024).

8.4.5. From Between-Person Differences to Within-Person Emotional Dynamics

A further promising direction concerns the integration of within-person designs. Because emotional processes unfold across situations and time, designs focusing exclusively on between-person differences may overlook essential dynamics. Within-person approaches offer several important advantages.

First, within-person designs may allow researchers to examine emotional processes across diverse real-life contexts. They make it possible to assess whether individuals adjust attention, appraisal, and regulation strategies as situational demands change, thereby distinguishing adaptive variability from rigid responding. Empirical work already supports the relevance of this perspective in the EI domain. For example, individuals higher in emotion

understanding have been shown to display greater within-person variability in the regulation strategies they use across daily situations, suggesting flexible adjustment across contexts (Double et al., 2022).

Second, within-person assessments may enable a more fine-grained operationalization of SWB. Repeated measurements of affect (e.g., PANAS administered several times per day) or indicators more closely tied to momentary functioning, such as energy levels or emotional fatigue, may better capture short-term fluctuations in SWB and reduce the temporal gap between emotional mechanisms and their outcomes. Assessing experiences closer to the moment they occur may also limit retrospective reconstruction processes that often shape global evaluations of SWB (Kahneman & Riis, 2005; Lucas, 2018).

Third, within-person designs also open the possibility of examining variability in EI itself. Although trait EI is typically conceptualized as a stable individual difference, research on personality dynamics suggests that traits may be better understood as distributions of states that vary across contexts and time (Fleeson, 2001; Fleeson & Jayawickreme, 2015). Emerging evidence further suggests that aspects of emotional functioning may also exhibit meaningful fluctuations in daily life. For example, diary research indicates that between 50% and 70% of the variance in week-specific trait EI (i.e., REIS) reflects within-person fluctuations, rather than stable between-person differences (Pekaar et al., 2018b). Repeated assessments may therefore help disentangle stable dispositional components from context-sensitive shifts in emotional self-perceptions, clarifying whether EI operates primarily as a stable trait, a dynamic capacity, or a combination of both.

Finally, within-person designs may also offer methodological advantages. Assessing predictors, mediators, and outcomes at different time points constitutes a procedural strategy for reducing certain sources of common method variance. Temporal separation between

measurements decreases the likelihood that observed associations are driven by consistency motifs or by features of the shared measurement context (Podsakoff et al., 2024).

9. Conclusion

This doctoral thesis makes two main contributions to the EI literature. First, it provides a clearer delineation of the mechanisms associated with ability and trait EI by situating them within successive stages of emotion information processing. Ability EI was consistently associated with mechanisms involved in the attentional orienting, reactivity and memory of emotional information, as captured by task-based measures. Specifically, ability EI was associated with acute sensitivity mechanism in attentional orienting and emotional memory, and with decreased sensitivity mechanism in subjective emotional reactivity. By contrast, trait EI was not associated with any mechanisms assessed through task-based paradigms. Instead, it was related to typical patterns of self-reported emotional reactivity, which proved more directly relevant for SWB.

Second, and most importantly with respect to SWB, the present work showed that higher levels of SWB were not associated with mechanisms related to ability EI, at least within the samples examined in this thesis. Instead, SWB was associated with a valence-specific sensitivity mechanism linked to trait EI, operating within emotional reactivity processes and characterized by heightened reactivity to positive events alongside attenuated reactivity to negative ones. Crucially, this association emerged when emotional reactivity was assessed at the level of typical, self-reported emotional functioning.

10. References

Abbott, R. A., Ploubidis, G. B., Huppert, F. A., Kuh, D., Wadsworth, M. E., & Croudace, T. J. (2006). Psychometric evaluation and predictive validity of Ryff's psychological well-being items in a UK birth cohort sample of women. *Health and quality of life outcomes, 4*(1), 76. https://doi.org/10.1186/1477-7525-4-76

Aghababaei, N., & Arji, A. (2014). Well-being and the HEXACO model of personality. *Personality and Individual Differences, 56*, 139-142. https://doi.org/10.1016/j.paid.2013.08.037

Allen, V., Rahman, N., Weissman, A., MacCann, C., Lewis, C., & Roberts, R. D. (2015). The Situational Test of Emotional Management–Brief (STEM-B): Development and validation using item response theory and latent class analysis. *Personality and Individual Differences, 81*, 195-200. https://doi.org/10.1016/j.paid.2015.01.053

Allen, V. D., Weissman, A., Hellwig, S., MacCann, C., & Roberts, R. D. (2014). Development of the situational test of emotional understanding–brief (STEU-B) using item response theory. *Personality and Individual Differences, 65*, 3-7. https://doi.org/10.1016/j.paid.2014.01.051

Andrei, F., Siegling, A. B., Aloe, A. M., Baldaro, B., & Petrides, K. V. (2016). The incremental validity of the Trait Emotional Intelligence Questionnaire (TEIQue): A systematic review and meta-analysis. *Journal of personality assessment, 98*(3), 261-276. https://doi.org/10.1080/00223891.2015.1084630

Anglim, J., Horwood, S., Smillie, L. D., Marrero, R. J., & Wood, J. K. (2020). Predicting psychological and subjective well-being from personality: A meta-analysis. *Psychological bulletin, 146*(4), 279-323. https://doi.org/10.1037/bul0000226

Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A review and recommendations. *The leadership quarterly, 21*(6), 1086-1120. https://doi.org/10.1016/j.leaqua.2010.10.010

Anwyl-Irvine, A. L., Massonnié, J., Flitton, A., Kirkham, N., & Evershed, J. K. (2020). Gorilla in our midst: An online behavioral experiment builder. *Behavior research methods, 52*(1), 388-407. https://doi.org/10.3758/s13428-019-01237-x

Argyle, M., & Crossland, J. (1987). The dimensions of positive emotions. *British Journal of Social Psychology, 26*(2), 127-137. https://doi.org/10.1111/j.2044-8309.1987.tb00773.x

Aristotle. (ca. 4th century BCE/2021). *Nicomachean ethics* (W. D. Ross, Trans.). Oxford University Press. (Original work published ca. 4th century BCE)

Armstrong, A. R., Galligan, R. F., & Critchley, C. R. (2011). Emotional intelligence and psychological resilience to negative life events. *Personality and Individual Differences, 51*(3), 331-336. https://doi.org/10.1016/j.paid.2011.03.025

Ashkanasy, N. M., & Daus, C. S. (2005). Rumors of the death of emotional intelligence in organizational behavior are vastly exaggerated. *Journal of Organizational Behavior, 26*(4), 441-452. https://doi.org/10.1002/job.320

Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and social psychology review, 11*(2), 150-166. https://doi.org/10.1177/1088868306294907

Augustine, A. (426 CE/2003). *The city of God* (H. Bettenson, Trans.) [Original work published ca. 426 CE]. Penguin Classics.

Augusto Landa, J. M., Martos, M. P., & Lopez-Zafra, E. (2010). Emotional intelligence and personality traits as predictors of psychological well-being in Spanish undergraduates. *Social Behavior and Personality: an international journal, 38*(6), 783-793. https://doi.org/10.2224/sbp.2010.38.6.783

Austin, E. J. (2010). Measurement of ability emotional intelligence: Results for two new tests. *British Journal of Psychology, 101*(3), 563-578. https://doi.org/10.1348/000712609X474370

Austin, E. J., Farrelly, D., Black, C., & Moore, H. (2007). Emotional intelligence, Machiavellianism and emotional manipulation: Does EI have a dark side? *Personality and Individual Differences, 43*(1), 179-189. https://doi.org/10.1016/j.paid.2006.11.019

Bar-Haim, Y., Lamy, D., Pergamin, L., Bakermans-Kranenburg, M. J., & Van Ijzendoorn, M. H. (2007). Threat-related attentional bias in anxious and nonanxious individuals: a meta-analytic study. *Psychological bulletin, 133*(1), 1-24. https://doi.org/10.1037/0033-2909.133.1.1

Bar-On, R. (1997). *BarOn emotional quotient inventory*. Multi-health systems.

Barry, T. R. (2014). The Midlife in the United States (MIDUS) series: A national longitudinal study of health and well-being. *Open health data, 2*(1), e3. https://doi.org/10.5334/ohd.ai

Batz-Barbarich, C., Tay, L., Kuykendall, L., & Cheung, H. K. (2018). A meta-analysis of gender differences in subjective well-being: Estimating effect sizes and associations with gender inequality. *Psychological science, 29*(9), 1491-1503. https://doi.org/10.1177/0956797618774796

Bazzini, D. G., Stack, E. R., Martincin, P. D., & Davis, C. P. (2007). The effect of reminiscing about laughter on relationship satisfaction. *Motivation and Emotion, 31*(1), 25-34. https://doi.org/10.1007/s11031-006-9045-6

Becerra, R., Preece, D., Campitelli, G., & Scott-Pillow, G. (2019). The assessment of emotional reactivity across negative and positive emotions: Development and validation of the Perth Emotional Reactivity Scale (PERS). *Assessment, 26*(5), 867-879. https://doi.org/10.1177/1073191117694455

Bentham, J. (1789/1988). *The principles of morals and legislation.* (J. H. Burns & H. L. A. Hart, Trans.). Prometheus Books. (Original work published in 1789)

Blanchflower, D., & Bryson, A. (2024). The gender well-being gap. *Social indicators research, 173*(3), 1-45. https://doi.org/10.1007/s11205-024-03334-7

Blanchflower, D. G., & Oswald, A. J. (2008). Is well-being U-shaped over the life cycle? *Social science & medicine, 66*(8), 1733-1749. https://doi.org/10.1016/j.socscimed.2008.01.030

Boyatzis, R. E., Goleman, D., & Rhee, K. (2000). Clustering competence in emotional intelligence: Insights from the Emotional Competence Inventory (ECI). In *Handbook of emotional intelligence* (Vol. 99, pp. 343-362).

Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: a comparison of self-report and performance measures of emotional intelligence. *Journal of personality and social psychology, 91*(4), 780-795. https://doi.org/10.1037/0022-3514.91.4.780

Brasseur, S., Grégoire, J., Bourdu, R., & Mikolajczak, M. (2013). The profile of emotional competence (PEC): Development and validation of a self-reported measure that fits dimensions of emotional competence theory. *PloS one, 8*(5), e62635. https://doi.org/10.1371/journal.pone.0062635

Brebner, J. (2003). Gender and emotions. *Personality and Individual Differences, 34*(3), 387-394. https://doi.org/10.1016/S0191-8869(02)00059-4

Brosch, T., Scherer, K., Grandjean, D., & Sander, D. (2013). The impact of emotion on perception, attention, memory, and decision-making. *Swiss medical weekly, 143*(1920), w13786-w13786.

Bru-Luna, L. M., Martí-Vilar, M., Merino-Soto, C., & Cervera-Santiago, J. L. (2021). Emotional intelligence measures: A systematic review. *Healthcare, 9*(12), 1696. https://doi.org/10.3390/healthcare9121696

Brulé, G., & Maggino, F. (2017). Towards more complexity in subjective well-being studies. In F. Maggino (Ed.), *Metrics of subjective well-being: Limits and improvements* (pp. 3-22). Springer. https://doi.org/10.1007/978-3-319-61810-4_1

Bryant, F. B. (2021). Current progress and future directions for theory and research on savoring. *Frontiers in Psychology, 12*, 771698. https://doi.org/10.3389/fpsyg.2021.771698

Bryant, F. B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Psychology Press. https://doi.org/10.4324/9781315088426

Burns, R. A., & Machin, M. A. (2009). Investigating the structural validity of Ryff's psychological well-being scales across two samples. *Social indicators research, 93*(2), 359-375. https://doi.org/10.1007/s11205-008-9329-1

Burrus, J., Betancourt, A., Holtzman, S., Minsky, J., MacCann, C., & Roberts, R. D. (2012). Emotional intelligence relates to well-being: Evidence from the Situational Judgment Test of Emotional Management. *Applied Psychology: Health and Well-Being, 4*(2), 151-166. https://doi.org/10.1111/j.1758-0854.2012.01066.x

Cabello, R., Sorrel, M. A., Fernández-Pinto, I., Extremera, N., & Fernández-Berrocal, P. (2016). Age and gender differences in ability emotional intelligence in adults: A cross-sectional study. *Developmental psychology, 52*(9), 1486-1492. https://doi.org/10.1037/dev0000191

Cacioppo, J. T., & Cacioppo, S. (2018). Loneliness in the modern age: An evolutionary theory of loneliness (ETL). In *Advances in experimental social psychology* (Vol. 58, pp. 127-197). Elsevier. https://doi.org/10.1016/bs.aesp.2018.03.003

Cantril, H. (1965). *The pattern of human concerns.* Rutgers University Press.

Carstensen, L. L. (1995). Evidence for a life-span theory of socioemotional selectivity. *Current directions in Psychological science, 4*(5), 151-156. https://doi.org/10.1111/1467-8721.ep11512261

Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: a theory of socioemotional selectivity. *American psychologist, 54*(3), 165-181. https://doi.org/10.1037/0003-066X.54.3.165

Caruso, D. R., Mayer, J. D., & Salovey, P. (2002). Relation of an ability measure of emotional intelligence to personality. *Journal of personality assessment, 79*(2), 306-320. https://doi.org/10.1207/S15327752JPA7902_12

Chan, D. W. (2006). Emotional intelligence, social coping, and psychological distress among Chinese gifted students in Hong Kong. *High Ability Studies, 16*(02), 163-178. https://doi.org/10.1080/13598130600617589

Cheng, T. C., Powdthavee, N., & Oswald, A. J. (2017). Longitudinal evidence for a midlife nadir in human well-being: Results from four data sets. *The Economic Journal, 127*(599), 126-142. https://doi.org/10.1111/ecoj.12256

Connelly, B. S., & Ones, D. S. (2010). An other perspective on personality: meta-analytic integration of observers' accuracy and predictive validity. *Psychological bulletin, 136*(6), 1092-1122. https://doi.org/10.1037/a0021212

Corsi, P. M. (1972). *Human memory and the medial temporal region of the brain.* [Doctoral dissertation, McGill University]. Montréal, Canada.

Darwin, C., & Darwin, S. F. (1872). *The expression of the emotions in man and animals*. John Murray London.

Davis, S. K., & Nichols, R. (2016). Does emotional intelligence have a “dark” side? A review of the literature. *Frontiers in Psychology, 7*, 213863. https://doi.org/10.3389/fpsyg.2016.01316

DeNeve, K. M., & Cooper, H. (1998). The happy personality: a meta-analysis of 137 personality traits and subjective well-being. *Psychological bulletin, 124*(2), 197-229. https://doi.org/10.1037/0033-2909.124.2.197

Di Fabio, A., & Kenny, M. E. (2016). Promoting well-being: The contribution of emotional intelligence. *Frontiers in Psychology, 7*, 1182. https://doi.org/10.3389/fpsyg.2016.01182

Di Fabio, A., & Saklofske, D. H. (2014). Promoting individual resources: The challenge of trait emotional intelligence. *Personality and Individual Differences, 65*, 19-23. https://doi.org/10.1016/j.paid.2014.01.026

Diener, E. (1984). Subjective well-being. *Psychological bulletin, 95*(3), 542-575. https://doi.org/10.1037/0033-2909.95.3.542

Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of personality and social psychology, 47*(5), 1105-1117. https://doi.org/10.1037/0022-3514.47.5.1105

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of personality assessment, 49*(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13

Diener, E., Inglehart, R., & Tay, L. (2013). Theory and validity of life satisfaction scales. *Social indicators research, 112*(3), 497-527. https://doi.org/10.1007/s11205-012-0076-y

Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature human behaviour, 2*(4), 253-260. https://doi.org/10.1038/s41562-018-0307-6

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: three decades of progress. *Psychological bulletin, 125*(2), 276-302. https://doi.org/10.1037/0033-2909.125.2.276

Diener, E., Wirtz, D., Biswas-Diener, R., Tov, W., Kim-Prieto, C., Choi, D.-w., & Oishi, S. (2009). New measures of well-being. In *Assessing well-being: The collected works of Ed Diener* (pp. 247-266). Springer. https://doi.org/10.1007/978-90-481-2354-4_10

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D.-w., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social indicators research, 97*(2), 143-156. https://doi.org/10.1007/s11205-009-9493-y

Disabato, D. J., Goodman, F. R., Kashdan, T. B., Short, J. L., & Jarden, A. (2016). Different types of well-being? A cross-cultural examination of hedonic and eudaimonic well-being. *Psychological assessment, 28*(5), 471-482. https://doi.org/10.1037/pas0000209

Double, K. S., Pinkus, R. T., & MacCann, C. (2022). Emotionally intelligent people show more flexible regulation of emotions in daily life. *Emotion, 22*(2), 397-402. https://doi.org/10.1037/emo0001069

Ekman, P. (1992). Are there basic emotions? *Psychological review, 99*(3), 550–553. https://doi.org/10.1037/0033-295X.99.3.550

Elfenbein, H. A., & Ambady, N. (2002). Is there an in-group advantage in emotion recognition? https://doi.org/10.1037//0033-2909.128.2.243

Elfenbein, H. A., & MacCann, C. (2017). A closer look at ability emotional intelligence (EI): What are its component parts, and how do they relate to each other? *Social and Personality Psychology Compass, 11*(7), e12324. https://doi.org/10.1111/spc3.12324

Epictetus. (ca. 108 CE/2014). *Discourses, fragments, handbook* (R. Hard & C. Gill, Trans.) [Original work published ca. 108 CE]. Oxford University Press.

Epicurus. (ca. 3rd century BCE/1994). *The epicurus reader: selected writings and testimonia.* (B. Inwood & L. P. Gerson, Trans.) [Original work published ca. 3rd century BCE]. Hackett Publishing Company.

Extremera, N., Ruiz-Aranda, D., Pineda-Galán, C., & Salguero, J. M. (2011). Emotional intelligence and its relation with hedonic and eudaimonic well-being: A prospective study. *Personality and Individual Differences, 51*(1), 11-16. https://doi.org/10.1016/j.paid.2011.02.029

Extremera, N., Sánchez-Álvarez, N., & Rey, L. (2020). Pathways between ability emotional intelligence and subjective well-being: Bridging links through cognitive emotion regulation strategies. *Sustainability, 12*(5), 2111. https://doi.org/10.3390/su12052111

Fan, H., Jackson, T., Yang, X., Tang, W., & Zhang, J. (2010). The factor structure of the Mayer–Salovey–Caruso Emotional Intelligence Test V 2.0 (MSCEIT): A meta-analytic structural equation modeling approach. *Personality and Individual Differences, 48*(7), 781-785. https://doi.org/10.1016/j.paid.2010.02.004

Farrelly, D., & Austin, E. J. (2007). Ability EI as an intelligence? Associations of the MSCEIT with performance on emotion processing and social tasks and with cognitive ability. *Cognition and emotion, 21*(5), 1043-1063. https://doi.org/10.1080/02699930601069404

Fernández-Berrocal, P., Cabello, R., Castillo, R., & Extremera, N. (2012). Gender differences in emotional intelligence: The mediating effect of age. *Behavioral Psychology, 20*(1), 77-89.

Fiori, M., Antonietti, J.-P., Mikolajczak, M., Luminet, O., Hansenne, M., & Rossier, J. (2014). What is the ability emotional intelligence test (MSCEIT) good for? An evaluation using item response theory. *PloS one, 9*(6), e98827. https://doi.org/10.1371/journal.pone.0098827

Fiori, M., Gillioz, C., & Nicolet-dit-Félix, M. (2024). Emotional intelligence and emotional reactivity: Understanding the hypersensitivity hypothesis. *Personality and Individual Differences, 230*, 112792. https://doi.org/10.1016/j.paid.2024.112792

Fiori, M., & Ortony, A. (2021). Initial evidence for the hypersensitivity hypothesis: Emotional intelligence as a magnifier of emotional experience. *Journal of Intelligence, 9*(2), 24. https://doi.org/10.3390/jintelligence9020024

Fiori, M., Udayar, S., & Vesely Maillefer, A. (2022). Emotion information processing as a new component of emotional intelligence: Theoretical framework and empirical evidence. *European journal of personality, 36*(2), 245-264. https://doi.org/10.1177/08902070211007672

Fiori, M., & Vesely-Maillefer, A. K. (2018). Emotional intelligence as an ability: Theory, challenges, and new directions. In K. Keefer, J. D. A. Parker, & D. H. Saklofske (Eds.), *Emotional intelligence in education: Integrating research with practice* (pp. 23-47). Springer. https://doi.org/10.1007/978-3-319-90633-1_17

Fiori, M., Vesely-Maillefer, A. K., Nicolet-Dit-Félix, M., & Gillioz, C. (2023). With great sensitivity comes great management: how emotional hypersensitivity can be the

superpower of emotional intelligence. *Journal of Intelligence, 11*(10), 198. https://doi.org/10.3390/jintelligence11100198

Fleeson, W. (2001). Toward a structure-and process-integrated view of personality: Traits as density distributions of states. *Journal of personality and social psychology, 80*(6), 1011-1027. https://doi.org/10.1037/0022-3514.80.6.1011

Fleeson, W., & Jayawickreme, E. (2015). Whole trait theory. *Journal of Research in Personality, 56*, 82-92. https://doi.org/10.1016/j.jrp.2014.10.009

Floman, J. L., Brackett, M. A., LaPalme, M. L., Ponnock, A. R., Barsade, S. G., & Doyle, A. (2023). Development and validation of an ability measure of emotion understanding: The Core Relational Themes of Emotion (CORE) Test. *Journal of Intelligence, 11*(10), 195. https://doi.org/10.3390/jintelligence11100195

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American psychologist, 56*(3), 218-226. https://doi.org/10.1037/0003-066X.56.3.218

Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of personality and social psychology, 95*(5), 1045-1062. https://doi.org/10.1037/a0013262

Freudenthaler, H. H., & Neubauer, A. C. (2007). Measuring emotional management abilities: Further evidence of the importance to distinguish between typical and maximum performance. *Personality and Individual Differences, 42*(8), 1561-1572. https://doi.org/10.1016/j.paid.2006.10.031

Funder, D. C. (1995). On the accuracy of personality judgment: a realistic approach. *Psychological review, 102*(4), 652. https://doi.org/10.1037/0033-295X.102.4.652

Gallagher, E. N., & Vella-Brodrick, D. A. (2008). Social support and emotional intelligence as predictors of subjective well-being. *Personality and Individual Differences, 44*(7), 1551-1561. https://doi.org/10.1016/j.paid.2008.01.011

García-Castilla, F. J., Martínez-Sánchez, I., Campos, G., & Arroyo Resino, D. (2020). Impact of gender and relationship status on Young people's autonomy and psychological wellbeing. *Frontiers in Psychology, 11*, 1735. https://doi.org/10.3389/fpsyg.2020.01735

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. Basic books.

Gillioz, C., Nicolet-dit-Félix, M., Delplanque, S., Mortillaro, M., Sander, D., & Fiori, M. (2025). How do emotionally intelligent individuals react to other people's emotions? A study on emotional and facial reactions. *BMC psychology, 13*(1), 1-15. https://doi.org/10.1186/s40359-025-02425-5

Gillioz, C., Nicolet-dit-Félix, M., Wilhelm, O., & Fiori, M. (2023). Emotional intelligence and emotion information processing: Proof of concept of a test measuring accuracy in discriminating emotions. *Frontiers in Psychology, 14*, 1085971. https://doi.org/10.3389/fpsyg.2023.1085971

Goodman, F. R., Disabato, D. J., Kashdan, T. B., & Kauffman, S. B. (2018). Measuring well-being: A comparison of subjective well-being and PERMA. *The Journal of Positive Psychology, 13*(4), 321-332. https://doi.org/10.1080/17439760.2017.1388434

Grandjean, D., & Scherer, K. R. (2008). Unpacking the cognitive architecture of emotion processes. *Emotion, 8*(3), 341-351. https://doi.org/10.1037/1528-3542.8.3.341

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of general psychology, 2*(3), 271-299. https://doi.org/10.1037/1089-2680.2.3.271

Gross, J. J. (2001). Emotion regulation in adulthood: Timing is everything. *Current directions in Psychological science, 10*(6), 214-219. https://doi.org/10.1111/1467-8721.00152

Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological inquiry, 26*(1), 1-26. https://doi.org/10.1080/1047840X.2014.940781

Gutiérrez-Cobo, M. J., Cabello, R., & Fernández-Berrocal, P. (2016). The relationship between emotional intelligence and cool and hot cognitive processes: A systematic review. *Frontiers in behavioral neuroscience, 10*, 101. https://doi.org/10.3389/fnbeh.2016.00101

Gutiérrez-Cobo, M. J., Cabello, R., & Fernández-Berrocal, P. (2017). Performance-based ability emotional intelligence benefits working memory capacity during performance on hot tasks. *Scientific Reports, 7*(1), 11700. https://doi.org/10.1038/s41598-017-12000-7

Hawkley, L. C., & Cacioppo, J. T. (2010). Loneliness matters: A theoretical and empirical review of consequences and mechanisms. *Annals of behavioral medicine, 40*(2), 218-227. https://doi.org/10.1007/s12160-010-9210-8

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York, NY: Guilford Press.

Helliwell, J. F., Layard, R., Sachs, J. D., De Neve, J.-E., Aknin, L. B., & Wang, S. (2025). *World happiness report 2025* (173480808X). S. D. S. Network.

Hendel, E., & Brysbaert, M. (2024). *Towards understanding the low correlation between subjective and performance-based measures of emotion perception: Is one measure better than the other?* https://www.researchgate.net/profile/Marc-Brysbaert/publication/379745098_Towards_understanding_the_low_correlation_between_subjective_and_performance-based_measures_of_emotion_perception_Is_one_measure_better_than_the_other/links/661b63c8f7d3fc2874522f63/Towards-understanding-the-low-correlation-between-subjective-and-performance-based-measures-of-emotion-perception-Is-one-measure-better-than-the-other.pdf

Huang, Y.-H., Huang, Y.-T., & Yen, N.-S. (2023). Interoceptive sensibility differentiates the predictive pattern of emotional reactivity on depression. *Frontiers in Psychology, 14*, 1011584. https://doi.org/10.3389/fpsyg.2023.1011584

Huppert, F. A., & So, T. T. (2013). Flourishing across Europe: Application of a new conceptual framework for defining well-being. *Social indicators research, 110*(3), 837-861. https://doi.org/10.1007/s11205-011-9966-7

Huta, V., & Ryan, R. M. (2010). Pursuing pleasure or virtue: The differential and overlapping well-being benefits of hedonic and eudaimonic motives. *Journal of happiness studies, 11*(6), 735-762. https://doi.org/10.1007/s10902-009-9171-4

Ilies, R., Yao, J., Curseu, P. L., & Liang, A. X. (2019). Educated and happy: A four-year study explaining the links between education, job fit, and life satisfaction. *Applied Psychology, 68*(1), 150-176. https://doi.org/10.1111/apps.12158

James, W. (1884/2002). What is an emotion? In I. D. Evans (Ed.), *Emotion: Theories, concepts, and debates*. Routledge.

James, W. (1902/2002). *The varieties of religious experience.* [Original work published 1902]. Dover Publications.

Jose, P. E., Bryant, F. B., & Macaskill, E. (2021). Savor now and also reap the rewards later: Amplifying savoring predicts greater uplift frequency over time. *The Journal of Positive Psychology, 16*(6), 738-748. https://doi.org/10.1080/17439760.2020.1805504

Jose, P. E., Lim, B. T., & Bryant, F. B. (2012). Does savoring increase happiness? A daily diary study. *The Journal of Positive Psychology, 7*(3), 176-187. https://doi.org/10.1080/17439760.2012.671345

Joseph, D. L., & Newman, D. A. (2010). Emotional intelligence: an integrative meta-analysis and cascading model. *Journal of applied psychology, 95*(1), 54-78. https://doi.org/10.1037/a0017286

Joshanloo, M. (2016). Revisiting the empirical distinction between hedonic and eudaimonic aspects of well-being using exploratory structural equation modeling. *Journal of happiness studies, 17*(5), 2023-2036. https://doi.org/10.1007/s10902-015-9683-z

Kafetsios, K. (2004). Attachment and emotional intelligence abilities across the life course. *Personality and Individual Differences, 37*(1), 129-145. https://doi.org/10.1016/j.paid.2003.08.006

Kafetsios, K., & Zampetakis, L. A. (2008). Emotional intelligence and job satisfaction: Testing the mediatory role of positive and negative affect at work. *Personality and Individual Differences, 44*(3), 712-722. https://doi.org/10.1016/j.paid.2007.10.004

Kafka, G. J., & Kozma, A. (2002). The construct validity of Ryff's scales of psychological well-being (SPWB) and their relationship to measures of subjective well-being. *Social indicators research, 57*(2), 171-190. https://doi.org/10.1023/A:1014451725204

Kahneman, D., & Riis, J. (2005). Living, and thinking about it: Two perspectives on life. In F. A. Huppert, N. Baylis, & B. Keverne (Eds.), *The science of well-being* (pp. 285-304). Oxford University Press.

Karim, J., & Weisz, R. (2010). Cross-cultural research on the reliability and validity of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). *Cross-Cultural Research, 44*(4), 374-404. https://doi.org/10.1177/1069397110377603

Keyes, C. L. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of health and social behavior*, 207-222. https://doi.org/10.2307/3090197

Keyes, C. L. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of consulting and clinical psychology, 73*(3), 539. https://doi.org/10.1037/0022-006X.73.3.539

Keyes, C. L. M. (2016). Why flourishing? In D. W. Harward (Ed.), *Well-being and higher education: A strategy for change and the realization of education's greater purposes.* (pp. 99–107). Association of American Colleges and Universities.

Kong, F., & Zhao, J. (2013). Affective mediators of the relationship between trait emotional intelligence and life satisfaction in young adults. *Personality and Individual Differences, 54*(2), 197-201. https://doi.org/10.1016/j.paid.2012.08.028

Kong, F., Zhao, J., & You, X. (2012). Emotional intelligence and life satisfaction in Chinese university students: The mediating role of self-esteem and social support. *Personality and Individual Differences, 53*(8), 1039-1043. https://doi.org/10.1016/j.paid.2012.07.032

Kotsou, I., Nelis, D., Grégoire, J., & Mikolajczak, M. (2011). Emotional plasticity: conditions and effects of improving emotional competence in adulthood. *Journal of applied psychology, 96*(4), 827-839. https://doi.org/10.1037/a0023047

Lang, P. J., & Bradley, M. M. (2010). Emotion and the motivational brain. *Biological psychology, 84*(3), 437-450. https://doi.org/10.1016/j.biopsycho.2009.10.007

Larsen, R. J. (1985). *Theory and measurement of affect intensity as an individual difference characteristic* [Doctoral dissertation, University of Illinois at Urbana-Champaign]. ProQuest Information & Learning.

Larsen, R. J., & Diener, E. (1987). Affect intensity as an individual difference characteristic: A review. *Journal of Research in Personality, 21*(1), 1-39. https://doi.org/10.1016/0092-6566(87)90023-7

Lea, R., Mahoney, B., Qualter, P., & Davis, S. K. (2025). Ability emotional intelligence amplifies affective responses to social media content in young people. *Current Psychology*, 1-16. https://doi.org/10.1007/s12144-025-08237-5

Lee, K., & Ashton, M. C. (2013). *The H factor of personality: Why some people are manipulative, self-entitled, materialistic, and exploitive and why it matters for everyone*. Wilfrid Laurier University Press.

Libbrecht, N., & Lievens, F. (2012). Validity evidence for the situational judgment test paradigm in emotional intelligence measurement. *International Journal of Psychology*, 47(6), 438–447. https://doi.org/10.1080/00207594.2012.682063

Linley, P. A., Maltby, J., Wood, A. M., Osborne, G., & Hurling, R. (2009). Measuring happiness: The higher order factor structure of subjective and psychological well-being measures. *Personality and Individual Differences, 47*(8), 878-884. https://doi.org/10.1016/j.paid.2009.07.010

Lionetti, F., & Pluess, M. (2024). The role of environmental sensitivity in the experience and processing of emotions: implications for well-being. *Philosophical Transactions of the Royal Society B, 379*(1908), 20230244. https://doi.org/10.1098/rstb.2023.0244

Lopes, P. N., Brackett, M. A., Nezlek, J. B., Schütz, A., Sellin, I., & Salovey, P. (2004). Emotional intelligence and social interaction. *Personality and social psychology bulletin, 30*(8), 1018-1034. https://doi.org/10.1177/0146167204264762

Lopes, P. N., Nezlek, J. B., Extremera, N., Hertel, J., Fernández-Berrocal, P., Schütz, A., & Salovey, P. (2011). Emotion regulation and the quality of social interaction: Does the ability to evaluate emotional situations and identify effective responses matter? *Journal of personality, 79*(2), 429-467. https://doi.org/10.1111/j.1467-6494.2010.00689.x

Lopes, P. N., Salovey, P., Côté, S., Beers, M., & Petty, R. E. (2005). Emotion regulation abilities and the quality of social interaction. *Emotion, 5*(1), 113-118. https://doi.org/10.1111/j.1467-6494.2010.00689.x

Lopes, P. N., Salovey, P., & Straus, R. (2003). Emotional intelligence, personality, and the perceived quality of social relationships. *Personality and Individual Differences, 35*(3), 641-658. https://doi.org/10.1016/S0191-8869(02)00242-8

Lucas, R. (2018). Reevaluating the strengths and weaknesses of self-report measures of subjective well-being. In S. O. Diener, & L. Tay (Ed.), *Handbook of well-being* (pp. 45-55). DEF.

Lundqvist, D., Flykt, A., & Öhman, A. (1998). *Karolinska directed emotional faces* https://doi.org/10.1037/t27732-000

Luo, N., Jiang, F., & Jo, N. (2024). Emotional Intelligence and Meaning in Life: Mediation by Sense of Security and Self-Esteem. *SAGE Open, 14*(3). https://doi.org/10.1177/21582440241284094

Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of general psychology, 9*(2), 111-131. https://doi.org/10.1037/1089-2680.9.2.111

Ma, B., & Chen, L. (2024). Why is intelligence not making you happier? *Journal of happiness studies, 25*(1), 14. https://doi.org/10.1007/s10902-024-00722-1

MacCann, C., Double, K. S., & Clarke, I. E. (2022). Lower avoidant coping mediates the relationship of emotional intelligence with well-being and ill-being. *Frontiers in Psychology, 13*, 835819. https://doi.org/10.3389/fpsyg.2022.835819

MacCann, C., Erbas, Y., Dejonckheere, E., Minbashian, A., Kuppens, P., & Fayn, K. (2020a). Emotional intelligence relates to emotions, emotion dynamics, and emotion complexity. *European Journal of Psychological Assessment, 36*(3). https://doi.org/10.1027/1015-5759/a000588

MacCann, C., Jiang, Y., Brown, L. E., Double, K. S., Bucich, M., & Minbashian, A. (2020b). Emotional intelligence predicts academic performance: A meta-analysis. *Psychological bulletin, 146*(2), 150-186. https://doi.org/10.1037/bul0000219

MacCann, C., Joseph, D. L., Newman, D. A., & Roberts, R. D. (2014). Emotional intelligence is a second-stratum factor of intelligence: evidence from hierarchical and bifactor models. *Emotion, 14*(2), 358-374. https://doi.org/10.1037/a0034755

MacCann, C., & Roberts, R. D. (2008). New paradigms for assessing emotional intelligence: theory and data. *Emotion, 8*(4), 540–551. https://doi.org/10.1037/a0012746

Malouff, J. M., Schutte, N. S., & Thorsteinsson, E. B. (2014). Trait emotional intelligence and romantic relationship satisfaction: A meta-analysis. *The American Journal of Family Therapy, 42*(1), 53-66. https://doi.org/10.1080/01926187.2012.748549

Marchewka, A., Żurawski, Ł., Jednoróg, K., & Grabowska, A. (2014). The Nencki Affective Picture System (NAPS): Introduction to a novel, standardized, wide-range, high-quality, realistic picture database. *Behavior research methods, 46*(2), 596-610. https://doi.org/10.3758/s13428-013-0379-1

Martins, A., Ramalho, N., & Morin, E. (2010). A comprehensive meta-analysis of the relationship between emotional intelligence and health. *Personality and Individual Differences, 49*(6), 554-564. https://doi.org/10.1016/j.paid.2010.05.029

Maslow, A. H. (1943/1987). *Motivation and personality* [Original work published 1943]. Harper & Row.

Matt, G. E., Vázquez, C., & Campbell, W. K. (1992). Mood-congruent recall of affectively toned stimuli: A meta-analytic review. *Clinical psychology review, 12*(2), 227-255. https://doi.org/10.1016/0272-7358(92)90116-P

Matud, M. P., López-Curbelo, M., & Fortes, D. (2019). Gender and psychological well-being. *International journal of environmental research and public health, 16*(19), 3531. https://doi.org/10.3390/ijerph16193531

Maxwell, S. E., & Cole, D. A. (2007). Bias in cross-sectional analyses of longitudinal mediation. *Psychological methods, 12*(1), 23-44. https://doi.org/10.1037/1082-989X.12.1.23

Maxwell, S. E., Cole, D. A., & Mitchell, M. A. (2011). Bias in cross-sectional analyses of longitudinal mediation: Partial and complete mediation under an autoregressive model. *Multivariate behavioral research, 46*(5), 816-841. https://doi.org/10.1080/00273171.2011.606716

Mayer, J. D., Caruso, D. R., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence, 27*(4), 267-298. https://doi.org/10.1016/S0160-2896(99)00016-1

Mayer, J. D., Caruso, D. R., & Salovey, P. (2016). The ability model of emotional intelligence: Principles and updates. *Emotion review, 8*(4), 290-300. https://doi.org/10.1177/1754073916639667

Mayer, J. D., & Gaschke, Y. N. (1988). The experience and meta-experience of mood. *Journal of personality and social psychology, 55*(1), 102–111. https://doi.org/10.1037/0022-3514.55.1.102

Mayer, J. D., Roberts, R. D., & Barsade, S. G. (2008). Human abilities: Emotional intelligence. *Annu. Rev. Psychol., 59*(1), 507-536. https://doi.org/10.1146/annurev.psych.59.103006.093646

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence: Educational implications* (New York, NY: Basic Books ed., pp. 3-34). Basic Books.

Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). *Mayer-Salovey-Caruso emotional intelligence test (MSCEIT) users manual*. Multi-Health Systems.

McAdams, K. K., Lucas, R. E., & Donnellan, M. B. (2012). The role of domain satisfaction in explaining the paradoxical association between life satisfaction and age. *Social indicators research, 109*(2), 295-303. https://doi.org/10.1007/s11205-011-9903-9

McGaugh, J. L. (2018). Emotional arousal regulation of memory consolidation. *Current opinion in behavioral sciences, 19*, 55-60. https://doi.org/10.1016/j.cobeha.2017.10.003

Metcalfe, J., & Mischel, W. (1999). A hot/cool-system analysis of delay of gratification: dynamics of willpower. *Psychological review, 106*(1), 3. https://doi.org/10.1037/0033-295X.106.1.3

Miao, C., Humphrey, R. H., & Qian, S. (2017). A meta-analysis of emotional intelligence and work attitudes. *Journal of occupational and organizational psychology, 90*(2), 177-202. https://doi.org/10.1111/joop.12167

Mikels, J. A., & Reuter-Lorenz, P. A. (2019). Affective working memory: An integrative psychological construct. *Perspectives on Psychological Science, 14*(4), 543-559. https://doi.org/10.1177/1745691619837597

Mikolajczak, M. (2009). Going beyond the ability-trait debate: The three-level model of emotional intelligence. *E-Journal of Applied Psychology, 5*(2), 25-31.

Mikolajczak, M., Roy, E., Verstrynge, V., & Luminet, O. (2009). An exploration of the moderating effect of trait emotional intelligence on memory and attention in neutral and stressful conditions. *British Journal of Psychology, 100*(4), 699-715. https://doi.org/10.1348/000712608X395522

Mill, J. S. (1861/1998). *Utilitarianism* (R. Crisp, Ed.) [Original work published in 1861]. Oxford University Press.

Mohorić, T., Takšić, V., Pilepić, A. Ć., Brown, L. E., Birney, D. P., & MacCann, C. (2024). Similarities and differences between typical-and maximum-performance in emotion management situational judgment tests. *Personality and Individual Differences, 219*, 112515. https://doi.org/10.1016/j.paid.2023.112515

Moroń, M., & Biolik-Moroń, M. (2021). Trait emotional intelligence and emotional experiences during the COVID-19 pandemic outbreak in Poland: A daily diary study. *Personality and Individual Differences, 168*, 110348. https://doi.org/10.1016/j.paid.2020.110348

Nakamura, J. S., Delaney, S. W., Diener, E., VanderWeele, T. J., & Kim, E. S. (2022). Are all domains of life satisfaction equal? Differential associations with health and well-being in older adults. *Quality of Life Research, 31*(4), 1043-1056. https://doi.org/10.1007/s11136-021-02977-0

Nelis, D., Kotsou, I., Quoidbach, J., Hansenne, M., Weytens, F., Dupuis, P., & Mikolajczak, M. (2011). Increasing emotional competence improves psychological and physical well-being, social relationships, and employability. *Emotion, 11*(2), 354. https://doi.org/10.1037/a0021554

Nelis, D., Quoidbach, J., Mikolajczak, M., & Hansenne, M. (2009). Increasing emotional intelligence:(How) is it possible? *Personality and Individual Differences, 47*(1), 36-41. https://doi.org/10.1016/j.paid.2009.01.046

Nicolet-dit-Félix, M., Gillioz, C., Mortillaro, M., Sander, D., & Fiori, M. (2023). Emotional intelligence and attentional bias to emotional faces: Evidence of hypersensitivity towards emotion information. *Personality and Individual Differences, 201*, 111917. https://doi.org/10.1016/j.paid.2022.111917

Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science, 3*(5), 400-424. https://doi.org/10.1111/j.1745-6924.2008.00088.x

O'Boyle, J. E. H., Humphrey, R. H., Pollack, J. M., Hawver, T. H., & Story, P. A. (2011). The relation between emotional intelligence and job performance: A meta-analysis. *Journal of Organizational Behavior, 32*(5), 788-818. https://doi.org/10.1002/job.714

Ochsner, K. N., & Gross, J. J. (2005). The cognitive control of emotion. *Trends in cognitive sciences, 9*(5), 242-249. https://doi.org/10.1016/j.tics.2005.03.010

Öhman, A., Flykt, A., & Esteves, F. (2001). Emotion drives attention: detecting the snake in the grass. *Journal of experimental psychology: general, 130*(3-19), 466–478. https://doi.org/10.1037/0096-3445.130.3.466

Okon-Singer, H., Hendler, T., Pessoa, L., & Shackman, A. J. (2015). The neurobiology of emotion–cognition interactions: fundamental questions and strategies for future research. *Frontiers in human neuroscience, 9*, 58. https://doi.org/10.3389/fnhum.2015.00058

Palmer, B. R., Gignac, G., Manocha, R., & Stough, C. (2005). A psychometric evaluation of the Mayer–Salovey–Caruso emotional intelligence test version 2.0. *Intelligence, 33*(3), 285-305. https://doi.org/10.1016/j.intell.2004.11.003

Paulhus, D. L., & Vazire, S. (2007). *The self-report method.* (Vol. 1). Guilford Press.

Pe, M. L., Koval, P., & Kuppens, P. (2013). Executive well-being: Updating of positive stimuli in working memory is associated with subjective well-being. *Cognition, 126*(2), 335-340. https://doi.org/10.1016/j.cognition.2012.10.002

Peirce, J., Gray, J. R., Simpson, S., MacAskill, M., Höchenberger, R., Sogo, H., Kastman, E., & Lindeløv, J. K. (2019). PsychoPy2: Experiments in behavior made easy. *Behavior research methods, 51*(1), 195-203. https://doi.org/10.3758/s13428-018-01193-y

Pekaar, K. A., Bakker, A. B., Born, M. P., & Van Der Linden, D. (2019). The consequences of self-and other-focused emotional intelligence: Not all sunshine and roses. *Journal of Occupational Health Psychology, 24*(4), 450. https://doi.org/10.1037/ocp0000134

Pekaar, K. A., Bakker, A. B., van der Linden, D., & Born, M. P. (2018a). Self-and other-focused emotional intelligence: Development and validation of the Rotterdam Emotional Intelligence Scale (REIS). *Personality and Individual Differences, 120*, 222-233. https://doi.org/10.1016/j.paid.2017.08.045

Pekaar, K. A., Bakker, A. B., van der Linden, D., Born, M. P., & Sirén, H. J. (2018b). Managing own and others' emotions: A weekly diary study on the enactment of emotional intelligence. *Journal of Vocational Behavior, 109*, 137-151. https://doi.org/10.1016/j.jvb.2018.10.004

Pekaar, K. A., van der Linden, D., Bakker, A. B., & Born, M. P. (2020). Dynamic self-and other-focused emotional intelligence: A theoretical framework and research agenda. *Journal of Research in Personality, 86*, 103958. https://doi.org/10.1016/j.jrp.2020.103958

Petrides, K., & Furnham, A. (2009). *Technical manual for the Trait Emotional Intelligence Questionnaire (TEIQue).*

Petrides, K. V. (2009). Psychometric properties of the trait emotional intelligence questionnaire (TEIQue). In *Assessing emotional intelligence: Theory, research, and applications* (pp. 85-101). Springer. https://doi.org/10.1007/978-0-387-88370-0_5

Petrides, K. V., & Furnham, A. (2001). Trait emotional intelligence: Psychometric investigation with reference to established trait taxonomies. *European journal of personality, 15*(6), 425-448. https://doi.org/10.1002/per.416

Petrides, K. V., Pérez-González, J. C., & Furnham, A. (2007a). On the criterion and incremental validity of trait emotional intelligence. *Cognition and emotion, 21*(1), 26-55. https://doi.org/10.1080/02699930601038912

Petrides, K. V., Pita, R., & Kokkinaki, F. (2007b). The location of trait emotional intelligence in personality factor space. *British Journal of Psychology, 98*(2), 273-289. https://doi.org/10.1348/000712606X120618

Petrides, K. V., Vernon, P. A., Schermer, J. A., & Veselka, L. (2011). Trait emotional intelligence and the dark triad traits of personality. *Twin Research and Human Genetics, 14*(1), 35-41. https://doi.org/10.1375/twin.14.1.35

Pluess, M. (2017). Vantage sensitivity: Environmental sensitivity to positive experiences as a function of genetic differences. *Journal of personality, 85*(1), 38-50. https://doi.org/10.1037/a0030196

Pluess, M., & Belsky, J. (2013). Vantage sensitivity: individual differences in response to positive experiences. *Psychological bulletin, 139*(4), 901-916. https://doi.org/10.1037/a0030196

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology, 88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual review of psychology, 63*(1), 539-569. https://doi.org/10.1146/annurev-psych-120710-100452

Podsakoff, P. M., Podsakoff, N. P., Williams, L. J., Huang, C., & Yang, J. (2024). Common method bias: It's bad, it's complex, it's widespread, and it's not easy to fix. *Annual Review of Organizational Psychology and Organizational Behavior, 11*(1), 17-61. https://doi.org/10.1146/annurev-orgpsych-110721-040030

Pool, E., Brosch, T., Delplanque, S., & Sander, D. (2016). Attentional bias for positive emotional stimuli: A meta-analytic investigation. *Psychological bulletin, 142*(1), 79–106. https://doi.org/10.1037/bul0000026

Posner, M. I. (1980). Orienting of attention. *Quarterly journal of experimental psychology, 32*(1), 3-25. https://doi.org/10.1080/00335558008248231

Pourtois, G., Schettino, A., & Vuilleumier, P. (2013). Brain mechanisms for emotional influences on perception and attention: What is magic and what is not. *Biological psychology, 92*(3), 492-512. https://doi.org/10.1016/j.biopsycho.2012.02.007

Preacher, K. J., & Hayes, A. F. (2008). Contemporary approaches to assessing mediation in communication research. In M. D. S. A. F. Hayes, & L. B. Snyder (Ed.), *The Sage sourcebook of advanced data analysis methods for communication research* (Sage Publications, Inc. ed., pp. 13–54). https://doi.org/10.4135/9781452272054.n2

Preece, Becerra, R., & Campitelli, G. (2019). Assessing Emotional Reactivity: Psychometric Properties of the Perth Emotional Reactivity Scale and the Development of a Short Form. *J Pers Assess, 101*(6), 589-597. https://doi.org/10.1080/00223891.2018.1465430

Randall, A. K., & Bodenmann, G. (2017). Stress and its associations with relationship satisfaction. *Current opinion in psychology, 13*, 96-106. https://doi.org/10.1016/j.copsyc.2016.05.010

Raven, J. C. (1938). *Standard progressive matrices.* Lewis.

Raven, J. C., Court, J. H., & Raven, J. E. (1989). *Standard progressive matrices*. Australian Council for Educational Research Limited Camberwell, Australia. https://doi.org/10.1037/t07027-000

Roberts, R. D., Zeidner, M., & Matthews, G. (2001). Does emotional intelligence meet traditional standards for an intelligence? Some new data and conclusions. *Emotion, 1*(3), 196–231. https://doi.org/10.1037//1528-3542.1.3.196

Robinson, M. D. (2024). Ability-related emotional intelligence: An introduction. *Journal of Intelligence, 12*(5), 51. https://doi.org/10.3390/jintelligence12050051

Robinson, M. D., Irvin, R. L., & Klein, R. J. (2021). Dynamic negativity effects in emotional responding: Onsets, peaks, and influences from repetition. *Emotion, 21*(5), 972–980. https://doi.org/10.1037/emo0000973

Rogers. (1961/1995). *On becoming a person: A therapist's view of psychotherapy.* [Original work published 1961]. Houghton Mifflin.

Roseman, I. J. (2001). A model of appraisal in the emotion system. *Appraisal processes in emotion: Theory, methods, research*, 68-91. https://doi.org/10.1093/oso/9780195130072.001.0001

Ruch, W., Bakker, A. B., Tay, L., & Gander, F. (2023). *Handbook of Positive Psychology Assessment*. Hogrefe Publishing. https://doi.org/10.1027/00619-000

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist, 55*(1), 68-78. https://doi.org/10.1037/0003-066X.55.1.68

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual review of psychology, 52*(1), 141-166. https://doi.org/10.1146/annurev.psych.52.1.141

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of personality and social psychology, 57*(6), 1069-1081. https://doi.org/10.1037/0022-3514.57.6.1069

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology, 69*(4), 719–727. https://doi.org/10.1037/0022-3514.69.4.719

Salguero, J. M., Extremera, N., & Fernández-Berrocal, P. (2012). Emotional intelligence and depression: The moderator role of gender. *Personality and Individual Differences, 53*(1), 29-32. https://doi.org/10.1016/j.paid.2012.02.006

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, cognition and personality, 9*(3), 185-211. https://doi.org/10.2190/DUGG-P24E-52WK-6CDG

Salovey, P., Mayer, J. D., Goldman, S. L., Turvey, C., & Palfai, T. P. (1995). Emotional attention, clarity, and repair: Exploring emotional intelligence using the Trait Meta-Mood Scale. 125-154. https://doi.org/10.1037/10182-006

Salovey, P. E., & Sluyter, D. J. (1997). *Emotional development and emotional intelligence: Educational implications*. Basic Books.

Sánchez-Álvarez, N., Extremera, N., & Fernández-Berrocal, P. (2016). The relation between emotional intelligence and subjective well-being: A meta-analytic investigation. *The Journal of Positive Psychology, 11*(3), 276-285. https://doi.org/10.1080/17439760.2015.1058968

Scherer, K. R. (2009). The dynamic architecture of emotion: Evidence for the component process model. *Cognition and emotion, 23*(7), 1307-1351. https://doi.org/10.1080/02699930902928969

Scherer, K. R., Schorr, A., & Johnstone, T. (2001). *Appraisal processes in emotion: Theory, methods, research*. Oxford University Press.

Schlegel, K., Fontaine, J. R., & Scherer, K. R. (2017). The nomological network of emotion recognition ability. *European Journal of Psychological Assessment*, 352-363. https://doi.org/10.1027/1015-5759/a000396

Schlegel, K., Grandjean, D., & Scherer, K. R. (2014). Introducing the Geneva emotion recognition test: an example of Rasch-based test development. *Psychological assessment, 26*(2), 666-672. https://doi.org/10.1037/a0035246

Schlegel, K., Gugelberg, H. M. v., Makowski, L. M., Gubler, D. A., & Troche, S. J. (2021). Emotion recognition ability as a predictor of well-being during the COVID-19 pandemic. *Social Psychological and Personality Science, 12*(7), 1380-1391. https://doi.org/10.1177/1948550620982851

Schlegel, K., & Mortillaro, M. (2019). The Geneva Emotional Competence Test (GECo): An ability measure of workplace emotional intelligence. *Journal of applied psychology, 104*(4), 559-580. https://doi.org/10.1037/apl0000365

Schlegel, K., & Scherer, K. R. (2016, Dec). Introducing a short version of the Geneva Emotion Recognition Test (GERT-S): Psychometric properties and construct validation. *Behavior Research Methods, 48*(4), 1383-1392. https://doi.org/10.3758/s13428-015-0646-4

Schneider, L., & Schimmack, U. (2009). Self-informant agreement in well-being ratings: A meta-analysis. *Social indicators research, 94*(3), 363-376. https://doi.org/10.1007/s11205-009-9440-y

Schulenberg, S. E., Strack, K. M., & Buchanan, E. M. (2011). The Meaning in Life Questionnaire: Psychometric properties with individuals with serious mental illness in an inpatient setting. *Journal of clinical psychology, 67*(12), 1210-1219. https://doi.org/10.1002/jclp.20841

Schutte, L., Wissing, M. P., Ellis, S. M., Jose, P. E., & Vella-Brodrick, D. A. (2016). Rasch analysis of the meaning in life questionnaire among adults from South Africa, Australia, and New Zealand. *Health and quality of life outcomes, 14*(1), 12. https://doi.org/10.1186/s12955-016-0414-x

Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25*(2), 167-177. https://doi.org/10.1016/S0191-8869(98)00001-4

Schutte, N. S., Malouff, J. M., Simunek, M., McKenley, J., & Hollander, S. (2002). Characteristic emotional intelligence and emotional well-being. *Cognition & Emotion, 16*(6), 769-785. https://doi.org/10.1080/02699930143000482

Schutte, N. S., Malouff, J. M., Thorsteinsson, E. B., Bhullar, N., & Rooke, S. E. (2007). A meta-analytic investigation of the relationship between emotional intelligence and health. *Personality and Individual Differences, 42*(6), 921-933. https://doi.org/10.1016/j.paid.2006.09.003

Selig, J. P., & Preacher, K. J. (2009). Mediation models for longitudinal data in developmental research. *Research in human development, 6*(2-3), 144-164. https://doi.org/10.1080/15427600902911247

Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Simon and Schuster.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American psychologist, 55*(1), 5-14. https://doi.org/10.1037/0003-066X.55.1.5

Seneca. (58 CE/2014). *Hardship and Happiness* (E. Fantham, H. M. Hine, J. Ker, & G. D. Williams, Trans.) [Original work published 58 CE]. The University of Chicago Press.

Sha, J., Tang, T., Shu, H., He, K., & Shen, S. (2022). Emotional intelligence, emotional regulation strategies, and subjective well-being among university teachers: A moderated mediation analysis. *Frontiers in Psychology, 12*, 811260. https://doi.org/10.3389/fpsyg.2021.811260

Smith, J. L., & Bryant, F. B. (2016). The benefits of savoring life: Savoring as a moderator of the relationship between health and life satisfaction in older adults. *The International Journal of Aging and Human Development, 84*(1), 3-23. https://doi.org/10.1177/0091415016669146

Smith, L., Heaven, P. C., & Ciarrochi, J. (2008). Trait emotional intelligence, conflict communication patterns, and relationship satisfaction. *Personality and Individual Differences, 44*(6), 1314-1325. https://doi.org/10.1016/j.paid.2007.11.024

Sommer, N. R., & Schlegel, K. (2024). Beyond mean levels and linear relationships: The complex association between emotion recognition ability and well-being. *Journal of Research in Personality, 109*, 104467. https://doi.org/10.1016/j.jrp.2024.104467

Soylu, C. (2023). Predictors of domain-specific and global life satisfaction across the first half of life: which domains of life satisfaction are the most important for global life satisfaction? *Current Psychology, 42*(23), 19443-19454. https://doi.org/10.1007/s12144-022-04161-0

Spearman, C. (1927). *The Abilities of Man: Their Nature and Measurement.* (Macmillan, Ed.).

Spinoza, B. (1677/1996). *Ethics* (E. Curley, Trans.) [Original work published in 1677]. Penguin Classics.

Sprecher, S., & Sedikides, C. (1993). Gender differences in perceptions of emotionality: The case of close heterosexual relationships. *Sex roles, 28*(9), 511-530. https://doi.org/10.1007/BF00289678

Springer, K. W., Hauser, R. M., & Freese, J. (2006). Bad news indeed for Ryff's six-factor model of well-being. *Social science research, 35*(4), 1120-1131. https://doi.org/10.1016/j.ssresearch.2006.01.003

Steel, P., Schmidt, J., & Shultz, J. (2008). Refining the relationship between personality and subjective well-being. *Psychological bulletin, 134*(1), 138-161. https://doi.org/10.1037/0033-2909.134.1.138

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: assessing the presence of and search for meaning in life. *Journal of counseling psychology, 53*(1), 80-93. https://doi.org/10.1037/0022-0167.53.1.80

Steger, M. F., Oishi, S., & Kashdan, T. B. (2009). Meaning in life across the life span: Levels and correlates of meaning in life from emerging adulthood to older adulthood. *The*

Journal of Positive Psychology, 4(1), 43-52. https://doi.org/10.1080/17439760802303127

Stone, A. A., Schwartz, J. E., Broderick, J. E., & Deaton, A. (2010). A snapshot of the age distribution of psychological well-being in the United States. *Proceedings of the National Academy of Sciences, 107*(22), 9985-9990. https://doi.org/10.1073/pnas.1003744107

Su, R., Tay, L., & Diener, E. (2014). The development and validation of the Comprehensive Inventory of Thriving (CIT) and the Brief Inventory of Thriving (BIT). *Applied Psychology: Health and Well-Being, 6*(3), 251-279. https://doi.org/10.1111/aphw.12027

Sun, R., Teulings, I., & Sauter, D. (2023). Why being social and active boosts psychological wellbeing: a mediating role of momentary positive emotions. *Social Psychological and Personality Science, 16*(3), 333-342. https://doi.org/10.1177/19485506231218362

Szczygieł, D., & Mikolajczak, M. (2017). Why are people high in emotional intelligence happier? They make the most of their positive emotions. *Personality and Individual Differences, 117*, 177-181. https://doi.org/10.1016/j.paid.2017.05.051

Terman, L., & Merrill, M. (1937). *Measuring Intelligence.* Houghton Mifflin.

Terman, L. M., & Merrill, M. A. (1960). *Stanford-Binet intelligence scale: Manual for the third revision, form IM.* Houghton Mifflin.

Terraciano, A., McCrae, R. R., & Costa Jr, P. T. (2003). Factorial and construct validity of the Italian Positive and Negative Affect Schedule (PANAS). *European Journal of Psychological Assessment, 19*(2), 131-141. https://doi.org/10.1027/1015-5759.19.2.131

Thoern, H. A., Grueschow, M., Ehlert, U., Ruff, C. C., & Kleim, B. (2016). Attentional bias towards positive emotion predicts stress resilience. *PloS one, 11*(3), e0148368. https://doi.org/10.1371/journal.pone.0148368

Thorndike, E. L. (1920). Intelligence and its uses. *Harper's magazine, 140*, 227-235.

Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of personality and social psychology, 86*(2), 320-333. https://doi.org/10.1037/0022-3514.86.2.320

Udayar, S., Fiori, M., & Bausseron, E. (2020). Emotional intelligence and performance in a stressful task: The mediating role of self-efficacy. *Personality and Individual Differences, 156*, 109790. https://doi.org/10.1016/j.paid.2019.109790

Urquijo, I., Extremera, N., & Villa, A. (2016). Emotional intelligence, life satisfaction, and psychological well-being in graduates: The mediating effect of perceived stress. *Applied research in quality of life, 11*(4), 1241-1252. https://doi.org/10.1007/s11482-015-9432-9

Van der Linden, D., Pekaar, K. A., Bakker, A. B., Schermer, J. A., Vernon, P. A., Dunkel, C. S., & Petrides, K. (2017). Overlap between the general factor of personality and emotional intelligence: A meta-analysis. *Psychological bulletin, 143*(1), 36-52. https://doi.org/10.1037/bul0000078

Van der Linden, D., Tsaousis, I., & Petrides, K. V. (2012). Overlap between General Factors of Personality in the Big Five, Giant Three, and trait emotional intelligence. *Personality and Individual Differences, 53*(3), 175-179. https://doi.org/10.1016/j.paid.2012.03.001

Van Dierendonck, D. (2004). The construct validity of Ryff's Scales of Psychological Well-being and its extension with spiritual well-being. *Personality and Individual Differences, 36*(3), 629-643. https://doi.org/10.1016/S0191-8869(03)00122-3

VanderWeele, T. J. (2017). On the promotion of human flourishing. *Proceedings of the National Academy of Sciences, 114*(31), 8148-8156. https://doi.org/10.1073/pnas.1702996114

Vazire, S. (2010). Who knows what about a person? The self–other knowledge asymmetry (SOKA) model. *Journal of personality and social psychology, 98*(2), 281-300. https://doi.org/10.1037/a0017908

Veenhoven, R., & Choi, Y. (2012). Does intelligence boost happiness? Smartness of all pays more than being smarter than others. *International Journal of Happiness and Development, 1*(1), 5-27. https://doi.org/10.1504/IJHD.2012.050808

Vesely Maillefer, A., Udayar, S., & Fiori, M. (2018). Enhancing the prediction of emotionally intelligent behavior: The PAT integrated framework involving trait EI, ability EI, and emotion information processing. *Frontiers in Psychology, 9*, 1078. https://doi.org/10.3389/fpsyg.2018.01078

Walker, W. R., Skowronski, J. J., & Thompson, C. P. (2003). Life is pleasant and memory helps to keep it that way! *Review of general psychology, 7*(2), 203-210. https://doi.org/10.1037/1089-2680.7.2.203

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of personality and social psychology, 54*(6), 1063-1070. https://doi.org/10.1037/0022-3514.54.6.1063

Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological bulletin, 98*(2), 219–235. https://doi.org/10.1037/0033-2909.98.2.219

Wechsler, D. (1939). *The measurement of adult intelligence.* Williams & Wilkins.

Wechsler, D. (1946). Wechsler-Bellevue intelligence Scale, Form II.

Wechsler, D. (1958). *The measurement and appraisal of adult intelligence.* (4th ed.). Williams & Wilkins Co. https://doi.org/10.1037/11167-000

Yang, J., Zadorozhny, B. S., Petrides, K., Ng, C. S. M., & Pan, J.-h. (2025). Cross-cultural differences in trait emotional intelligence: A meta-analysis. *Personality and Individual Differences, 241*, 113195. https://doi.org/10.1016/j.paid.2025.113195

Zeidner, M., Matthews, G., & Roberts, R. D. (2001). Slow down, you move too fast: Emotional intelligence remains an" elusive" intelligence. 265–275. https://doi.org/10.1037/1528-3542.1.3.265

Zeidner, M., Matthews, G., & Roberts, R. D. (2012). The emotional intelligence, health, and well-being nexus: What have we learned and what have we missed? *Applied*

Psychology: Health and Well-Being, 4(1), 1-30. https://doi.org/10.1111/j.1758-0854.2011.01062.x

Zorn, J. V., Schür, R. R., Boks, M. P., Kahn, R. S., Joëls, M., & Vinkers, C. H. (2017). Cortisol stress reactivity across psychiatric disorders: A systematic review and meta-analysis. *Psychoneuroendocrinology, 77*, 25-36. https://doi.org/10.1016/j.psyneuen.2016.11.036

11. Appendix

11.1. Study 1

11.1.1. Manuscript

Reference: Nicolet-dit-Félix, M., Gillioz, C., Mortillaro, M., Sander, D., & Fiori, M. (2023). Emotional intelligence and attentional bias to emotional faces: Evidence of hypersensitivity towards emotion information. *Personality and Individual Differences, 201,* 111917. https://doi.org/10.1016/j.paid.2022.111917

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Abstract

It has been proposed that emotional intelligence (EI) functions as a magnifier of emotional experience. This phenomenon, called the "*hypersensitivity hypothesis*," predicts that high EI amplifies the emotional aspects of experience (Fiori & Ortony, 2021). We tested whether high EI individuals show stronger attention to emotional than neutral expressions with a dot-probe task in which participants (N =155) had to report a letter appearing behind an emotional or a neutral face. A significant interaction EI by experimental condition showed an attentional bias towards emotional faces associated with high EI: individuals high on emotion understanding were faster to respond to cues replacing an emotional as compared to a neutral face, an effect that was not found for low-EI individuals. Results support that high EI individuals are particularly reactive to emotion information, confirming the basic assumptions of the hypersensitivity hypothesis. Implications for research on EI are discussed.

Keywords: Attentional bias, Dot-probe task, Emotion-information processing, Emotional intelligence, Hypersensitivity

1. Introduction

Emotional Intelligence (EI), a construct introduced in the psychological literature thirty years ago, encompasses abilities and self-perceptions related to the recognition, expression, understanding, and management of emotions (Petrides & Furnham, 2001; Salovey & Mayer, 1990). Two approaches have been developed to study EI: the trait approach conceives EI as a set of traits and competencies that are part of personality and typically measures it with self-report questionnaires; the ability approach conceptualizes EI as a form of intelligence and typically assesses it with performance tests (Petrides & Furnham, 2001). The mainstream model of ability EI was introduced by Mayer and Salovey (1997) who described it as a set of abilities concerning the recognition of emotions in oneself and others (emotion recognition), the understanding of how emotions originate, develop, and change during emotional experience (emotion understanding), the use of this understanding to enhance thinking and behavior (emotion facilitation) and to better manage one's and others' emotions (emotion management). More recently, evidence supporting a 3-branch model of EI has been provided (Joseph & Newman, 2010; MacCann et al., 2014) as the emotion facilitation branch did not emerge as a separate factor (Fiori & Antonakis, 2011; Palmer et al., 2005; Roberts et al., 2001).

The vast majority of research in the domain of EI has concentrated on clarifying some of the critical issues the construct was confronted with, such as its incremental validity (Joseph & Newman, 2010; Newman et al., 2010), its relationship with intelligence and personality (Andrei et al., 2016; MacCann et al., 2014), and how to measure it, either as an ability (Schlegel & Mortillaro, 2019) or as a personality trait (Petrides & Furnham, 2001).

Probably because of the urgency of addressing these fundamental issues related to the validity and measurement of the EI construct, less research has been developed to understanding the psychological processes underlying individual differences in EI (e.g., Fiori, 2009). As a matter of fact, EI is associated with (mostly) positive outcomes in various domains (e.g.,

MacCann et al., 2020; Martins et al., 2010). Still, we only have a poor understanding of the emotional and cognitive processes that may account for such outcomes and how they operate in high as compared to low EI individuals (Fiori, 2009).

1.1. EI and emotion-information processing

A recent contribution addresses this gap in the literature by introducing emotion-information processing as a new component of EI (Fiori et al., 2022). The basic idea is that EI can be conceptualized as having two interrelated but distinct components: 1) EI_K or emotion Knowledge component, which is captured by current ability EI tests and represents mostly acquired and culture-bound knowledge about emotions; 2) EI_P or emotion information Processing component, measured with emotion information processing tasks, which represents how individuals process emotions and, more generally, emotion information. EI_P requires faster processing than EI_K and is based on bottom-up attention-related responses to emotion information. Although the two EI components load into the same underlying latent EI factor, each of them is expected to predict different portions of variability in emotionally intelligent performance: more automatic (system 1) emotional behavior for EI_P and more controlled (system 2) emotional behavior for EI_K (Fiori et al., 2022; Fiori & Vesely-Maillefer, 2018).

1.2. EI and emotional hypersensitivity

This new conceptualization of EI implies that individuals who are high in EI_P, should be positioned on the highest extreme of the EI continuum and be characterized by a stronger sensitivity to emotion and emotion information as measured by more extreme scores on emotional tasks. This possibility, called the '*hypersensitivity hypothesis*' (Fiori & Ortony, 2021) poses that high-EI individuals, as compared to low, may experience more intense emotions; have a lower threshold of perception of emotion information; possess a fine-grained discrimination of emotional stimuli and categorize complex emotional stimuli more easily; pay more attention to emotions and emotion information. The current study tested the

hypersensitivity hypothesis for the latter indicator of hypersensitivity, namely attention to emotion information.

It should be noted that the definition of hypersensitivity employed in the current research is somewhat similar to that of Sensory Processing Sensitivity (Aron & Aron, 1997), which refers to the tendency to process stimuli more in-depth. However, the current conceptualization of hypersensitivity pertains only to emotional stimulation—not to physical or environmental stimulation—and employs experimental tasks rather than self-report questionnaires to assess it.

1.3. The current research

In this study, we employed the dot-probe (DP) paradigm to operationalize EI_P and focused on the idea that hypersensitivity produces an attentional bias towards emotional stimuli. We also explored how the EI_K component or the different ability EI facets are related to this form of hypersensitivity[21]. Participants had to identify and report a target letter that appeared behind one of two faces. One of the two faces displayed an emotion (happiness or anger) and the other was always neutral. If high- EI individuals are characterized by hypersensitivity towards emotion information, this should be reflected in their attention being more "caught" by emotional stimuli (than neutral stimuli), as operationalized by faster response times when judging the target letter replacing an emotional as compared to a neutral face. In other words, we expected the difference in reaction times between the neutral and emotional conditions to increase with EI (Hypothesis 1).

In the current research, we conceptualize hypersensitivity as more extreme (e.g., stronger) attentional bias towards emotion information. (Hyper)sensitivity to emotions can also

[21] For exploratory purposes, we also employed a measure of trait EI. Because none of the effects associated with trait EI was significant, we do not report results in the current manuscript. Results are nevertheless available upon request.

be evaluated with self-report measures aiming at explaining individual differences in response to emotional stimuli, such as the Affect Intensity Measure (AIM, Larsen, 1984). For this reason, we included the AIM in our study to compare how individuals report their level of perceived emotional sensitivity with how they actually allocate their attention to emotion information.

Previous research has shown that affect intensity is related to attention to emotion (e.g., Huang et al., 2013; Thompson et al., 2009). It must be noted though that in these studies, attention to emotion was assessed through self-report measures while it is assessed with an experimental task in the current study. If self-reported sensitivity to emotion is associated with increased attention to emotion information, we would expect to find a larger difference between reaction times in the emotional and neutral conditions for people high on the affect intensity measure compared to people low on this measure (Hypothesis 2).

Finally, we also included a measure of fluid intelligence to partial out the effect of fluid intelligence when testing EI and to control for the influence of this type of intelligence on reaction times in our task. The design of the study and the hypotheses were pre-registered and are accessible on OSF https://osf.io/gnrm5/?view_only=764c5d945a5d4830bc33ce56200bf482).

2. Method

2.1. Participants and procedure

The sample included 239 English-speaking participants recruited on the online platform Prolific (95% approval rate). Participants took part in a first session in which they completed a battery of questionnaires. One week later, they were asked about their mood at testing time, and performed the dot-probe task. As the entire procedure lasted about an hour and a half and was completed online, a strict exclusion procedure was performed to ensure that participants were fully attentive during the task. There were three attentional checks in total, one in the first and two in the second session. We also considered the number of correct responses to the intelligence test and the emotion recognition test and discarded participants falling 3 sd under the mean (e.g., number of correct responses lower than 4 for both tasks). The final sample (after joining the participants retained in sessions 1 and 2) consisted of 157 participants (33.1% male, 65.6% female and 1.3% other). The participants were aged between 18 and 63 (M =29.2, SD =10.0). All participants were informed about the study and gave their consent to participate following procedures and protocols approved by the ethical committee of the University of Geneva. They were remunerated 7.5 pounds per hour for their participation.

2.2. Measures

2.2.1. The Situational Test of Emotional Understanding-Brief (STEU-B)

The STEU-B (Allen et al., 2014) is a 19-item performance-based test that measures respondents' understanding of emotions felt by protagonists described in a short scenario. Items typically ask the respondent which of five emotions best matches a short-written scenario. Examples of items include: "*Xavier completes a difficult task on time and under budget. Xavier is most likely to feel?*" (Pride). Responses are scored as correct (1) and or incorrect (0). The test-retest reliability of the full version of the test is 0.72 (Libbrecht & Lievens, 2012).

2.2.2. The Situational Test of Emotional Management-Brief (STEM-B)

The STEM-B (Allen et al., 2015) is an 18-item performance-based test that measures respondents' knowledge of the strategy to adopt to manage emotions in various situations. Respondents are asked to choose the most effective course of action to manage both the emotions the protagonists are feeling and the problems they face in the described situations. Responses are scored according to a weight derived from expert ratings. For instance, for the item "*Wai-Hin and Connie have shared an office for years but Wai-Hin gets a new job and Connie loses contact with her. What action would be the most effective for Connie?*", the most appropriate response is "*Contact Wai-Hin and arrange to catch up but also make friends with her replacement.*" The test-rest reliability of the full version of the test is 0.85 (Libbrecht & Lievens, 2012).

2.2.3. The Geneva Emotion Recognition Test short version (GERT-S)

The GERT-S (Schlegel & Scherer, 2016) is a 42-item performance-based test that measures respondent's ability to recognize others' emotions in the face, voice, and body. It consists of 42 short video clips with sound (duration 1–3 s), in which professional actors express 14 different emotions. Following each clip, respondents are asked to choose which of the 14 emotions was expressed by the actor. Responses are scored as correct or incorrect. The Cronbach alpha was 0.79 in our sample.

2.2.4. The Affect Intensity Measure Short Form AIM-SF

The AIM-SF (Larsen, 1984) is a 20-item inventory that examines emotional reactions to typical life events, such as "*I get upset easily*". Respondents are asked to rate on a Likert scale, ranging from 1 = *Never* to 6 = *Almost always*, how often they react in a described way. The AIM provides an overview of how strongly or weakly an individual usually experiences emotions. The Cronbach alpha was 0.75 in our sample.

2.2.5. Brief Mood Introspection Scale (BMIS)

We assessed the participants' emotional state before the DP task with the item "*Overall, your mood right now is*", from the BMIS (Mayer & Gaschke, 1988). Participants answered using a scale ranging from 0 =*Very unpleasant* to 10 =*Very pleasant*.

2.2.6. The shortened Raven's Standard Progressive Matrices (RSPM)

Participants' fluid intelligence was assessed with a short version of the RSPM (Raven et al., 1998). We selected 36 items from the original RSPM (Set B, C, D) becoming progressively more difficult. In this task, each item presents a matrix of black and white patterns. Respondents are required to infer which missing pattern among 6 or 8 possible choices is the correct one that continues the series. Responses are scored as correct (1) or incorrect (0). Participants had a 5-min time limit to answer the maximum number of items. The Cronbach alpha was 0.92 in our sample.

2.3. Materials

2.3.1. Emotional and neutral faces

As cues in the DP task, we used 16 angry, 16 happy and 32 neutral colored faces from the Karolinska Directed Emotional Faces (Lundqvist et al., 1998). We selected the most intense and arousing validated expressions of anger and happiness from series A and paired them with the corresponding neutral expression (Goeleven et al., 2008, angry: $M_{intensity}$ = 6.7, $SD_{intensity}$ =0.6, $M_{arousal}$ =4.1, $SD_{arousal}$ =0.6; happy: $M_{intensity}$ =6.9, $SD_{intensity}$ =0.3, $M_{arousal}$ =4.1, $SD_{arousal}$ =0.3; neutral: $M_{intensity}$ =4.7, $SD_{intensity}$ =0.4, $M_{arousal}$ =2.6, $SD_{arousal}$ =0.3). Using Adobe Photoshop Element 2021, all stimuli were cropped into a standard oval shape concealing hair and external features. The faces' eyes were aligned horizontally at the same height. All stimuli had the same size (346 ×460 pixels, or approximately 12 ×16 cm) and had similar skin tone.

2.3.2. Dot-probe task

The original version of the DP task (Posner, 1980) was modified to evaluate attentional bias towards emotional stimuli. During the task (Figure 4), a fixation cross appeared at the center of the screen for 750 ms followed by a pair of an emotional (angry or happy) and a neutral expression of the same model. The pair of faces was presented during 100 ms followed by a 100 ms blank screen. Next, a probe appeared with equal chance at the location of the emotional face (emotional condition) or the neutral face (neutral condition). The probe consisted of the letter "F" or "H", and participants were instructed to report the letter by pressing "F" or "H" on the keyboard. Letters remained visible for 3000 ms or less if the participant responded earlier. Reaction time to correct answers was recorded. The task started with 8 practice trials followed by feedback on performance. Then, the main task was composed of 4 blocks of 32 trials. Blocks contained equal numbers of angry-neutral and happy-neutral pairs as well as equal numbers of male and female models. The order was randomized in each block. Between blocks, participants could take a break of 30 s and look again at the instructions or

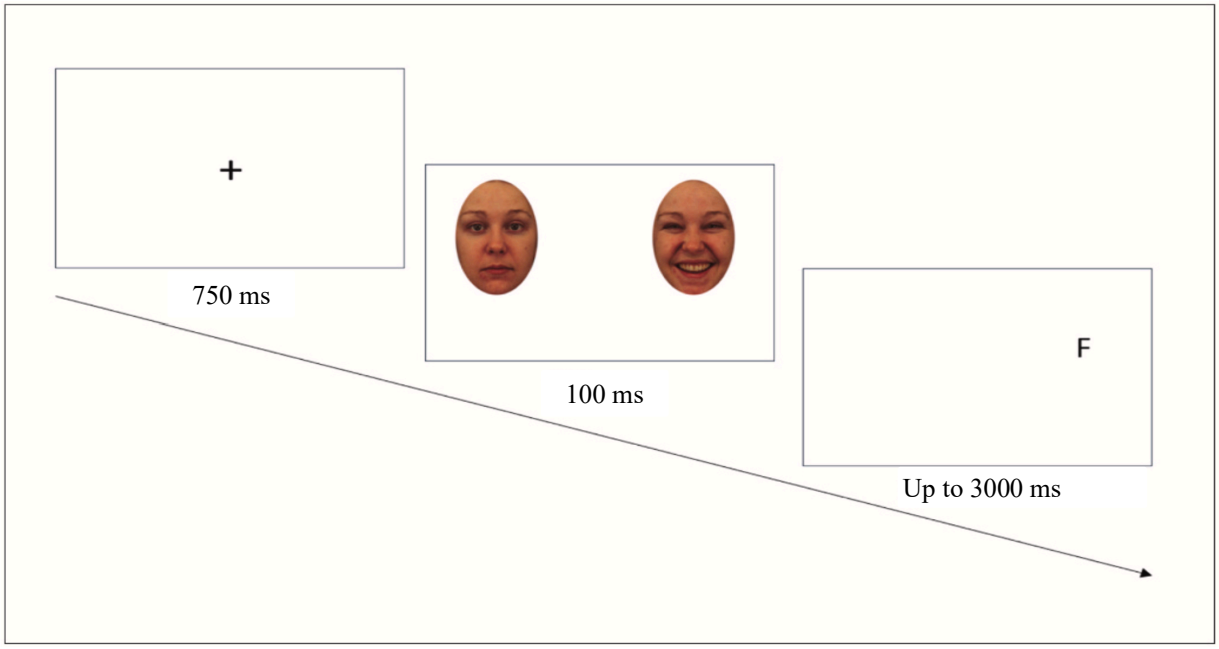

Figure 4: Example of a trial in the attentional task. In this case, the letter F replaces the emotional face. This corresponds to the emotional condition.

continue the task. To keep the participants motivated throughout the task, they were informed that they would get feedback about their performance at the end of the task. The experiment was run online with the Gorilla interface (https://gorilla.sc) and was restricted to Chrome and Edge users as these browsers have been shown to have more precise presentation visual delay across macOS and Windows operating systems (Anwyl-Irvine et al., 2020).

3. Results

3.1. Data preprocessing

Following the criteria set in the pre-registration, two participants with less than 80% correct responses in the DP task were excluded from the analyses. The analyses were performed only on reaction times (RT) associated with correct responses (4.3% of the responses were incorrect). Reaction times under 200 ms and above 2500 ms were removed (0.1% of the data) first and reaction times deviating more than 3 sd from each participant's mean in each condition were then eliminated (1.5% of the data).

3.2. Descriptive statistics and correlations between variables

Mean, standard deviation, and Pearson correlations for all variables are shown in Table 14. Correlations among ability EI measures ranged from 0.30 to 0.59. Intelligence was negatively correlated with Age (-0.22) and positively correlated with EI measured by the Situational Test of Emotion Understanding (STEU; 0.18) and the Geneva Emotion Recognition Test (GERT; 0.22). Mood was only correlated with the GERT (-0.23). RTs in both conditions were negatively correlated with Age, Intelligence and the three facets of EI. AIM did not correlate with any facet of EI or reaction times.

Table 14: Descriptive Statistics and Correlations for the Variables in the Study.

	M	SD	1	2	3	4	5	6	7	8
1. Age	28.9	9.8								
2. Raven	19.5	5.2	-0.22**							
3. Mood	6.5	1.8	0.12	-0.10						
4. STEU	0.6	0.1	-0.04	0.18*	-0.14					
5. STEM	0.6	0.1	-0.01	0.15	-0.04	0.30***				
6. GERT	24.4	6.1	-0.10	0.22**	-0.23**	0.59***	0.38***			
7. AIM	65.7	11.5	-0.12	-0.09	0.06	0.03	0.05	0.00		
8. RT_emo	521.4	93.2	0.31***	-0.42***	0.21**	-0.26***	-0.20*	-0.32***	0.01	
9. RT_neu	521.5	91.5	0.30***	-0.40***	0.23**	-0.24**	-0.17*	-0.31***	0.01	0.97***

Note: STEU: Situational Test of Emotion Understanding, STEM: Situational Test of Emotion Management, GERT: Geneva Emotion Recognition Test, AIM: Affect Intensity Measure, RT_emo: Response time in emotional condition, RT_neu: Response time in neutral condition. *$p < .05$, **$p < .01$, ***$p < .001$.

3.3. Reaction times analysis

We now turn to the main hypothesis of this study, which is that as EI increases, there should be larger differences between RTs in the emotional and neutral conditions. Our data were analyzed using Linear Mixed-Effects (LME) models (Baayen et al., 2008; Bates et al., 2015) with the statistical software R (R Core Team, 2021). According to the Box Cox test's result, (Box & Cox, 1964), RTs were inverse transformed to account for their distribution. In all models, sum coding was used to define the contrasts of Condition, with -1 corresponding to neutral. All continuous independent variables were standardized around the grand mean.

3.4. Emotion understanding facet of EI

We fitted an LME model with inverse RT as the outcome variable, with fixed effects of age, gender[22], mood, intelligence, and trial number (since RTs are known to get faster throughout the experiment) as control variables, and condition (neutral vs. emotional), STEU and their interaction as key explanatory variables. First, we fitted a maximal random effects structure, which included random intercepts and slopes for condition by participant, but no correlation between the random terms. As the model had singular fit, we performed a Principal Component Analysis of the random-effects variance-covariance estimates as advised by Bates et al. (2015) and simplified the model accordingly. The final model included random intercepts for participants (full outputs of reported models are reported in the supplemental material). The model (see Table A.1 in the 11.1.2. Supplemental material) revealed significant effects of age, intelligence, trial number and STEU. Reaction times increased with age but diminished as a function of intelligence, trial number and STEU. As hypothesized, the effect of STEU was qualified by a STEU by condition interaction. When inspecting the interaction, it appeared that

[22] Two participants indicated « other » for this variable. For this reason, they were not considered in the first fitted models which showed no significant effect of Gender. Gender was then removed from the model and the two participants were added back in the following models.

it could be better described by a non-linear relationship. We therefore added the quadratic term for STEU in the model. This model showed significant effects of age (b = 0.76, SE = 0.20, p <.001), intelligence (b = -0.87, SE = 0.20, p <.001), trial number (b = -0.21, SE = 0.03, p < .001), STEU (linear term: b = -60.38, SE = 27.41, p =.029), and the STEU by condition interaction (linear term: b = -7.66, SE = 3.56, p = .032, quadratic term: b = -9.08, SE = 3.56, p = .011). This means that condition influenced RT only at certain levels of the understanding facet of EI. A model (see Table A.2 in the supplemental materials) with shifted values of STEU (+1 sd) revealed a significant effect of condition (b = -0.08, SE = 0.04, p = .03), meaning that, among our participants, only those with a high score on the STEU showed faster RT in the emotional compared to the neutral condition (Figure 5), which is consistent with Hypothesis 1.

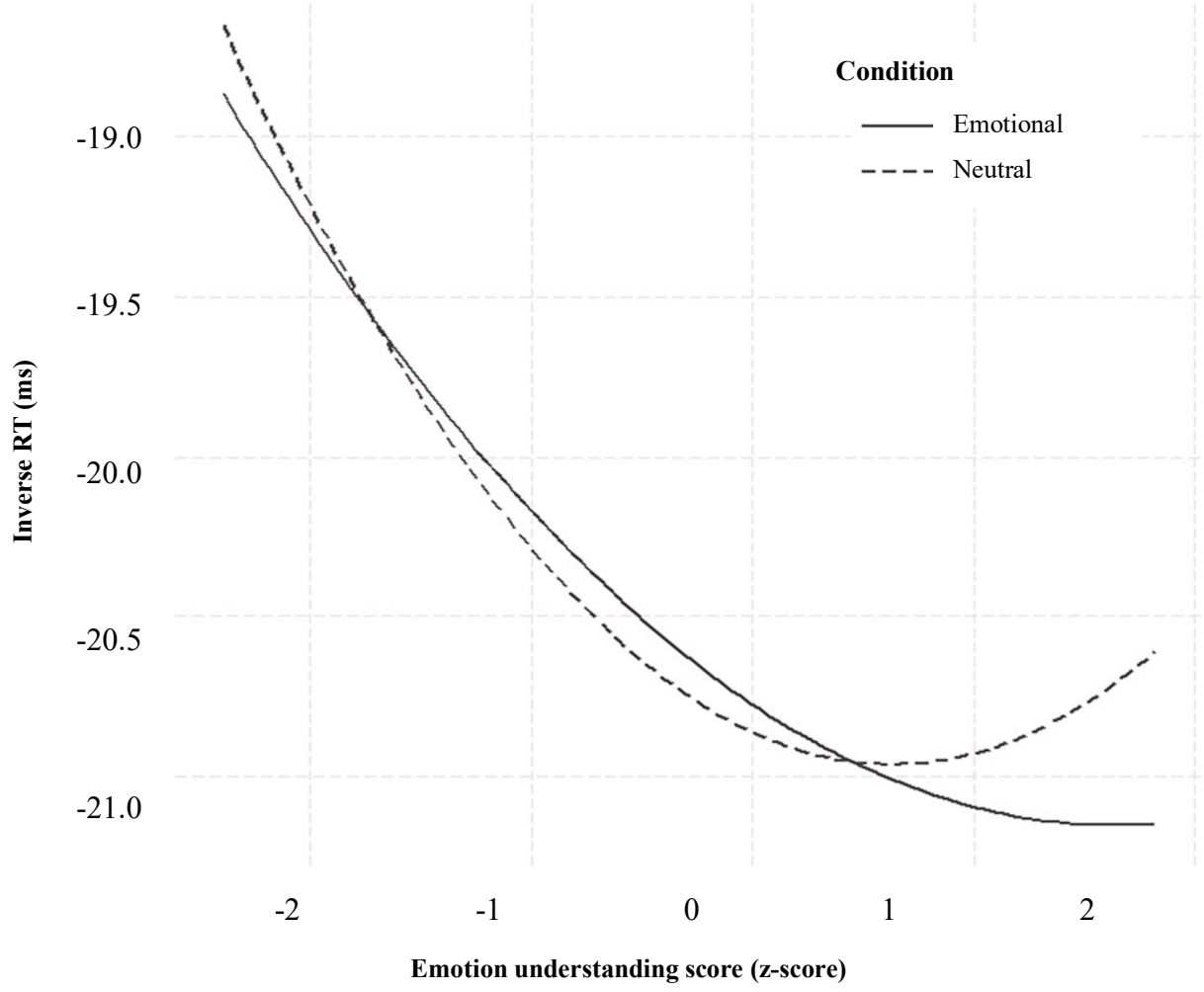

Figure 5: Inverse RTs as a function of condition and STEU score (standardized).

In order to test whether the attentional bias was related to the emotion expressed on the emotional faces, we fitted a similar model, adding emotion (happiness vs. anger) in the interaction term (STEU × Condition ×Emotion). The three-way interaction was not significant, suggesting that our results did not depend on the valence of the emotion presented. Additional analyses on the happiness and anger subsets revealed that even though the STEU by condition interaction was significant in both subsets, condition started to influence RT at lower levels of STEU for angry (+0.5 sd) compared to happy faces (+1.5 sd) (see Tables A.3 and A.4 as well as Fig. A.1 in the 11.1.2. Supplemental material).

3.5. Emotion recognition and management facets of EI

Similar models to those presented for the STEU were fitted with either the STEM or the GERT scores in interaction with Condition. They did not show any main effect of condition or EI nor significant interaction effect between EI and condition. Two participants indicated « other » for this variable. For this reason, they were not considered in the first fitted models which showed no significant effect of Gender. Gender was then removed from the model and the two participants were added back in the following models.

3.6. Affect intensity measure

To test hypothesis 2, a similar model to those including EI was fitted with AIM. Contrary to our hypothesis, the model did not reveal any effect involving AIM (see Table A.5 in the 11.1.2. Supplemental material).

4. Discussion

This study tested the hypersensitivity hypothesis (Fiori & Ortony, 2021) that high-EI individuals are characterized by hypersensitivity to emotion information. We operationalized hypersensitivity as an attentional bias to emotion information and measured it with a DP task. We found that individuals high on the emotion understanding facet of EI (+1 sd) were faster to

react in the emotional as compared to the neutral condition. Our results suggest that there might be a critical level in emotion understanding after which individuals are biased towards emotion information, even when endogenous attention is supposed to be directed towards neutral information.

Of note, the attentional bias to emotional expressions was found only for emotion understanding, which is the EI component that loads more strongly into EI (MacCann et al., 2014), and seems to capture the most variability in EI performance (see, for example, Udayar et al., 2020). The fact that emotion recognition assessed by the GERT did not influence the attentional bias for emotional expressions might seem counterintuitive at first, as this component is notably related to the processing of emotional cues displayed in facial expressions. The very nature of the task used in this study, tackling automatic attention allocation processes related to emotion perception rather than more elaborate processes related to emotion recognition, may explain this finding.

Surprisingly self-reported sensitivity to emotions measured by the Affect Intensity Measure (AIM) did not influence attentional bias to emotions in the DP task. A possible explanation is that the former is based on subjective perceptions about one's characteristics, and on reflective and not time-constrained type of reasoning, whereas the latter represents objective performance in emotional tasks based on spontaneous treatment of emotion information. The fact that AIM was also not correlated to any measure of EI suggests that it is not related neither to emotional abilities nor to the emotional processes involved in EI_P. This is not particularly surprising given the literature showing low to non-significant correlations between explicit and implicit measures of psychological constructs (e.g., Köllner & Schultheiss, 2014).

The current study suggests that emotional hypersensitivity can be revealed by differences in initial orienting to emotional content. It showed that individuals high in EI, particularly emotion understanding, do have a preference (or bias) for emotional as compared

to neutral information. Of note, although this type of attentional bias is well known in the literature on emotional disorders (e.g., Bar-Haim et al., 2007), in our task the effect was found for both positive and negative emotional expressions, indicating no specificity of emotional valence as far as it regards the hypersensitivity associated with high EI. This lack of emotion specificity in the attentional bias suggests that high EI individuals might direct attention to threatening stimuli because of their adaptability-related relevance, and to positive stimuli for their protective effect against stress. Of note, the occurrence of both biases at the same time has been linked to higher resiliency (Thoern et al., 2016).

5. Limitations and future directions

The attentional bias found in this study—occurring after 100 ms of stimulus presentation and followed by 100 ms stimulus onset asynchrony (SOA)—corresponds to the first attentional shift. Previous research has shown that stimulus duration and SOA modify attentional bias (Koster et al., 2004). Further research is needed to test how attentional bias related to EI is modulated by different stimuli and SOA duration. Further research might test whether a form of emotional hypersensitivity related to EI may be identified in the inhibitory mechanism involved in attentional disengagement from emotional expressions. Another line of research might employ subliminal cues to trigger emotional hypersensitivity.

In our study the phenomenon of hypersensitivity was only evoked by intense emotional facial expressions. Previous research has shown that stimulus type (Pishyar et al., 2004) and intensity (Koster et al., 2004; Koster et al., 2006) and arousal (Pool et al., 2016) may modify attentional bias. Consequently, it might be interesting to replicate the current study using various emotional expressions different from happiness and anger and/or emotions elicited by emotional scenes varying along the intensity continuum.

Results lend support to the hypersensitivity hypothesis according to which EI works by amplifying the attention and depth of processing of emotion information and its impact on

(social) perception. Beyond further understanding how hypersensitivity may unfold in high EI individuals, for example employing other emotion-information processing tasks that capture perceptual or memory related processing of emotion information, further research might address the implications of this way of functioning of EI. Is hypersensitivity an asset or a limitation in social behavior? For instance, if high EI individuals do pay special attention to emotional expressions, can this heightened attention distract from other tasks? Can hypersensitivity provide a fine-grained interpretation of the emotional world that may ultimately support more adaptive behavior?

These and other related research questions will help to understand more in-depth what EI is about and the way it impacts important life outcomes.

Author Contribution

NICOLET-DIT-FELIX Maroussia: study design, task programming, data analyses, stimulus preparation, writing; GILLIOZ Christelle: study design, data analyses, writing; MORTILLARO Marcello: feedback on study design and methodological advice; SANDER David: feedback on study design and methodological advice; FIORI Marina: funding acquisition, study conceptualization, writing.

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References

Allen, V., Rahman, N., Weissman, A., MacCann, C., Lewis, C., & Roberts, R. D. (2015). The Situational Test of Emotional Management-Brief (STEM-B): Development and validation using item response theory and latent class analysis. *Personality and Individual Differences*, 81, 195–200. https://doi.org/10.1016/j.paid.2015.01.053.

Allen, V. D., Weissman, A., Hellwig, S., MacCann, C., & Roberts, R. D. (2014). Development of the Situational Test of Emotional Understanding-Brief (STEU-B) using item response theory. *Personality and Individual Differences*, 65, 3–7. https://doi.org/10.1016/j.paid.2014.01.051

Andrei, F., Siegling, A. B., Aloe, A. M., Baldaro, B., & Petrides, K. V. (2016). The incremental validity of the Trait Emotional Intelligence Questionnaire (TEIQue): A systematic review and meta-analysis. *Journal of Personality Assessment*, 98(3), 261–276. https://doi.org/10.1080/00223891.2015.1084630

Anwyl-Irvine, A. L., Massonnié, J., Flitton, A., Kirkham, N., & Evershed, J. K. (2020). Gorilla in our midst: An online behavioral experiment builder. *Behavior Research Methods*, 52(1), 388–407. https://doi.org/10.3758/s13428-019-01237-x

Aron, E. N., & Aron, A. (1997). Sensory-processing sensitivity and its relation to introversion and emotionality. *Journal of Personality and Social Psychology*, 73(2), 345–368. https://doi.org/10.1037/0022-3514.73.2.345

Baayen, R. H., Davidson, D. J., & Bates, D. M. (2008). Mixed-effects modeling with crossed random effects for subjects and items. *Journal of Memory and Language*, 59 (4), 390–412. https://doi.org/10.1016/j.jml.2007.12.005

Bar-Haim, Y., Lamy, D., Pergamin, L., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2007). Threat-related attentional bias in anxious and nonanxious individuals: A meta-analytic study. *Psychological Bulletin*, 133(1), 1–24. https://doi.org/10.1037/0033-2909.133.1.1

Bates, D. M., Kliegl, R., Vasishth, S., & Baayen, R. H. (2015). Parsimonious mixed models. arXiv Preprint arXiv: 1506.04967.

Box, G. E. P., & Cox, D. R. (1964). An analysis of transformations. *Journal of Royal Statistical Society*. Series B (Methodological), 26, 211–252. https://doi.org/10.1111/j.2517-6161.1964.tb00553.x

Fiori, M. (2009). A new look at emotional intelligence: A dual-process framework. *Personality and Social Psychology Review*, 13(1), 21–44. https://doi.org/10.1177/1088868308326909

Fiori, M., & Antonakis, J. (2011). The ability model of emotional intelligence: Searching for valid measures. *Personality and Individual Differences*, 50(3), 329–334. https://doi.org/10.1016/j.paid.2010.10.010

Fiori, M., & Ortony, A. (2021). Initial evidence for the hypersensitivity hypothesis: Emotional intelligence as a magnifier of emotional experience. *Journal of Intelligence*, 9(2). https://doi.org/10.3390/jintelligence9020024

Fiori, M., & Vesely-Maillefer, A. K. (2018). *Emotional intelligence as an ability: Theory, challenges, and new directions*. In K. V. Keefer, J. D. A. Parker, & D. H. Saklofske (Eds.), Emotional intelligence in education integrating research with practice (pp. 23–47). Berlin: Springer. https://doi.org/10.1007/978-3-319-90633-1_2

Fiori, M., Udayar, S., & Vesely Maillefer, A. (2022). Emotion information processing as a new component of emotional intelligence: Theoretical framework and empirical evidence. *European Journal of Personality*, 36(2), 245–264. https://doi.org/10.1177/08902070211007672

Goeleven, E., De Raedt, R., Leyman, L., & Verschuere, B. (2008). The Karolinska Directed Emotional Faces: A validation study. *Cognition & Emotion*, 22(6), 1094–1118. https://doi.org/10.1080/02699930701626582

Huang, S., Berenbaum, H., & Chow, P. I. (2013). Distinguishing voluntary from involuntary attention to emotion. *Personality and Individual Differences*, 54(8), 894–898. https://doi.org/10.1016/j.paid.2012.12.025

Joseph, D. L., & Newman, D. A. (2010). Emotional intelligence: An integrative meta-analysis and cascading model. *Journal of Applied Psychology*, 95(1), 54–78. https://doi.org/10.1037/a0017286

Köllner, M. G., & Schultheiss, O. C. (2014). Meta-analytic evidence of low convergence between implicit and explicit measures of the needs for achievement, affiliation, and power. *Frontiers in Psychology*, 5(826). https://doi.org/10.3389/fpsyg.2014.00826

Koster, E. H., Crombez, G., Verschuere, B., & De Houwer, J. (2004). Selective attention to threat in the dot probe paradigm: Differentiating vigilance and difficulty to disengage. *Behaviour Research and Therapy*, 42(10), 1183–1192. https://doi.org/10.1016/j.brat.2003.08.001

Koster, E. H., Crombez, G., Verschuere, B., & De Houwer, J. (2006). Attention to threat in anxiety-prone individuals: Mechanisms underlying attentional bias. *Cognitive Therapy and Research*, 30(5), 635–643. https://doi.org/10.1007/s10608-006-9042-9

Larsen, R. J. (1984). Theory and measurement of affect intensity as an individual difference characteristic [Unpublished doctoral dissertation]. University of Illinois at Urbana-Champaign.

Libbrecht, N., & Lievens, F. (2012). Validity evidence for the situational judgment test paradigm in emotional intelligence measurement. *International Journal of Psychology*, 47(6), 438–447. https://doi.org/10.1080/00207594.2012.682063

Lundqvist, D., Flykt, A., & Öhman, A. (1998). Karolinska directed emotional faces (KDEF) [Database record]. APA PsycTests. https://doi.org/10.1037/t27732-000

MacCann, C., Jiang, Y., Brown, L. E. R., Double, K. S., Bucich, M., & Minbashian, A. (2020). Emotional intelligence predicts academic performance: A meta-analysis. *Psychological Bulletin*, 146(2), 150–186. https://doi.org/10.1037/bul0000219

MacCann, C., Joseph, D. L., Newman, D. A., & Roberts, R. D. (2014). Emotional intelligence is a second-stratum factor of intelligence: Evidence from hierarchical and bifactor models. *Emotion*, 14(2), 358–374. https://doi.org/10.1037/a0034755

Martins, A., Ramalho, N., & Morin, E. (2010). A comprehensive meta-analysis of the relationship between emotional intelligence and health. *Personality and Individual Differences*, 49(6), 554–564. https://doi.org/10.1016/j.paid.2010.05.029

Mayer, J. D., & Gaschke, Y. N. (1988). The experience and meta-experience of mood. *Journal of Personality and Social Psychology*, 55(1), 102–111. https://doi.org/10.1037/0022-3514.55.1.102

Mayer, J. D., & Salovey, P. (1997). *What is emotional intelligence?* In P. Salovey, & D. J. Sluyter (Eds.), Emotional development and emotional intelligence: Educational implications (pp. 3–31). Basic Books.

Newman, D. A., Joseph, D. L., & MacCann, C. (2010). Emotional intelligence and job performance: The importance of emotion regulation and emotional labor context. *Industrial and Organizational Psychology*, 3(3), 159–164. https://doi.org/10.1111/j.1754-9434.2010.01218.x

Palmer, B. R., Gignac, G., Manocha, R., & Stough, C. (2005). A psychometric evaluation of the Mayer–Salovey–Caruso Emotional Intelligence Test Version 2.0. *Intelligence,* 33(3), 285–305. https://doi.org/10.1016/j.intell.2004.11.003

Petrides, K. V., & Furnham, A. (2001). Trait emotional intelligence: Psychometric investigation with reference to established trait taxonomies. *European Journal of Personality*, 15(6), 425–448. https://doi.org/10.1002/per.416

Pishyar, R., Harris, L. M., & Menzies, R. G. (2004). Attentional bias for words and faces in social anxiety. *Anxiety, Stress, and Coping*, 17(1), 23–36. https://doi.org/10.1080/10615800310001601458

Pool, E., Brosch, T., Delplanque, S., & Sander, D. (2016). Attentional bias for positive emotional stimuli: A meta-analytic investigation. *Psychological Bulletin*, 142(1), 79–106. https://doi.org/10.1037/bul0000026

Posner, M. I. (1980). Orienting of attention. *Quarterly Journal of Experimental Psychology*, 32(1), 3–25. https://doi.org/10.1080/00335558008248231

R Core Team. (2021). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. https://www.R-project.org/.

Raven, J. C., Raven, J. E., & Court, J. H. (1998). *Progressive matrices*. Oxford Psychologists Press.

Roberts, R. D., Zeidner, M., & Matthews, G. (2001). Does emotional intelligence meet traditional standards for an intelligence? Some new data and conclusions. *Emotion*, 1 (3), 196–231. https://doi.org/10.1037//1528-3542.1.3.196

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality*, 9(3), 185–211. https://doi.org/10.2190/DUGG-P24E-52WK-6CDG

Schlegel, K., & Mortillaro, M. (2019). The Geneva Emotional Competence Test (GECo): An ability measure of workplace emotional intelligence. *Journal of Applied Psychology*, 104(4), 559–580. https://doi.org/10.1037/apl0000365

Schlegel, K., & Scherer, K. R. (2016). Introducing a short version of the Geneva Emotion Recognition Test (GERT-S): Psychometric properties and construct validation. *Behavior Research Methods*, 48(4), 1383–1392. https://doi.org/10.3758/s13428-015-0646-4

Thoern, H. A., Grueschow, M., Ehlert, U., Ruff, C. C., & Kleim, B. (2016). Attentional bias towards positive emotion predicts stress resilience. *PLoS ONE*, 11(3). https://doi.org/10.1371/journal.pone.0148368

Thompson, R. J., Dizén, M., & Berenbaum, H. (2009). The unique relations between emotional awareness and facets of affective instability. *Journal of Research in Personality*, 43(5), 875–879. https://doi.org/10.1016/j.jrp.2009.07.006

Udayar, S., Fiori, M., & Bausseron, E. (2020). Emotional intelligence and performance in a stressful task: The mediating role of self-efficacy. *Personality and Individual Differences*, 156, Article 109790. https://doi.org/10.1016/j.paid.2019.1097906

11.1.2. Supplemental Material

Table A.1: Models testing the interaction effect between emotion understanding and condition (neutral vs. emotional) on reaction times in the DP task, controlling for age, intelligence, trial number and mood

	Inverse-transformed reaction time			
	Model 1 (linear)		**Model 2 (quadratic)**	
Predictors	**Estimates**	**95% CI**	**Estimates**	**95% CI**
(Intercept)	-20.62***	[-21.01 – -20.24]	-20.62***	[-21.00 – -20.24]
Condition	-0.01	[-0.06 – 0.04]	-0.01	[-0.06 – 0.04]
STEU (linear)	-0.44*	[-0.86 – -0.06]	-60.38*	[-114.11 – -6.65]
STEU (quadratic)			31.89	[-20.48 – 84.26]
Condition x STEU (linear)	-0.06*	[-0.11 – -0.01]	-7.66*	[-14.64 – -0.67]
Condition x STEU (quadratic)			-9.08*	[-16.06 – -2.10]
Age	0.77***	[0.37 – 1.17]	0.76***	[0.36 – 1.16]
Raven	-0.87***	[-1.27 – -0.47]	-0.87***	[-1.27 – -0.47]
General Mood	0.38	[-0.01 – 0.77]	0.38	[-0.01 – 0.77]
Trial Number	-0.21***	[-0.26 – -0.16]	-0.21***	[-0.26 – -0.16]
Random Effects				
σ^2	12.69		12.68	
τ_{00}	5.83 $_{ID}$		5.82 $_{ID}$	
ICC	0.31		0.31	
N	155 $_{ID}$		155 $_{ID}$	
Observations	18658		18658	
Marginal R^2 / Conditional R^2	0.114 / 0.393		0.117 / 0.394	

Note: Predictors were standardized. Inverse-transformed reaction time remained in original units. Model 2 includes the quadratic term for STEU in the interaction whereas Model 1 does not. Model 1 was rejected in favor of Model 2 because the latter provided a better fit. 95% CI represents 95% confidence interval. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.2: Model testing the effect of condition with shifted intercept for emotion understanding (+1 sd)

	Inverse-transformed reaction time	
Predictors	**Estimates**	**95% CI**
(Intercept)	-21.01***	[-21.57 – -20.46]
Condition	-0.08*	[-0.16 – -0.01]
STEU (linear)	0.00	[-0.83 – 0.83]
STEU (quadratic)	0.20	[-0.13 – 0.52]
STEU (linear) x Condition	-0.18**	[-0.29 – -0.07]
STEU (quadratic) x Condition	-0.06*	[-0.10 – -0.01]
Age	0.76***	[0.36 – 1.16]
Raven	-0.87***	[-1.27 – -0.47]
General Mood	0.38	[-0.01 – 0.77]
Trial Number	-0.21***	[-0.26 – -0.16]
Random Effects		
σ^2	12.68	
$\tau_{00\ ID}$	5.82	
ICC	0.31	
N_{ID}	155	
Observations	18658	
Marginal R^2 / Conditional R^2	0.117 / 0.394	

Note: Predictors were standardized. Inverse-transformed reaction time remained in original units. 95% CI represents 95% confidence interval. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.3: Models testing the interaction effect between emotion understanding, condition (neutral vs. emotional) and the nature of emotion (anger vs. happiness) on reaction times in the DP task, controlling for age, intelligence, trial number and mood

	Inverse-transformed reaction time	
Predictors	**Estimates**	**95% CI**
(Intercept)	-20.58***	[-20.97 – -20.20]
Condition	-0.00	[-0.08 – 0.07]
STEU	-0.42*	[-0.82 – -0.03]
Emotion	-0.08	[-0.18 – 0.02]
STEU x Condition	-0.08*	[-0.15 – -0.01]
Condition x Emotion	-0.02	[-0.12 – 0.08]
STEU x Emotion	-0.04	[-0.14 – 0.06]
STEU x Condition x Emotion	0.05	[-0.05 – 0.15]
Age	0.77***	[0.37 – 1.17]
Raven	-0.87***	[-1.27 – -0.47]
General Mood	0.38	[-0.01 – 0.77]
Trial Number	-0.21***	[-0.26 – -0.16]
Random Effects		
σ^2	12.69	
$\tau_{00\ ID}$	5.83	
ICC	0.31	
N_{ID}	155	
Observations	18658	
Marginal R^2 / Conditional R^2	0.114 / 0.393	

Note: Predictors were standardized. Inverse-transformed reaction time remained in original units. 95% CI represents 95% confidence interval. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.4: Models testing the interaction effect between perceived hypersensitivity (AIM) and condition (neutral vs. emotional) on reaction times in the DP task, controlling for age, intelligence, trial number and mood

	Inverse-transformed reaction time	
Predictors	**Estimates**	**95% CI**
Intercept	-20.62***	[-21.01 – -20.23]
Condition	-0.01	[-0.06 – 0.04]
AIM	-0.03	[-0.42 – 0.37]
Age	0.76***	[0.35 – 1.17]
Raven	-0.95***	[-1.35 – -0.55]
General Mood	0.43*	[0.04 – 0.83]
Trial Number	-0.21***	[-0.26 – -0.16]
Condition * AIM	0.01	[-0.04 – 0.06]
Random Effects		
σ^2	12.69	
$\tau_{00\ ID}$	6.02	
ICC	0.32	
$N_{\ ID}$	155	
Observations	18658	
Marginal R^2 / Conditional R^2	0.105 / 0.393	

Note: AIM: Affect Intensity Measure questionnaire. Predictors were standardized. Inverse-transformed reaction time remained in original units. 95% CI represents 95% confidence interval. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

11.2. Study 2

11.2.1. Manuscript

Reference: Emotional Intelligence and Subjective Well-Being: The Mediating Effects of Positive and Negative Emotional Reactivity. Nicolet-dit-Félix, M., Gillioz, C., Fiori, M., Clément, F. [Manuscript submitted for publication].

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Abstract

Emotional intelligence (EI) has been widely associated with subjective well-being (SWB), yet the processes through which this relationship unfolds remain underexplored. This study examines the mediating role of *valence-specific emotional reactivity*, defined as the tendency to react *more* to positive events and *less* to negative ones, in the relationship between trait EI and two aspects of SWB, namely life satisfaction and positive relations. A sample of 194 adults completed validated self-report measures assessing trait EI, emotional reactivity, and well-being. Mediation analyses were conducted to test whether emotional reactivity accounted for the associations between trait EI and SWB outcomes. Trait EI was positively associated with positive relations, but not directly with life satisfaction. Results indicated significant indirect associations between trait EI and both aspects of SWB through emotional reactivity. Higher trait EI was related to increased reactivity to positive events and decreased reactivity to negative ones, which were in turn associated with higher levels of both aspects of SWB. These findings suggest that valence specific emotional reactivity may play a mediating role in the link between trait EI and SWB.

Keywords: emotional intelligence, emotional reactivity, life satisfaction, positive relations.

1. Introduction

Emotional intelligence (EI), commonly defined as the capacity to perceive, understand, and regulate emotions, has become a central construct in explaining individual differences in SWB. Individuals with higher levels of EI tend to manage emotional experiences more effectively, which may help them navigate life's challenges, respond adaptively to emotional events, and maintain satisfying interpersonal relationships. As a result, EI has been consistently linked to more adaptive emotional and social functioning (Malouff et al., 2013; Martins et al., 2010; Sánchez-Álvarez et al., 2016; Schutte et al., 2007).

Although the positive association between EI and SWB is well documented, the psychological processes that account for this link remain insufficiently understood (Zeidner et al., 2012). Previous research has typically addressed these questions in isolation, with some studies linking EI to SWB (Malouff et al., 2013; Martins et al., 2010; Sánchez-Álvarez et al., 2016; Schutte et al., 2007) and others linking EI to emotional processes (Fiori et al., 2024; Gillioz et al., 2025; Gillioz et al., 2023; Nicolet-dit-Félix et al., 2023). These strands of evidence have rarely been integrated, and direct tests of mediation in the EI–SWB association remain scarce.

A particularly promising yet largely unexplored candidate mechanism is *valence-specific sensitivity*, which may operate through emotional reactivity processes and may be characterized by amplified reactivity to positive events alongside dampened reactivity to negative ones. To our knowledge, a valence-specific sensitivity mechanism operating within emotional reactivity processes has not yet been explicitly theorized or empirically tested as a mediator of the association between EI and SWB. The present study propose that such a pattern may represent a novel pathway through which emotionally intelligent individuals experience greater SWB. Heightened reactivity to positive events (e.g., exam success, promotion received, health recovery) may amplify their impact, while attenuated reactivity to negative events (e.g., job loss, rejection letter, relationship breakup) may buffer their harmful consequences.

The present study investigates whether valence-specific emotional reactivity mediates the relationship between EI and two key facets of SWB, namely life satisfaction and positive relations. In doing so, it also seeks to replicate and refine previous findings on the associations among EI, emotional reactivity, and SWB outcomes. By examining these links, this study contributes to a growing body of research aimed at clarifying the emotional processes through which EI may support SWB.

The following sections first outline the conceptual foundations of EI and its connection to SWB, with a focus on life satisfaction and positive relations. This is followed by an introduction to the construct of emotional reactivity, the theoretical rationale for its mediating role, and the specific aims of the study.

1.1. Emotional intelligence

EI encompasses abilities and self-perceptions related to the recognition, understanding, and regulation of emotions (Petrides & Furnham, 2001; Salovey & Mayer, 1990). Two major conceptualizations of EI have emerged. The *ability* EI model views EI as a form of cognitive ability, typically assessed through maximal performance tests in which individuals identify the most appropriate emotional response in hypothetical scenarios. In contrast, the *trait* EI model conceptualizes EI as a constellation of emotional dispositions, measured through self-report questionnaires. These instruments assess individuals' perceived capacity to recognize, understand, and manage emotional states in themselves and others. Empirical evidence supports the distinction between these two conceptualizations, with studies showing modest correlations between trait and ability EI (Joseph & Newman, 2010).

Trait EI was chosen for this research as the focal construct as it has been found to be a stronger predictor of SWB. Specifically, a comprehensive meta-analysis (Sánchez-Álvarez et al., 2016) showed that SWB is more robustly associated with trait EI ($\hat{r} = 0.39$) than ability EI ($\hat{r} = 0.25$).

1.2. Trait emotional intelligence and SWB

Trait EI has increasingly been recognized as a key factor in promoting mental health and enhancing SWB, with a growing body of research supporting its relevance across emotional and social domains. Individuals with higher levels of trait EI typically demonstrate more efficient emotion regulation (Peña-Sarrionandia et al., 2015), and increased resilience when facing stress (Sarrionandia et al., 2018). These emotional competencies have been consistently associated with lower levels of anxiety and depression, as well as with higher levels of psychological adjustment and SWB (Martins et al., 2010; Sánchez-Álvarez et al., 2016; Schutte et al., 2007).

In addition, individuals with high trait EI are more capable of managing interpersonal conflicts and fostering meaningful social connections. These social competencies have been associated to the development and maintenance of satisfying and supportive relationships (Malouff et al., 2013; Smith et al., 2008).

Beyond correlational evidence, intervention studies have demonstrated that higher scores on trait EI actively enhance SWB. Participation in EI training programs has been found to significantly increase life satisfaction as well as positive relations (Kotsou et al., 2011; Nelis et al., 2011; Wagstaff et al., 2013). These findings suggest that EI is not merely associated with SWB but plays a causal and modifiable role in its enhancement. By strengthening emotional awareness, regulation, and interpersonal competencies, such interventions appear to foster more adaptive emotional responses, which in turn contribute to a more positive evaluation of one's life and relationships.

1.3. Emotional reactivity as a pathway between trait EI and SWB

Although the link between trait EI and SWB is well documented, the underlying processes through which this link unfolds remain insufficiently understood. One promising

explanatory process is emotional reactivity, which may serve as a pathway connecting trait EI to SWB.

From a dual-process perspective (Kahneman, 2011), emotional reactivity can arise via both automatic and deliberate pathways. Automatic reactivity reflects fast, involuntary responses to emotional stimuli, often occurring outside of conscious awareness. By contrast, deliberate reactivity involves reflective, controlled processes that depend on individuals' awareness and interpretation of their emotional experiences.

The present study forms part of a broader project funded by the Swiss National Science Foundation that investigates how individuals scoring higher on EI react and regulate emotions across these different processing stages. This project focused primarily on ability EI and tested the hypothesis that emotionally intelligent individuals would display heightened sensitivity to emotion information regardless of valence. Evidence from this work confirmed that ability EI was indeed associated with stronger attentional bias and reactions to both positive and negative stimuli (Gillioz et al., 2025; Nicolet-dit-Félix et al., 2023).

Building on this foundation, the current study shifts attention from ability EI to trait EI and toward more reflective and consciously regulated forms of reactivity. At this more deliberate stage and in relation to trait EI, emotionally intelligent individuals may be particularly responsive to pleasant stimuli, while at the same time showing attenuated responses to unpleasant stimuli, consistent with adaptive regulatory processes (Fiori et al., 2023).

1.4. Valence-specific emotional reactivity as a mediator between trait EI and SWB

Valence-specific emotional reactivity, therefore, emerges as a central candidate for explaining how trait EI contributes to SWB. It can be conceptualized along two dimensions. Positive emotional reactivity, reflecting reactivity to positive events, and negative emotional reactivity, reflecting reactivity to negative events. These two dimensions may represent distinct

mechanisms through which trait EI contributes to SWB by amplifying the benefits of rewarding experiences while buffering against the costs of aversive ones.

Positive emotional reactivity, in particular, has been identified as a key contributor to SWB. Theoretically, it is grounded in models such as the Vantage Sensitivity Theory (Pluess & Belsky, 2013), which emphasizes individual differences in responsiveness to positive environmental inputs, and the Broaden-and-Build Theory (Fredrickson, 2001), which posits that positive emotions broaden cognitive and behavioral repertoires, thereby fostering long-term psychological resources. Convergent evidence from multiple research designs indicates that individuals who experience positive emotions more frequently, or who are more prone to experience momentary positive affect in response to daily events, report superior SWB (Diener et al., 2009; Kong & Zhao, 2013; Sun et al., 2023). Experimental inductions of positive emotion likewise boost life satisfaction (Fredrickson et al., 2008) and positive relations (Bazzini et al., 2007). These findings collectively suggest that heightened reactivity to positive events enhance life satisfaction as positive relations.

In contrast, negative emotional reactivity has been widely recognized as a risk factor for psychological maladjustment. Elevated negative reactivity is associated with increased vulnerability to stress, anxiety, and depressive symptoms (Huang et al., 2023; Zorn et al., 2017), as well as lower overall SWB (Joshanloo, 2023). Elevated negative reactivity is also linked to lower satisfaction in close relationships (Randall & Bodenmann, 2017). These findings converge to indicate that increased reactivity to negative experiences threaten life satisfaction as well as positive relations.

Taken together, this body of evidence supports the idea that emotional reactivity plays a central role in shaping SWB. Increased positive emotional reactivity appears beneficial, while increased negative reactivity poses psychological risks. This opens the question of what factors might explain individual differences in these emotional responses.

One such factor is trait EI, which is increasingly recognized as an important predictor of how individuals react to emotion information in daily life. Across experimental, workplace and daily-life settings, elevated trait EI predicts more frequent and intense daily positive emotions (Moroń & Biolik-Moroń, 2021) and amplified positive feelings (Kafetsios & Zampetakis, 2008). Concurrently, trait EI is linked to attenuated negative reactivity. Individuals high in trait EI regulate emotions more effectively, experiencing less fear, anxiety and stress (Moroń & Biolik-Moroń, 2021; Petrides et al., 2007), reporting fewer negative affective episodes at work (Kafetsios & Zampetakis, 2008) and showing weaker reactions to experimentally induced negative events (Schutte et al., 2002).

All in all, previous findings suggest that trait EI might influence SWB by shaping how individuals experience emotional events, enhancing the benefit of positive ones while buffering against the risks of negative ones.

1.5. The current study

This study explores whether valence-specific emotional reactivity functions as a key process linking trait EI to SWB, assessed through life satisfaction and positive relations. Although prior research has consistently demonstrated that individuals with high trait EI tend to report greater well-being (Di Fabio & Kenny, 2016; Extremera et al., 2020; Malouff et al., 2013; Sánchez-Álvarez et al., 2016; Schutte et al., 2007; Smith et al., 2008), the underlying processes driving this association remain insufficiently understood. To our knowledge, no study has examined the potential mediating role of emotional reactivity yet. To address this gap, the current study proposes and tests a mediation model in which positive and negative emotional reactivity are posited as parallel explanatory pathways (Figure 6).

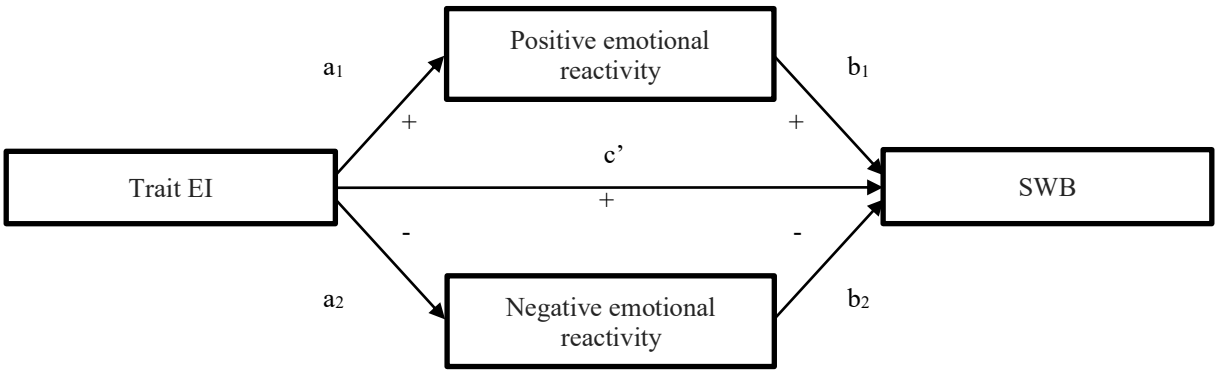

Figure 6: Relationships between trait EI, positive emotional reactivity, negative emotional reactivity and subjective well-being (SWB).

A key strength of the current study lies in its use of conceptually distinct and psychometrically validated instruments to assess both trait EI and SWB. This methodological choice is particularly important given that some widely used trait EI questionnaires, such as the Trait Emotional Intelligence Questionnaire (Petrides, 2009) and the Emotional Quotient Inventory (Bar-On, 1997), include items that directly overlap with indicators of well-being. For instance, they respectively include statements like "*I usually find life enjoyable*" and "*I feel cheerful*", which may inflate correlations between trait EI and well-being due to shared content rather than distinct constructs. To avoid this conceptual and statistical overlap, the present study employed a recent trait EI self-report measure, called the Rotterdam Emotional Intelligence Scale (Pekaar et al., 2018) that was specifically designed to assess emotional self-perceptions, such as individuals' ability to understand, manage, and express emotions, while deliberately excluding any content related to well-being. This methodological decision strengthens the validity of the findings by ensuring that any observed associations between trait EI and well-being are not inflated by measurement redundancy (Zeidner et al., 2012).

The Rotterdam Emotional Intelligence Scale (Pekaar et al., 2018) provides a global trait EI score, which is widely adopted in the literature as a comprehensive indicator of individuals' overall emotional self-perceptions. In line with this approach, we initially focused on the global score in our primary mediation analyses to ensure comparability with previous studies and

maintain model parsimony. In a second step, we conducted exploratory mediation analyses using the four subdimensions of trait EI to examine whether specific dimensions differentially relate to emotional reactivity and SWB. These additional analyses were corrected for multiple comparisons to account for the increased number of statistical tests.

Emotional reactivity was measured using a self-report questionnaire specifically designed to capture general patterns of emotional responses in everyday life. The instrument differentiates between positive and negative emotional reactivity, in line with the dual-valence framework guiding the present study.

By relying on theoretically grounded and validated instruments, the present study tests a parallel mediation model examining how trait EI relates to SWB through positive and negative emotional reactivity. A key advantage of using a parallel mediation model is that it allows both mediators to be tested simultaneously, offering a more comprehensive and balanced understanding of their distinct contributions. Compared to testing each pathway in isolation, a parallel mediation model accounts for shared variance between the mediators, thereby reducing potential bias and enhancing the clarity of interpretation. Based on this model, several hypotheses are formulated.

1.6. Study hypotheses

Trait EI is expected to be positively associated with SWB (H1), namely life satisfaction and positive relations. Trait EI is also hypothesized to be positively associated with positive emotional reactivity (H2), and negatively associated with negative emotional reactivity (H3). Positive emotional reactivity is hypothesized to be positively related to SWB (H4), whereas negative emotional reactivity is expected to be negatively associated to SWB (H5).

Based on the assumption that individuals high in trait EI are better able to regulate emotional responses and engage more strongly with positive experiences, two mediation effects are proposed. Specifically, trait EI is expected to be indirectly associated with greater SWB

through increased positive emotional reactivity (H6), and through decreased negative emotional reactivity (H7).

Given that prior studies reported gender differences in trait EI (Petrides & Furnham, 2000), emotional reactivity (Becerra et al., 2019), and SWB (Joshanloo & Jovanovic, 2020), sex was included as a covariate[23].

[23] This choice reflects the design of the larger research program, where sex was consistently collected across studies.

2. Method

All data used in this paper, analysis codes and supplementary materials are available at: https://osf.io/e5kvs/?view_only=36177d21cdcd4486b71d2be15de09260.

2.1. Participants and procedure

139 women and 55 men, mostly students, aged between 18 and 35 (M = 23.07, SD = 4.16), and recruited at the University of Neuchâtel completed all the questionnaires related to this study. No participants were excluded from the analyses. The recruitment criterion for participants was a high proficiency in French, as the questionnaires were administered in French. We conducted an a priori power analysis based on observed variables using a Monte Carlo simulation approach tailored to the parallel mediation model tested in this study. The simulation assumed medium effect sizes, with standardized path coefficients set at 0.25 for the associations between the independent variable (trait EI) and each mediator (positive and negative emotional reactivity), 0.25 between each mediator and each SWB variable (life satisfaction and positive relations), and -0.15 for the correlation between the two mediators. The direct path between trait EI and the dependent variables was conservatively set at 0.25, slightly lower than typical estimates reported in the literature. This adjustment reflects recent concerns that earlier studies may have overestimated the strength of this association due to conceptual overlap between some trait EI instruments (e.g., the TEIQue or EQ-i) and well-being measures. A sample size of 161 participants was necessary to achieve a power of 0.8. As this study was part of a larger project, we recruited additional participants to ensure sufficient power for other studies. Consequently, with 194 participants, we achieved a power close to 0.9 for moderate effects. The participants completed questionnaires as well as demographic information over the course of a 55–minute online session. The participants were remunerated

20 CHF (approximately 22 USD) for their participation. The study was approved by the Ethical Committee of the University of Neuchâtel and all participants provided informed consent.

2.2. Measures

The following measures were collected during the session, in addition to other measures not relevant to the present paper (listed in the Supplemental material).

2.2.1. The Rotterdam Emotional Intelligence Scale

The Rotterdam Emotional Intelligence Scale (Pekaar et al., 2018; Pirsoul et al., 2022, French version) is a self-report instrument designed to measure trait EI. This scale includes 28 items assessing four dimensions: self-focused emotion appraisal (e.g., *"I always know how I feel"*), other-focused emotion appraisal (e.g., "*I know which feelings others experience*"), self-focused emotion regulation (e.g., "*I adjust my emotions when necessary"*), and other-focused emotion regulation (e.g., "*I can make someone else feel differently"*). The items are rated on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The total score is calculated by summing the scores obtained across the four dimensions and then dividing by the number of items. Confirmatory factor analysis (CFA) was conducted to assess the construct validity of the scale. Results confirmed the original four-factor structure of the scale, and the fit indices were at an acceptable level: incremental fit index (IFI) = 0.91, root mean square error of approximation (RMSEA) = 0.06, standardized root mean squared residual (SRMR) = 0.07, comparative fit index (CFI) = 0.91, Tucker-Lewis index (TLI) = 0.90. Internal consistency of the REIS was evaluated using McDonald's omega coefficients. The scale showed high reliability (ω = .91), while the omega hierarchical coefficient was relatively low (ω = .38), indicating that a substantial portion of the reliable variance is attributable to the specific dimensions.

2.2.2. The Perth Emotional Reactivity Scale Short Version

The Perth Emotional Reactivity Scale (Preece et al., 2019) is a 18-item self-report measure that assesses trait levels of emotional reactivity. Respondents evaluate their typical ease of activation, intensity, and duration of their emotional responses, separately for positive and negative emotions. Ease of activation refers to how easily and quickly an emotional response is triggered, such as "*I react to good news very quickly*"; intensity corresponds to how strong the emotional response is, such as "*If I'm upset, I feel it more intensely than everyone else*"; and duration relates to how long the emotional response lasts, such as "*When I'm feeling positive, I can stay like that for a good part of the day*." The items are rated on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). CFA results confirmed the original six-factor structure of the scale, with good model fit (IFI = 0.95, RMSEA = 0.05, SRMR = 0.06, CFI = 0.95, TLI = 0.94). Both the positive and negative reactivity scales demonstrated high reliability (ω = .90), with strong omega hierarchical coefficients (ω = .74 and .70, respectively).

2.2.3. The Satisfaction with Life Scale

Life satisfaction was measured using the Satisfaction with Life Scale (Blais et al., 1989, French version; Diener et al., 1985), a short 5-item self-report instrument that captures global cognitive evaluations of one's life as a whole. For instance, respondents evaluate the extent to which they agree with statements such as "*I am satisfied with my life*" using a 7-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Internal consistency of the scale was good, with a Cronbach's alpha of .84.

2.2.4. Positive relations

Positive relations were measured using the self-report instrument Ryff scales of psychological well-being (Lapierre & Desrochers, 1997, French version; Shryock & Meeks, 2018). This tool includes items such as *"I enjoy personal and mutual conversations with family*

members and friends"). The items are rated on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Internal consistency of the scale was acceptable, with a Cronbach's alpha of .79.

3. Results

3.1. Analytical Strategy

The analyses were conducted in several steps using R (R Core Team, 2024). First, descriptive statistics and bivariate correlations were computed to examine the associations between trait EI, emotional reactivity, and the two well-being outcomes (life satisfaction and positive relations, analyzed separately). This step aimed to provide preliminary support for hypotheses H1 to H5 and to justify proceeding with mediation analyses.

Second, a series of hierarchical linear regressions were conducted to examine to clarify the unique and combined contributions of trait EI and emotional reactivity to SWB. Separate models were estimated for satisfaction with life and positive relations. In each model, predictors were entered stepwise to assess their incremental explanatory value. Trait EI and sex were included in the first step to define a baseline model. In subsequent steps, positive and negative emotional reactivity were added, individually and then jointly, to examine their additional explanatory power and potential mediating roles. This stepwise approach allowed us to observe changes in explained variance across models and to determine whether the inclusion of emotional reactivity attenuated the predictive effect of trait EI on well-being outcomes.

Third, mediation analyses were performed using the lavaan package (Rosseel, 2012), applying a parallel mediation framework to test whether positive and negative emotional reactivity independently mediated the link between trait EI and the two well-being outcomes (H6 and H7). Separate models were estimated for life satisfaction and positive relations. In each model, trait EI served as the independent variable, emotional reactivity dimensions as parallel mediators, and one of the well-being indicators as the dependent variable. Sex was included as a covariate in all models, given its known associations with emotional functioning.

To assess indirect effects, a non-parametric bootstrapping procedure based on 5000 resamples was used, with α set to .05 and bias-corrected 95% confidence intervals (Preacher & Hayes, 2008). This method provides robust estimates of mediation effects while minimizing distributional assumptions.

3.2. Descriptive statistics

Table 15 contains the means, standard deviations, intercorrelations of trait EI dimensions, well-being and emotional reactivity. Trait EI was not significantly associated with life satisfaction. In contrast, it was positively associated with positive relations. Collectively, these findings provide partial support for H1. With respect to emotional reactivity, trait EI was positively associated with positive emotional reactivity, supporting H2, and negatively associated with negative emotional reactivity, supporting H3. Regarding the associations between emotional reactivity and well-being, positive emotional reactivity was positively associated with both life satisfaction and positive relations, whereas negative emotional reactivity showed negative associations with both outcomes. These findings are consistent with hypotheses H4 and H5.

Because all variables were assessed using self-report questionnaires, Harman's single-factor test was conducted to examine the potential influence of common method variance. Exploratory factor analyses were performed separately for the two analytical datasets, each including the items of trait EI, positive and negative emotional reactivity, and the corresponding well-being indicator (life satisfaction or positive relations). Across analyses, the first unrotated factor accounted for between 15.4% and 15.6% of the variance, suggesting that common method variance was unlikely to substantially bias the results.

Table 15: Means, standard deviations and intercorrelations of sex, trait EI, emotional reactivity and SWB indicators

	M	SD	1	2	3	4	5
1. Sex	-	-					
2. Trait EI	3.49	0.48	-0.13				
3. Positive emotional reactivity	3.82	0.75	0.16*	0.20**			
4. Negative emotional reactivity	3.43	0.86	0.18*	-0.28***	-0.18*		
5. Life satisfaction	5.06	1.19	0.06	0.11	0.31***	-0.32***	
6. Positive relations	4.70	0.85	0.13	0.19**	0.45***	-0.25***	0.50***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. A more detailed correlation table is available in the supplementary materials.

3.3. Hierarchical regression and mediation analyses

3.3.1. Life satisfaction

A hierarchical regression analysis was conducted to examine the role of trait EI and emotional reactivity in predicting life satisfaction (Table 16). In Step 1, trait EI and sex did not significantly predict life satisfaction, although the effect of trait EI approached significance. The model accounted for only 2% of the variance.

Table 16: Hierarchical regression analysis predicting life satisfaction

	Life satisfaction		
Predictors	**Step 1**	**Step 2**	**Step 3**
Sex	0.08	0.02	0.07
Trait EI	0.12	0.06	-0.01
POS		0.30***	0.25***
NEG			-0.29***
Model fit			
F	1.86	7.19***	10.11***
R^2	0.02	0.10	0.18
ΔR^2		0.08	0.08

Note: POS: Positive emotional reactivity, NEG: Negative emotional reactivity. * $p < .05$, ** $p < .01$, *** $p < .001$.

In Step 2, positive emotional reactivity was added, resulting in a substantial improvement in model fit and an increase in explained variance to 10%. Positive emotional reactivity emerged as a significant positive predictor, whereas the effect of trait EI became non-significant.

In Step 3, negative emotional reactivity was introduced, further improving model fit and raising the explained variance to 18%. Both positive and negative emotional reactivity significantly predicted life satisfaction, with positive reactivity showing a positive association and negative reactivity a negative one. Trait EI remained non-significant in this final model.

Although trait EI did not significantly predict life satisfaction in the initial regression, we nevertheless conducted mediation analyses. Methodological advances emphasize that the absence of a direct effect does not preclude meaningful indirect pathways (Hayes, 2013). In such cases, predictors may exert their influence entirely through mediators, a situation referred to as indirect-only mediation. In line with our research aim, we therefore examined whether trait EI affects life satisfaction indirectly, through positive and negative emotional reactivity.

To test this possibility, a bootstrapped mediation analysis was conducted (Table 17). Mediation analysis revealed significant indirect effects of trait EI on life satisfaction through both positive and negative emotional reactivity. The indirect effect via positive emotional reactivity was significant, as was the effect via negative emotional reactivity. This result suggests that trait EI is related to life satisfaction primarily through its association with increased positive emotional reactivity and decreased negative one, providing support for hypotheses H6 and H7.

Table 17: Summary of bootstrapped mediation analyses of the effect of trait EI on life satisfaction through emotional reactivity (N=194; 5000 bootstraps)

Model Paths	**SPC**	**SE**	**95% Confidence Interval**	
			Lower	**Upper**
Trait EI→POS→LS	0.14*	0.07	0.03	0.30
Trait EI→ NEG→LS	0.19**	0.07	0.07	0.34

Note: Paths were estimated while controlling for sex. POS: Positive emotional reactivity, NEG: Negative emotional reactivity, LS: Life satisfaction. SPC: Standardized path coefficient, SE: Standard error. * $p < .05$, ** $p < .01$, *** $p < .001$.

The final mediation model is presented below (Figure 7), illustrating the indirect pathways through which trait EI relates to life satisfaction via heightened positive emotional reactivity and reduced negative emotional reactivity.

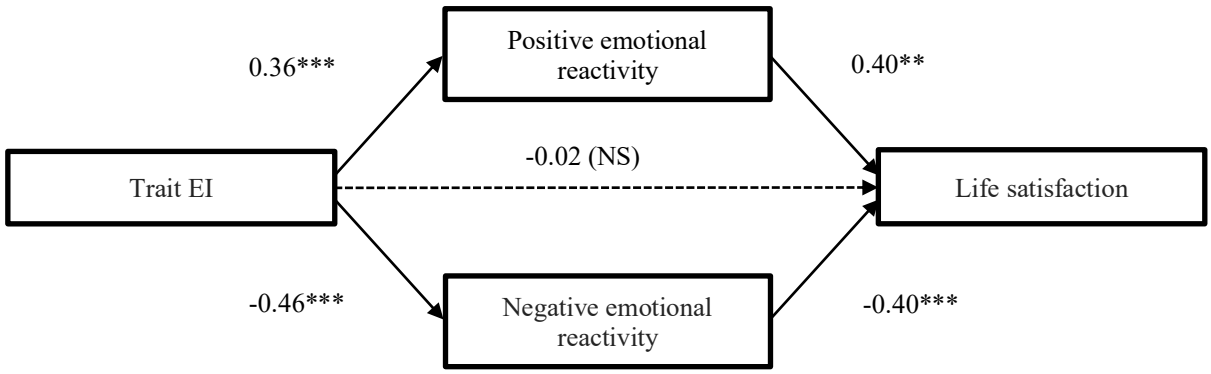

Figure 7: Relationships between trait EI, positive emotional reactivity, negative emotional reactivity and life satisfaction. * $p < .05$, ** $p < .01$, *** $p < .001$.

3.3.2 Positive relations

A hierarchical regression analysis was conducted to examine the role of trait EI and emotional reactivity in predicting positive relations (Table 18). In Step 1, both trait EI and sex were significant predictors. The inclusion of positive emotional reactivity in Step 2 substantially improved model fit. Positive emotional reactivity emerged as a strong positive predictor, whereas the effects of trait EI and sex became non-significant. In Step 3, adding negative emotional reactivity produced a smaller but significant improvement in model fit. Negative emotional reactivity negatively predicted positive relations, while positive emotional reactivity remained a significant positive predictor. The disappearance of the trait EI effect after the inclusion of positive emotional reactivity, and the further refinement of the model with negative emotional reactivity, suggests that both forms of reactivity may mediate the association between trait EI and positive relations. Overall, the full model explained 25% of the variance in positive relations.

Table 18: Hierarchical regression analysis predicting positive relations

	Positive relations		
Predictors	**Step 1**	**Step 2**	**Step 3**
Sex	0.16*	0.08	0.11
Trait EI	0.22**	0.12	0.08
POS		0.41***	0.39***
NEG			−0.18**
Model fit			
F	6.30**	17.80***	15.56***
R^2	0.06	0.22	0.25
ΔR^2		0.16	0.3

Note: POS: Positive emotional reactivity, NEG: Negative emotional reactivity. * $p < .05$, ** $p < .01$, *** $p < .001$.

To further examine the potential mediating role of emotional reactivity in the relationship between trait EI and positive relations, a bootstrapped mediation analysis was conducted (Table 19). The indirect effect via positive emotional reactivity was significant, as was the effect via negative emotional reactivity. This result suggests that trait EI is related to positive relations primarily through its association with increased positive emotional reactivity and decreased negative one, providing support for hypotheses H6 and H7.

Table 19: Summary of bootstrapped mediation analyses of the effect of trait EI on positive relations through emotional reactivity (N=194; 5000 bootstraps)

Model Paths	**SPC**	**SE**	**95% Confidence Interval**	
			Lower	**Upper**
Trait EI→POS→PR	0.16***	0.04	0.06	0.27
Trait EI→ NEG→PR	0.08*	0.05	0.02	0.16

Note: Paths were estimated while controlling for sex. POS: Positive emotional reactivity, NEG: Negative emotional reactivity, PR: positive relations. SPC: Standardized path coefficient, SE: Standard error. * $p < .05$, ** $p < .01$, *** $p < .001$.

The final mediation model is presented in Figure 8, illustrating the indirect pathways through which trait EI relates to positive relations via heightened positive emotional reactivity and reduced negative emotional reactivity.

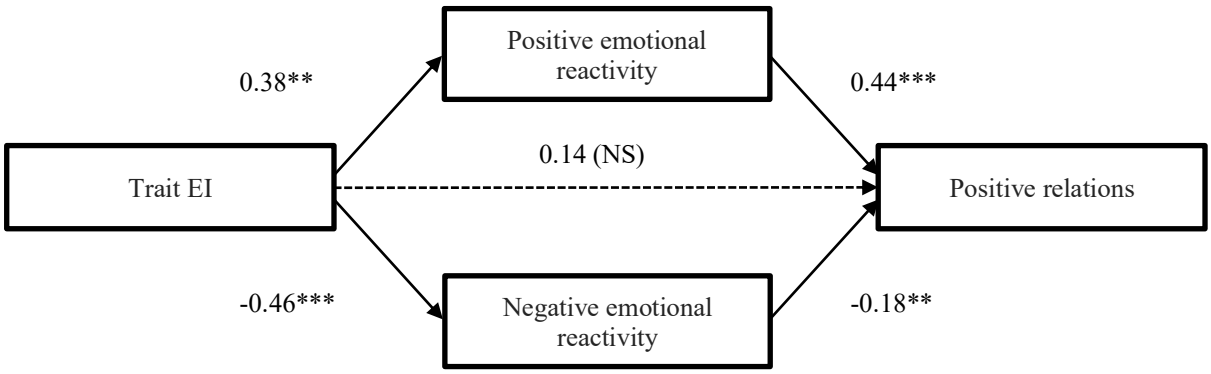

Figure 8: Relationships between trait EI, positive emotional reactivity, negative emotional reactivity and positive relations. * $p < .05$, ** $p < .01$, *** $p < .001$.

While the primary analyses focused on the global trait EI score, consistent with prior literature and theoretical frameworks, additional exploratory analyses were conducted to examine the specific contributions of each trait EI dimension. A series of mediation models were estimated to assess whether positive and negative emotional reactivity mediated the associations between each dimension (i.e., self-focused emotion appraisal, other-focused emotion appraisal, self-focused emotion regulation, and other-focused emotion regulation) and the two well-being outcomes. This approach was guided by theoretical considerations regarding the functional specificity of trait EI dimensions, as well as practical concerns related to statistical power and model stability. To ensure model parsimony and interpretability, separate mediation models were estimated for each subdimension and outcome. A Bonferroni correction was applied within each outcome to adjust for multiple comparisons, setting the significance threshold at $\alpha = .0125$.

After correction, a limited number of significant indirect effects were observed. In the domain of life satisfaction (Table A.1 in the 11.2.2. Supplemental material), a significant indirect effect was found for self-focused emotion regulation through negative emotional reactivity (SPC = 0.14, SE = 0.05, 95% CI [0.06, 0.24], p = .003). This result suggests that

greater self-focused emotion regulation is associated with lower negative emotional reactivity, which in turn is related to higher life satisfaction.

In the context of positive relations (Table A.2 in the 11.2.2. Supplemental material), three significant indirect effects were identified. Self-focused emotion appraisal showed an indirect effect via positive emotional reactivity (SPC = 0.10, *SE* = 0.03, 95% CI [0.04, 0.18], *p* = .004), indicating that greater appraisal of one's own emotions was associated with higher positive emotional reactivity, which in turn was associated with enhanced positive relations. Other-focused emotion appraisal also showed a significant indirect effect through positive emotional reactivity (SPC = 0.11, *SE* = 0.04, 95% CI [0.03, 0.20], *p* = .012), suggesting that a better understanding of others' emotions was linked to increased positive reactivity and subsequently enhanced positive relations. Additionally, self-focused emotion regulation was indirectly associated with positive relations via negative emotional reactivity (SPC = 0.07, *SE* = 0.03, 95% CI [0.03, 0.14], *p* = .009), indicating that better regulation of one's own emotions was related to lower negative reactivity, which in turn was associated with enhanced positive relations.

4. Discussion

This study investigated whether valence-specific emotional reactivity mediates the relationship between trait EI and two key aspects of SWB, namely life satisfaction and positive relations. Across both domains, emotional reactivity, particularly heightened reactivity to positive events and reduced reactivity to negative ones, emerged as a significant mediator. Trait EI showed distinct patterns of association with the two SWB outcomes.

For life satisfaction, trait EI did not reach statistical significance in the regression model, although the association approached significance. Once emotional reactivity was included, both positive and negative emotional reactivity significantly mediate the relationship between trait EI and life satisfaction. It is important to note that trait EI, as measured here, reflects only individuals' self-perceived emotional abilities (e.g., attending to or regulating emotions in general) without distinguishing between positive and negative affect). It does not provide information on specific responses to isolated emotional events. Emotional reactivity as measured here, by contrast, more directly reflects the ease of activation, intensity, and duration of responses of individuals' responses to positive and negative stimuli independently. In this study, trait EI was thus considered a broad emotional resource, and emotional reactivity a distinct process through which this resource translates into SWB. Mediation analyses confirmed an indirect link between trait EI and life satisfaction through both increased positive and decreased negative emotional reactivity, indicating that emotionally intelligent individuals may report higher life satisfaction due to their greater reactivity to pleasant events and reduced reactivity to unpleasant ones.

For positive relations, trait EI was a significant predictor in the regression model. However, this association was fully mediated by positive and negative emotional reactivity, both of which contributed significantly to the model, such that the direct effect of trait EI became non-significant once emotional reactivity was included. Mediation analyses supported

valence-specific emotional reactivity as a mechanism underlying the association between trait EI and positive relations, indicating that emotionally intelligent individuals may experience more fulfilling relationships due to their greater reactivity to positive social cues and reduced reactivity to interpersonal stressors.

These results align with the vantage sensitivity framework (Pluess & Belsky, 2013), which posits that individuals differ in their reactivity to positive environmental influences. In this context, emotional reactivity, particularly to positive events, appears to be a key pathway through which trait EI supports well-being. The finding that individuals higher in trait EI also reported lower negative reactivity further supports the idea that emotional resilience contributes to their higher levels of well-being. Although the present study used a distinct measurement instrument, the results are consistent with prior research showing that trait EI is associated with reduced mood fluctuations in challenging situations (Mikolajczak et al., 2009) and fewer negative emotions following interpersonal stressors (Sevdalis et al., 2007).

Exploratory analyses of the four trait EI dimensions provided additional nuance. Self-focused and other-focused emotion appraisal, as well as other-focused emotion regulation, were positively associated with positive relations via positive emotional reactivity. These findings suggest that both intrapersonal and interpersonal emotional competencies contribute to positive relations. Interestingly, self-focused emotion regulation was not directly associated with either well-being outcome but showed significant indirect effects through reduced negative reactivity. This pattern may reflect its role in dampening negative affect, although the nature of the underlying strategies remains unclear. For instance, while reduced reactivity may indicate effective regulation (e.g., cognitive reappraisal), it could also reflect less adaptive strategies (e.g., expression suppression).

Taken together, these findings identify valence-specific emotional reactivity as a key pathway linking trait EI to SWB. Rather than acting directly, trait EI influences how individuals

respond emotionally, enhancing reactivity to pleasant events while dampening reactivity to unpleasant ones. This dual pattern may underlie greater life satisfaction and enhanced positive relations among emotionally intelligent individuals. The results provide partial support for earlier findings on acute emotional sensitivity (Fiori & Ortony, 2021), particularly for positive emotions. Individuals scoring higher in trait EI showed stronger positive emotional reactivity, which was associated with SWB. This suggests that acute emotional reactivity observed at early, automatic stages (Gillioz et al., 2025; Nicolet-dit-Félix et al., 2023) may persist at more deliberate stages, at least for positive stimuli. In contrast, lower negative reactivity may reveal better regulation, helping maintain emotional balance.

5. Limitations

This study offers valuable insights into the mediating role of valence-specific emotional reactivity in the relationship between trait EI and SWB. However, several limitations should be acknowledged.

First, the cross-sectional design limits the ability to draw causal inferences. Although mediation analyses suggest potential pathways, longitudinal or experimental studies are needed to establish temporal precedence and causality.

Second, the exclusive use of self-report instruments for assessing trait EI, emotional reactivity, and well-being introduces the risk of common method variance. Instruments that share a common measurement method tend to yield inflated correlations (Podsakoff et al., 2003). Particularly, trait EI measures may correlate more strongly with self-reported emotional reactivity than with physiological indicators such as electrodermal activity or electromyography. This shared method variance may have contributed to the strength of the observed associations; however, it is likely to have had only a minimal impact in the present study, as Harman's single-factor test indicated that approximately 15% of the variance was attributable to a single factor. Future research should consider employing multi-method approaches to mitigate this bias and enhance construct validity.

Third, the sample consisted primarily of young adults aged 18 to 35, most of whom were university students. This demographic homogeneity limits the generalizability of the findings to broader populations. Moreover, the lack of a significant direct relationship between trait EI and life satisfaction may be partially attributable to the characteristics of this sample. Younger individuals may not yet have experienced a wide range of life events or reached key life milestones that influence overall life satisfaction. Future studies should aim to include more diverse and representative samples across age groups and life stages.

6. Conclusion

This study advances the understanding of the processes linking trait EI to SWB by identifying valence-specific emotional reactivity as a key mediator. Although trait EI did not directly predict life satisfaction, its influence emerged through individuals' heightened sensitivity to positive experiences and reduced reactivity to negative ones. These findings emphasize the importance of emotional reactivity as a pathway through which emotional intelligence shape both personal and relational aspects of SWB.

The results suggest that interventions aimed at enhancing trait EI, alongside fostering adaptive emotional regulation strategies, may help individuals respond more constructively to emotional events. This, in turn, could significantly improve their SWB.

Furthermore, the findings align partly with recent theoretical perspectives suggesting that EI operates through heightened emotional sensitivity (Fiori et al., 2024; Fiori & Ortony, 2021; Nicolet-dit-Félix et al., 2023). In line with dual-process models, our results indicate that this heightened sensitivity is most evident for positive emotions at reflective stages of processing, where individuals high in trait EI reported stronger positive reactivity that was associated with greater SWB. By contrast, no evidence of increased sensitivity to negative emotions was observed at this conscious level, a pattern that may reflect the influence of regulatory mechanisms dampening such responses. This asymmetry points to the role of emotion regulation processes that operate alongside initial reactivity, helping emotionally intelligent individuals maintain balance. Future research should therefore examine more directly the interplay between automatic and reflective stages of emotional responding to clarify how EI supports adaptive functioning across different phases of emotion processing.

In sum, the ability to upregulate responses to positive events and downregulate responses to negative ones appear to be a crucial process through which trait EI contributes to SWB. Future research should continue to explore these regulatory dynamics using longitudinal, multi-

method approaches and more diverse populations to further elucidate the mechanisms operating within emotional processes that support higher levels of SWB.

Author Contribution

NICOLET-DIT-FELIX Maroussia: conceptualization, investigation, methodology, formal analysis, visualization, writing - original draft preparation; GILLIOZ Christelle: conceptualization, feedback on study design and original draft preparation, review and editing; FIORI Marina: feedback on study design, review and editing, funding acquisition; CLEMENT Fabrice: feedback on study design, review and editing.

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References

Bar-On, R. (1997). *BarOn emotional quotient inventory* (Vol. 40). Multi-health systems New York.

Bazzini, D. G., Stack, E. R., Martincin, P. D., & Davis, C. P. (2007). The effect of reminiscing about laughter on relationship satisfaction. *Motivation and Emotion, 31*(1), 25-34. https://doi.org/10.1007/s11031-006-9045-6

Becerra, R., Preece, D., Campitelli, G., & Scott-Pillow, G. (2019). The assessment of emotional reactivity across negative and positive emotions: Development and validation of the Perth Emotional Reactivity Scale (PERS). *Assessment, 26*(5), 867-879. https://doi.org/10.1177/10731911176944

Blais, M. R., Vallerand, R. J., Pelletier, L. G., & Brière, N. M. (1989). L'échelle de satisfaction de vie: Validation canadienne-française du" Satisfaction with Life Scale.". *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement, 21*(2), 210. https://doi.org/1990-76501-001

Di Fabio, A., & Kenny, M. E. (2016). Promoting Well-Being: The Contribution of Emotional Intelligence. *Front Psychol, 7*, 1182. https://doi.org/10.3389/fpsyg.2016.01182

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of personality assessment, 49*(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13

Diener, E., Sandvik, E., & Pavot, W. (2009). Happiness is the frequency, not the intensity, of positive versus negative affect. In *Assessing well-being: The collected works of Ed Diener* (pp. 213-231). Springer. https://doi.org/10.1007/978-90-481-2354-4_10

Extremera, N., Sánchez-Álvarez, N., & Rey, L. (2020). Pathways between Ability Emotional Intelligence and Subjective Well-Being: Bridging Links through Cognitive Emotion Regulation Strategies. *Sustainability, 12*(5). https://doi.org/10.3390/su12052111

Fiori, M., Gillioz, C., & Nicolet-dit-Félix, M. (2024). Emotional intelligence and emotional reactivity: Understanding the hypersensitivity hypothesis. *Personality and Individual Differences, 230*, 112792. https://doi.org/10.1016/j.paid.2023.112792

Fiori, M., & Ortony, A. (2021). Initial evidence for the hypersensitivity hypothesis: Emotional intelligence as a magnifier of emotional experience. *Journal of Intelligence, 9*(2), 24. https://doi.org/10.3390/jintelligence9020024

Fiori, M., Vesely-Maillefer, A. K., Nicolet-Dit-Félix, M., & Gillioz, C. (2023). With great sensitivity comes great management: how emotional hypersensitivity can be the superpower of emotional intelligence. *Journal of Intelligence, 11*(10), 198. https://doi.org/10.3390/jintelligence11100198

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American psychologist, 56*(3), 218. https://doi.org/10.1037/0003-066X.56.3.218

Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of personality and social psychology, 95*(5), 1045. https://doi.org/10.1037/a0013262

Gillioz, C., Nicolet-dit-Félix, M., Delplanque, S., Mortillaro, M., Sander, D., & Fiori, M. (2025). How do emotionally intelligent individuals react to other people's emotions? A study on emotional and facial reactions. *BMC psychology, 13*(1), 1-15. https://doi.org/10.1186/s40359-025-02104-5

Gillioz, C., Nicolet-dit-Félix, M., Wilhelm, O., & Fiori, M. (2023). Emotional intelligence and emotion information processing: Proof of concept of a test measuring accuracy in discriminating emotions. *Frontiers in Psychology, 14*, 1085971. https://doi.org/10.3389/fpsyg.2023.1085971

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York, NY: Guilford Press.

Huang, Y. H., Huang, Y. T., & Yen, N. S. (2023). Interoceptive sensibility differentiates the predictive pattern of emotional reactivity on depression. *Front Psychol, 14*, 1011584. https://doi.org/10.3389/fpsyg.2023.1011584

Joseph, D. L., & Newman, D. A. (2010). Emotional intelligence: an integrative meta-analysis and cascading model. *Journal of applied psychology, 95*(1), 54. https://doi.org/10.1037/a0017286

Joshanloo, M. (2023). Thirteen years of subjective well-being: Within-person association between positive affect, negative affect, and life satisfaction. *International Journal of Mental Health and Addiction*, 1-13. https://doi.org/10.1007/s11469-023-01223-7

Joshanloo, M., & Jovanovic, V. (2020, Jun). The relationship between gender and life satisfaction: analysis across demographic groups and global regions. *Arch Womens Ment Health, 23*(3), 331-338. https://doi.org/10.1007/s00737-019-00998-w

Kafetsios, K., & Zampetakis, L. A. (2008). Emotional intelligence and job satisfaction: Testing the mediatory role of positive and negative affect at work. *Personality and Individual Differences, 44*(3), 712-722. https://doi.org/10.1016/j.paid.2007.10.004

Kahneman, D. (2011). *Thinking, fast and slow*. macmillan.

Kong, F., & Zhao, J. (2013). Affective mediators of the relationship between trait emotional intelligence and life satisfaction in young adults. *Personality and Individual Differences, 54*(2), 197-201. https://doi.org/10.1016/j.paid.2012.08.028

Kotsou, I., Nelis, D., Grégoire, J., & Mikolajczak, M. (2011). Emotional plasticity: conditions and effects of improving emotional competence in adulthood. *Journal of applied psychology, 96*(4), 827. https://doi.org/10.1037/a0023047

Lapierre, S., & Desrochers, C. (1997). Traduction et validation des Échelles de bien-être psychologique de Ryff. *Trois-Rivières, Canada.: Université du Québec à Trois-Rivières*.

Malouff, J. M., Schutte, N. S., & Thorsteinsson, E. B. (2013). Trait Emotional Intelligence and Romantic Relationship Satisfaction: A Meta-Analysis. *The American Journal of Family Therapy, 42*(1), 53-66. https://doi.org/10.1080/01926187.2012.748549

Martins, A., Ramalho, N., & Morin, E. (2010). A comprehensive meta-analysis of the relationship between emotional intelligence and health. *Personality and Individual Differences, 49*(6), 554-564. https://doi.org/10.1016/j.paid.2010.05.029

Mikolajczak, M., Petrides, K. V., Coumans, N., & Luminet, O. (2009). The moderating effect of trait emotional intelligence on mood deterioration following laboratory-induced stress. *International journal of clinical and health psychology, 9*(3), 455-477. https://doi.org/2009-16945-007

Moroń, M., & Biolik-Moroń, M. (2021, Jan 1). Trait emotional intelligence and emotional experiences during the COVID-19 pandemic outbreak in Poland: A daily diary study. *Pers Individ Dif, 168*, 110348. https://doi.org/10.1016/j.paid.2020.110348

Nelis, D., Kotsou, I., Quoidbach, J., Hansenne, M., Weytens, F., Dupuis, P., & Mikolajczak, M. (2011). Increasing emotional competence improves psychological and physical well-being, social relationships, and employability. *Emotion, 11*(2), 354. https://doi.org/10.1037/a0021554

Nicolet-dit-Félix, M., Gillioz, C., Mortillaro, M., Sander, D., & Fiori, M. (2023). Emotional intelligence and attentional bias to emotional faces: Evidence of hypersensitivity towards emotion information. *Personality and Individual Differences, 201*, 111917. https://doi.org/10.1016/j.paid.2022.111917

Pekaar, K. A., Bakker, A. B., van der Linden, D., & Born, M. P. (2018). Self-and other-focused emotional intelligence: Development and validation of the Rotterdam Emotional Intelligence Scale (REIS). *Personality and Individual Differences, 120*, 222-233. https://doi.org/10.1016/j.paid.2017.08.045

Peña-Sarrionandia, A., Mikolajczak, M., & Gross, J. J. (2015). Integrating emotion regulation and emotional intelligence traditions: a meta-analysis. *Frontiers in Psychology, 6*, 160. https://doi.org/doi:10.3389/fpsyg.2015.00160

Petrides, K. V. (2009). Psychometric properties of the trait emotional intelligence questionnaire (TEIQue). In *Assessing emotional intelligence: Theory, research, and applications* (pp. 85-101). Springer. https://doi.org/10.1007/978-0-387-88370-0_5

Petrides, K. V., & Furnham, A. (2000). Gender differences in measured and self-estimated trait emotional intelligence. *Sex roles, 42*(5), 449-461.

Petrides, K. V., & Furnham, A. (2001). Trait emotional intelligence: psychometric investigation with reference to established trait taxonomies. *European Journal of Personality, 15*(6), 425-448. https://doi.org/10.1002/per.416

Petrides, K. V., & Furnham, A. (2003). Trait emotional intelligence: Behavioural validation in two studies of emotion recognition and reactivity to mood induction. *European journal of personality, 17*(1), 39-57. https://doi.org/10.1002/per.466

Petrides, K. V., Pérez-González, J. C., & Furnham, A. (2007). On the criterion and incremental validity of trait emotional intelligence. *Cognition & Emotion, 21*(1), 26-55. https://doi.org/10.1080/02699930601038912

Pirsoul, T., Parmentier, M., & Nils, F. (2022). Emotional Intelligence Profiles and Job Search Correlates in the Context of the School-to-Work Transition. *Journal of Career Development, 50*(5), 1038-1057. https://doi.org/10.1177/08948453221141445

Pluess, M., & Belsky, J. (2013, Jul). Vantage sensitivity: individual differences in response to positive experiences. *Psychol Bull, 139*(4), 901-916. https://doi.org/10.1037/a0030196

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003, Oct). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J Appl Psychol, 88*(5), 879-903. https://doi.org/10.1037/0021-9010.88.5.879

Preacher, K. J., & Hayes, A. F. (2008). Contemporary approaches to assessing mediation in communication research. In M. D. S. A. F. Hayes, & L. B. Snyder (Ed.), *The Sage sourcebook of advanced data analysis methods for communication research* (Sage Publications, Inc. ed., pp. 13–54). https://doi.org/10.4135/9781452272054.n2

Preece, Becerra, R., & Campitelli, G. (2019, Nov-Dec). Assessing Emotional Reactivity: Psychometric Properties of the Perth Emotional Reactivity Scale and the Development

of a Short Form. *J Pers Assess, 101*(6), 589-597. https://doi.org/10.1080/00223891.2018.1465430

Randall, A. K., & Bodenmann, G. (2017). Stress and its associations with relationship satisfaction. *Current opinion in psychology, 13*, 96-106. https://doi.org/10.1016/j.copsyc.2016.05.010

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of statistical software, 48*, 1-36. https://doi.org/10.18637/jss.v048.i02

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, cognition and personality, 9*(3), 185-211. https://doi.org/10.2190/DUGG-P24E-52WK-6CD

Sánchez-Álvarez, N., Extremera, N., & Fernández-Berrocal, P. (2016). The relation between emotional intelligence and subjective well-being: A meta-analytic investigation. *The Journal of Positive Psychology, 11*(3), 276-285. https://doi.org/10.1080/17439760.2015.1058968

Sarrionandia, A., Ramos-Díaz, E., & Fernández-Lasarte, O. (2018). Resilience as a mediator of emotional intelligence and perceived stress: A cross-country study. *Frontiers in Psychology, 9*, 2653. https://doi.org/10.3389/fpsyg.2018.02653

Schutte, N. S., Malouff, J. M., Simunek, M., McKenley, J., & Hollander, S. (2002). Characteristic emotional intelligence and emotional well-being. *Cognition & Emotion, 16*(6), 769-785. https://doi.org/10.1080/02699930143000482

Schutte, N. S., Malouff, J. M., Thorsteinsson, E. B., Bhullar, N., & Rooke, S. E. (2007). A meta-analytic investigation of the relationship between emotional intelligence and health. *Personality and individual differences, 42*(6), 921-933. https://doi.org/10.1016/j.paid.2006.09.003

Sevdalis, N., Petrides, K. V., & Harvey, N. (2007). Trait emotional intelligence and decision-related emotions. *Personality and Individual Differences, 42*(7), 1347-1358. https://doi.org/10.1016/j.paid.2006.10.012

Shryock, S., & Meeks, S. (2018). Internal consistency and factorial validity of the 42-item psychological well-being scales. *Innovation in Aging, 2*(Suppl 1), 690. https://doi.org/PMC6228361

Smith, L., Heaven, P. C. L., & Ciarrochi, J. (2008). Trait emotional intelligence, conflict communication patterns, and relationship satisfaction. *Personality and individual differences, 44*(6), 1314-1325. https://doi.org/10.1016/j.paid.2007.11.024

Sun, R., Teulings, I., & Sauter, D. (2023). Why Being Social and Active Boosts Psychological Wellbeing: A Mediating Role of Momentary Positive Emotions. *Social Psychological and Personality Science, 16*(3), 333-342. https://doi.org/10.1177/19485506231218362

Wagstaff, C. R., Hanton, S., & Fletcher, D. (2013). Developing emotion abilities and regulation strategies in a sport organization: An action research intervention. *Psychology of sport and exercise, 14*(4), 476-487. https://doi.org/10.1016/j.psychsport.2013.01.006

Zeidner, M., Matthews, G., & Roberts, R. D. (2012). The emotional intelligence, health, and well-being nexus: What have we learned and what have we missed? *Applied*

Psychology: Health and Well-Being, 4(1), 1-30. https://doi.org/10.1111/j.1758-0854.2011.01062.x

Zorn, J. V., Schür, R. R., Boks, M. P., Kahn, R. S., Joëls, M., & Vinkers, C. H. (2017). Cortisol stress reactivity across psychiatric disorders: A systematic review and meta-analysis. *Psychoneuroendocrinology, 77*, 25-36. https://doi.org/10.1016/j.psyneuen.2016.11.036

11.2.2. Supplemental Material

Other measures collected in the study but not reported in the paper

As this study is part of a greater project on emotional intelligence and subjective well-being, the online testing session contained several additional questionnaires that are not investigated in the present paper. Participants filled in the Situational Test of Emotion Understanding (Allen et al., 2014), the Geneva Emotion Recognition Test (Schlegel, & Scherer, 2016), the Positive and Negative Affect Schedule (Watson et al., 1988), a general question about mood, and the Cognitive Emotional Regulation Questionnaire (Jermann et al., 2006).

References

Allen, V. D., Weissman, A., Hellwig, S., MacCann, C., & Roberts, R. D. (2014). Development of the situational test of emotional understanding–brief (STEU-B) using item response theory. *Personality and Individual Differences, 65*, 3-7. https://doi.org/10.1016/j.paid.2014.01.051

Jermann, F., Van der Linden, M., d'Acremont, M., & Zermatten, A. (2006). Cognitive emotion regulation questionnaire (CERQ). *European Journal of Psychological Assessment, 22*(2), 126-131. https://doi.org/10.1027/1015-5759.22.2.126

Schlegel, K., & Scherer, K. R. (2016, Dec). Introducing a short version of the Geneva Emotion Recognition Test (GERT-S): Psychometric properties and construct validation. *Behavior Research Methods, 48*(4), 1383-1392. https://doi.org/10.3758/s13428-015-0646-4

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of personality and social psychology, 54*(6), 1063-1070. https://doi.org/10.1037/0022-3514.54.6.1063

Table A.1: Summary of bootstrapped mediation analyses of the effect of each trait EI dimension on life satisfaction through emotional reactivity (N=194; 5000 bootstraps)

Models	**Model Paths**	**SPC**	**SE**	***p***	**95% CI**	
					Lower	**Upper**
Model 1a	SFEA→POS→LS	0.09	0.04	0.028	0.03	0.20
	SFEA→ NEG→LS	0.09	0.04	0.024	0.02	0.17
Model 1b	OFEA→POS→LS	0.10	0.05	0.070	0.02	0.23
	OFEA→ NEG→LS	0.05	0.04	0.198	-0.02	0.15
Model 1c	SFER→POS→LS	-0.03	0.03	0.442	-0.10	0.03
	SFER→ NEG→LS	0.14	0.05	0.003	0.06	0.24
Model 1d	OFER→POS→LS	0.09	0.04	0.054	0.02	0.20
	OFER→ NEG→LS	0.04	0.04	0.335	-0.03	0.12

Note: Paths were estimated while controlling for sex. SFEA: Self-focused emotion appraisal, SFER: Self-focused emotion regulation, OFEA: Other-focused emotion appraisal, OFER: Other-focused emotion regulation, POS: Positive emotional reactivity, NEG: Negative emotional reactivity, LS: Life satisfaction. SPC: Standardized path coefficient, SE: Standard error, CI: Confidence Interval.

Table A.2: Summary of bootstrapped mediation analyses of the effect of each trait EI dimension on positive relations through emotional reactivity (N=194; 5000 bootstraps)

Models	**Model Paths**	**SPC**	**SE**	***p***	**95% CI**	
					Lower	**Upper**
Model 1a	SFEA→POS→PR	0.10	0.03	0.004	0.04	0.18
	SFEA→ NEG→PR	0.04	0.02	0.065	0.01	0.09
Model 1b	OFEA→POS→PR	0.11	0.04	0.012	0.03	0.20
	OFEA→ NEG→PR	0.03	0.02	0.225	-0.01	0.08
Model 1c	SFER→POS→PR	-0.03	0.04	0.444	-0.11	0.04
	SFER→ NEG→PR	0.07	0.03	0.009	0.03	0.14
Model 1d	OFER→POS→PR	0.09	0.04	0.016	0.03	0.18
	OFER→ NEG→PR	0.02	0.02	0.346	-0.01	0.06

Note: Paths were estimated while controlling for sex. SFEA: Self-focused emotion appraisal, SFER: Self-focused emotion regulation, OFEA: Other-focused emotion appraisal, OFER: Other-focused emotion regulation, POS: Positive emotional reactivity, NEG: Negative emotional reactivity, PR: Positive relations. SPC: Standardized path coefficient, SE: Standard error, CI: Confidence Interval.

11.3. Study 3

11.3.1. Manuscript

Reference: Ability Emotional Intelligence and the Temporal Dynamics of Emotional Experience: Evidence for Dampened Reactivity at Reflective Stages of Processing. Nicolet-dit-Félix, M., Gillioz, C., & Fiori, M. [Manuscript submitted for publication].

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Abstract

Emotional intelligence (EI) has been proposed to involve acute sensitivity to affective cues, particularly at early stages of emotional processing. Because emotional experiences unfold dynamically over time, examining how emotional responses evolve once they enter conscious awareness may provide further insight into EI-related sensitivity. In the present study, we examined how three facets of EI, namely emotion recognition, understanding, and management, shape the temporal dynamics of subjective affective experience. A sample of 151 participants completed a modified Dynamic Affective Rating Task (DART), continuously rating their feelings while viewing pleasant and unpleasant images. We extracted three indices: onset time (how quickly an affective change began), peak amplitude (the maximal shift in perceived pleasantness or unpleasantness), and velocity (the rate at which the emotional response built). Unpleasant images elicited larger and faster responses than pleasant ones, consistent with a classic negativity bias. Contrary to the acute sensitivity hypothesis, higher scores in emotion recognition and understanding predicted lower peak amplitudes and slower emotional responses. Emotion management was associated with shorter onset times across valences but not with response intensity or velocity. We propose that the emotion recognition and understanding facets of EI dampen rather than amplify conscious emotional reactivity once emotions reach awareness, reflecting a more controlled, top-down modulation. By adopting a dynamic perspective, we refine the hypersensitivity hypothesis by showing that EI-related sensitivity at more conscious stages of processing may manifest differently across temporal stages of emotional processing, highlighting the value of integrating temporal measures in EI research.

Keywords: emotional intelligence, emotion information processing, emotional reactivity, dynamic affective rating task, hypersensitivity

1. Introduction

Emotional intelligence (EI) is commonly defined as the ability to perceive, understand, and manage emotions (Mayer & Salovey, 1997). Beyond these core abilities, growing evidence suggests that EI is associated with an acute sensitivity to emotional cues, especially during the early stages of emotional responses (Fiori et al., 2024; Gillioz et al., 2023; Nicolet-dit-Félix et al., 2023). Emotional experiences, however, are not static states but unfold dynamically over time (Davidson, 1998; Kuppens, 2015; Scherer, 2009; Waugh & Kuppens, 2021), raising the question of how EI-related sensitivity manifests across the temporal progression of pleasant and unpleasant experiences. In this study, we aimed to investigate how specific components of EI relate to the unfolding of emotional experiences as they occur, focusing on key features such as how rapidly emotional reactions emerge, how extreme they become in valence, and how strongly they develop. By capturing moment-to-moment subjective reactions to emotionally evocative images, we aimed to illuminate the mechanisms through which EI shapes the dynamic flow of emotional life.

1.1. Emotional intelligence

Various theoretical models of emotional intelligence (EI) are present in the scientific literature. A widely adopted distinction differentiates ability EI from trait EI based on the method of assessment, with ability EI assessed using maximum-performance tests and trait EI assessed using self-report measures of typical emotion-related behavior (O'Connor et al., 2019; Petrides & Furnham, 2000). Within this broader classification, ability EI also corresponds to what has been termed Stream 1 (Ashkanasy & Daus, 2005). Originating from the model introduced by Salovey and Mayer, this approach conceptualizes EI as a form of cognitive ability encompassing distinct emotional competencies, including the perception, understanding, and management of emotions (Mayer & Salovey, 1997; Salovey & Mayer, 1990).

While this model has provided a robust framework for studying EI as a cognitive ability, it also prompts important questions regarding the mechanisms through which EI operates during ongoing emotional responding. In the present work, we focus on this ability-based model while incorporating recent theoretical developments that aim to clarify how EI-related differences emerge across emotional processing.

Building on the ability-based model, recent advances have refined the conceptualization of EI by distinguishing between two interrelated yet distinct components: emotion knowledge (EI_K) and emotion information processing (EI_P) (Fiori et al., 2022; Fiori & Vesely-Maillefer, 2018). EI_K refers to deliberate, knowledge-based reasoning about emotions and corresponds to the crystallized component of ability EI, which relies primarily on conscious, reflective processing and may be well captured by traditional ability-EI tests.

In contrast, EI_P reflects a more fluid component of EI and encompasses mechanisms involved in the detection, encoding, and early processing of emotional information. These mechanisms rely on fast, bottom-up processing of affective cues and are assumed to influence how strongly emotional information is weighted and propagated through subsequent stages of processing.

Fiori and colleagues (2022; 2018), argue that EI-related differences may arise not only from what individuals know about emotions, but also from how emotional information is initially processed, thereby shaping downstream emotional experience and regulation. Within this framework, Fiori et al. (2023) proposed that acute sensitivity to emotional information may constitute an important functional characteristic of ability EI, while its downstream expression may depend on the specific EI facet involved and the stage of emotional processing considered.

1.2. EI-related emotional sensitivity across processing stages

Individual variation in EI_P can be conceived as a continuum of sensitivity to emotional information in the extent to which emotional information is prioritized and influences emotional responding. Within this framework, the hypersensitivity hypothesis proposes that high EI is

associated with acute sensitivity to emotional information, such that emotional information exerts a stronger impact on emotional responses (Fiori & Ortony, 2021; Fiori et al., 2023). Relative to their lower-EI peers, highly emotionally intelligent individuals should detect affective signals at lower thresholds, allocate greater attention to emotional stimuli, discriminate subtle and complex emotional expressions more accurately and rapidly, and experience more pronounced shifts along the valence dimension during emotional responding. Importantly, these predictions primarily concern how emotional information is processed during early stages of emotional responding, raising the question of how EI-related sensitivity is expressed across later stages of emotional experience.

Sensitivity to emotional information may be examined at different stages of emotional processing, depending on when emotional responding is assessed. Within dual-process frameworks (e.g., Kahneman, 2011), emotional responding is often described as unfolding from early stages characterized by rapid detection, attentional orienting, and perceptual sensitivity to affective cues, toward later stages involving conscious evaluation and subjective emotional experience (Fiori, 2026). Crucially, EI-related sensitivity can be expressed differently across stages of emotional processing. Differences in the processing of emotional information at early stages may shape subsequent emotional responding, and further modulation can occur at later stages through more reflective evaluative or regulatory processes.

Consistent with this stage-based perspective, a growing body of experimental evidence has documented EI-related sensitivity at early stages of emotional information processing, particularly in contexts involving rapid and largely spontaneous responses to emotional stimuli. At the attentional level, in an emotional dot-probe task, individuals high in EI, especially those scoring higher on the emotion-understanding facet of emotion knowledge, showed stronger attentional biases toward emotional information (Nicolet-dit-Félix et al., 2023). At the perception level, performance in a rapid emotion-recognition task using morphed facial

expressions indicated that higher scores across the three facets of EI_K were associated with greater accuracy in discriminating very subtle emotional cues (Gillioz et al., 2023).

Emerging findings indicate that EI facets may be associated with different processing outcomes. In a recent study, higher *emotion understanding* tended to be associated with greater emotional reactivity to positive stimuli, as reflected by increased activation of congruent facial muscles while participants viewed videos of narrators sharing positive emotional experiences. By contrast, higher scores on *emotion management* were associated with reduced reactivity in congruent facial muscles for negative stimuli, pointing to early regulatory influences associated with emotion management rather than uniformly acute sensitivity across EI_K facets (Gillioz et al., 2025).

When emotional sensitivity is examined at more reflective stages of processing, existing findings appear heterogeneous. For example, Fiori et al. (2024) showed that, when asked to rate *the intensity of expressed emotions on faces*—a type of information processing that requires more thoughtful thinking—individuals scoring high on the three facets of EI_K provided more extreme reports for happy and angry emotions compared to neutral ones. In addition, when the participants reported the extent to which these expressions elicited an *affective response in themselves*, the pattern of results varied as a function of both stimulus valence and EI facet. Specifically, individuals high in emotion recognition and emotion understanding showed acute sensitivity to angry expressions, whereas individuals higher in emotion management showed heightened sensitivity to happy expressions. By contrast, whereas in Gillioz et al. (2025) EI-related effects emerged at early stages of emotion processing as indexed by facial muscle reactivity, no corresponding effects were observed when subjective emotional experience was assessed. These contrasting results suggest several possible explanations. First, they may reflect differences in the type of processing involved—thoughtful versus spontaneous. Second, they may depend on who initiates the thoughtful thinking, that is, whether it originates from another

person or from oneself. Finally, the observed contrast effects may also vary depending on how subjective emotional experience was assessed. In both Fiori et al. (2024) and Gillioz et al. (2025), emotional reactivity was measured using single intensity ratings or global evaluations spanning entire emotional episodes. Such approaches implicitly treat consciously experienced emotion as static, thereby potentially obscuring EI-related differences that unfold over time. As a consequence, EI-related differences that primarily affect the timing or rate of emotional responding are unlikely to be detected when emotional experience is summarized using single, global ratings.

Crucially, process-oriented accounts of emotion emphasize that emotional experience unfolds dynamically over time rather than constituting a static state (Davidson, 1998; Kuppens, 2015; Scherer, 2009; Waugh & Kuppens, 2021). From this perspective, emotional responses can be conceptualized as trajectories characterized by when emotional reactions begin, how rapidly they intensify, and how extreme they become. These temporal characteristics correspond to core parameters of emotional responding identified in affective chronometry and related approaches, which highlight the importance of examining not only the magnitude of emotional responses, but also their timing and rate of change (e.g., Davidson, 1998).

Hence, a fine-grained, temporally resolved assessment of subjective emotional experience might clarify how EI-related sensitivity is expressed at reflective stages of emotional processing. Examining temporal features such as how rapidly emotional reactions emerge, how extreme they become along the pleasantness–unpleasantness dimension, and how quickly they develop could help clarify EI-related differences that remain undetectable when emotional experience is summarized using static or global measures. Specifically, if EI-related sensitivity reflects differences in how emotional information is prioritized and propagated over time, such differences should be expressed in the timing, magnitude, or growth rate of emotional experience, possibly depending on the EI facet involved.

1.3. The current study

Building on a process-oriented view of emotional sensitivity that emphasizes temporal dynamics in consciously experienced emotion, in the present study, we examined how EI-related sensitivity is expressed across the unfolding of emotional experience. To this end, we employed a modified version of the Dynamic Affective Rating Task (DART; Robinson et al., 2021), in which participants continuously rate their feelings while viewing emotionally evocative images.

By capturing subjective emotional experience as it unfolds in real time, this task enables the assessment of EI-related differences at reflective stages of emotional processing while minimizing retrospective reconstruction. Accordingly, we focused on how EI-related sensitivity manifests in the temporal dynamics of conscious emotional experience, rather than on automatic emotion processing per se.

Using this approach, we derived temporally resolved indices that map directly onto theoretically central components of emotional sensitivity at the level of conscious experience. Specifically, we extracted three indices: *onset time*, indexing how rapidly a shift in feeling begins, *peak amplitude*, indexing the maximal shift in perceived pleasantness or unpleasantness, and *velocity*, indexing the rate at which the emotional experience builds. Together, these indices represent complementary aspects of emotional sensitivity, allowing us to test whether EI-related differences are expressed in the speed, magnitude, and growth rate of consciously experienced emotion, parameters that have been proposed as central to individual differences in emotional sensitivity (e.g., Davidson, 1998; Kuppens, 2015).

Of note, we manipulated the valence of the emotional stimuli and explicitly included it as a factor in the present study. Negative stimuli elicit earlier, stronger, and faster emotional responses, as well as more prototypical response trajectories in the DART paradigm (Robinson et al., 2021), reflecting the well-established negativity bias in emotional responding

(Baumeister et al., 2001; Ito et al., 1998; Rozin & Royzman, 2001). Previous results have also revealed that the relationship between EI_K and emotional reactivity depends on stimulus valence (Fiori et al., 2024; Gillioz et al., 2025).

Although the hypersensitivity hypothesis (Fiori & Ortony, 2021; Fiori et al., 2023) applies to both positive and negative stimuli, the well-documented negativity bias implies that EI-related sensitivity may be expressed differently across valence conditions. As unpleasant stimuli are highly salient and elicit rapid and intense emotional responses by default, the negativity bias is likely to constrain the range within which sensitivity-related amplification can be observed for negative stimuli. In this context, EI-related differences for unpleasant stimuli may be expressed not only through acute sensitivity but also, and particularly for facets related to emotion management, through regulatory modulation of emotional responding. By contrast, for pleasant stimuli, where emotional salience is typically lower, EI-related sensitivity associated with emotion recognition and emotion understanding may be more readily expressed as variations in the timing, magnitude, or growth rate of emotional experience, alongside valence-specific regulatory influences associated with emotion management.

1.4. Study hypotheses

We derived the hypotheses of this study from the assumption that EI-related sensitivity may be expressed in the temporal dynamics of consciously experienced emotion.

First, we conceptualized the emotion recognition and emotion understanding facets of EI_K as reflecting sensitivity to emotional information. Accordingly, we expected higher scores on these facets to be associated with heightened emotional sensitivity at the level of subjective experience, reflected in faster onset times, higher peak amplitudes, and increased velocities in affective ratings, in response to both pleasant and unpleasant images (H1).

In contrast, we conceptualized the emotion management facet of EI_K as a regulatory resource that may be engaged once emotional experience becomes consciously accessible. We

expected that emotion management would support valence-specific modulation of emotional responding, dampening reactivity to unpleasant stimuli while preserving or facilitating engagement with pleasant experiences. Accordingly, for unpleasant images, we expected emotion management to be associated with regulatory down-modulation, reflected in slower onset times, lower peak amplitudes, and reduced velocities (H2). For pleasant images, we expected emotion management to maintain or enhance sensitivity, reflected in faster onset times, higher peak amplitudes, and increased velocities (H3).

2. Method

2.1 Participants and procedure

Sample size considerations were based on prior empirical work. Previous studies using comparable EI_K measures indicate that a minimum of approximately one hundred twenty participants is required to ensure sufficient variability and approximately normal distributions across EI_K facets, and to allow for the detection of small interaction effects ($b \approx .10$) (e.g., Gillioz et al., 2025; Nicolet-dit-Félix et al., 2023). As the study was embedded in a larger project, we were able to extend data collection to hundred fifty-one participants.

A total of one hundred fifty-one participants took part in the study (83.4 % women, 15,9 % men, 0.7 % non-binary), ranging in age from 18 to 35 (M = 22.13, SD = 3.24). Most participants (n = 131) were recruited via the SONA management platform, while additional ones (n = 20) were enrolled through advertisements posted at the University of Geneva. The study consisted of two parts. First, participants completed an online session during which they provided demographic information and responded to a series of questionnaires. Within a week, they attended an in-person lab session where they performed the DART. The research protocol received approval from the Swiss Federal University for Vocational Education and Training's Ethics Committee, and all participants provided written informed consent. Participation took approximately one hour in total, and each participant received a compensation of 20 CHF (approximately 22 USD). We collected the data between 2024 and 2025.

2.2. Questionnaires

We collected the following measures in the online session, in addition to other measures not relevant to the present paper (listed in the Supplemental Material).

2.2.1. Geneva Emotion Recognition Test–Short Version

The Geneva Emotion Recognition Test–Short Version (GERT-S; Schlegel & Scherer, 2016) is a 42-item performance-based test that evaluates the ability to recognize emotions expressed through multimodal cues. Participants view short video clips (1–3 seconds) of professional actors portraying 14 distinct emotions using facial expressions, vocal tone, and body language. After each clip, participants select the emotion they believe was expressed. Responses are scored as correct or incorrect. In the present sample, internal consistency (Cronbach's alpha) was 0.73.

2.2.2. Situational Test of Emotional Understanding–Brief

The Situational Test of Emotional Understanding–Brief (STEU-B; Allen et al., 2014) is a 19-item performance-based measure designed to assess individuals' understanding of emotions felt by protagonists described in a short scenario. The task consists in identifying the emotion that most appropriately reflects the situation described. Examples of items include: "Xavier completes a difficult task on time and under budget. Xavier is most likely to feel?", the correct answer is "Pride". Responses are scored dichotomously (1 = *correct*, 0 = *incorrect*). The full version of the test has demonstrated acceptable test-retest reliability (r = .72; Libbrecht & Lievens, 2012).

2.2.3. Situational Test of Emotional Management–Brief

The Situational Test of Emotional Management–Brief (STEM-B; Allen et al., 2015) is an 18-item performance-based measure assessing knowledge of effective emotional regulation strategies in interpersonal contexts. Each item presents a short scenario, followed by four possible courses of action. Responses are evaluated based on expert-derived weights reflecting the appropriateness of each strategy. For instance, in a scenario where "Wai-Hin and Connie have shared an office for years but Wai-Hin gets a new job and Connie loses contact with her. What action would be the most effective for Connie?", the most appropriate response is

"Contact Wai-Hin and arrange to catch up but also make friends with her replacement." The full version of the test has shown strong test-retest reliability (r = .85; Libbrecht & Lievens, 2012).

2.3. Dynamic Affective Rating Task

This task was used to assess dynamic responses to emotional stimuli, building on the initial implementation of the DART (Robinson et al., 2021).

2.3.1 Materials and Stimuli

The stimuli used in our version of the DART consisted of images selected from four validated databases: EmoMadrid (Carretié et al., 2019), the Geneva Affective Picture Database (GAPED; Dan-Glauser & Scherer, 2011), the Nencki Affective Picture System (NAPS; Marchewka et al., 2014), and the Open Affective Standardized Images Set (OASIS; Kurdi et al., 2017). A complete list of the images presented in the DART is provided in the 11.3.2. Supplemental Material in Table A.1. We selected 60 images, comprising 30 neutral and 30 emotional images—15 pleasant and 15 unpleasant[24]. The pleasant category included the most positive thematically diverse images, depicting scenes such as cute animals, babies, sports, festive activities, and erotic content[25]. In contrast, the unpleasant category featured emotionally intense and varied images, such as injured animals, deceased individuals, attacks, medical procedures, and skin diseases, while deliberately excluding the most extreme or disturbing content for ethical reasons. The first two authors jointly selected the images, ensuring the relevance and balance of the stimuli used in the study.

[24] Due to an oversight, one image was inadvertently presented twice during the experiment. This duplication was identified post hoc, and the second occurrence was removed from all analyses. Images are listed in supplementary material.

[25] Selecting pleasant and unpleasant images equally distant from neutrality on the valence scale proved challenging, as positive images rarely reach the same degree of emotional polarization as negative ones. Nevertheless, we aimed to minimize this asymmetry as much as possible.

After image selection, we verified valence to ensure comparability of pleasant and unpleasant stimuli in terms of distance from neutrality. To enable a uniform selection procedure across the full stimulus set, we rescaled valence ratings from each database to a common 0–1 metric (*0 = very unpleasant*, *0.5 = neutral*, *1 = very pleasant*), and we computed absolute distances from neutrality for each image. A Welch's t-test confirmed that pleasant (M = 0.33, SD = 0.04) and unpleasant images (M = 0.35, SD = 0.09), did not significantly differ in their absolute distance from neutrality, t = -0.87, p = .39.

2.3.2. Procedure

Each trial consisted of the presentation of an emotional image (pleasant or unpleasant) for 5 seconds, followed by a neutral image for 10 seconds (Figure 9). The participants completed 30 trials, all presented in the same fixed order to minimize random error variance. Before the main task, the participants had four practice trials to familiarize themselves with the procedure and the rating system.

Within the DART framework, emotional experience is represented on a continuous scale ranging from -500 (very unpleasant) to +500 (very pleasant), with 0 indicating a neutral state. The participants reported their emotional experience continuously using this bipolar scale, controlled via a computer mouse. The instructions emphasized that ratings should reflect the participant's own subjective emotional reactions to each image, rather than any perceived expectations from the experimenters. Participants were encouraged to remain attentive and to move the mouse whenever they noticed a change in how pleasant or unpleasant they felt. The orientation of the scale was counterbalanced across participants: for half of the participants,

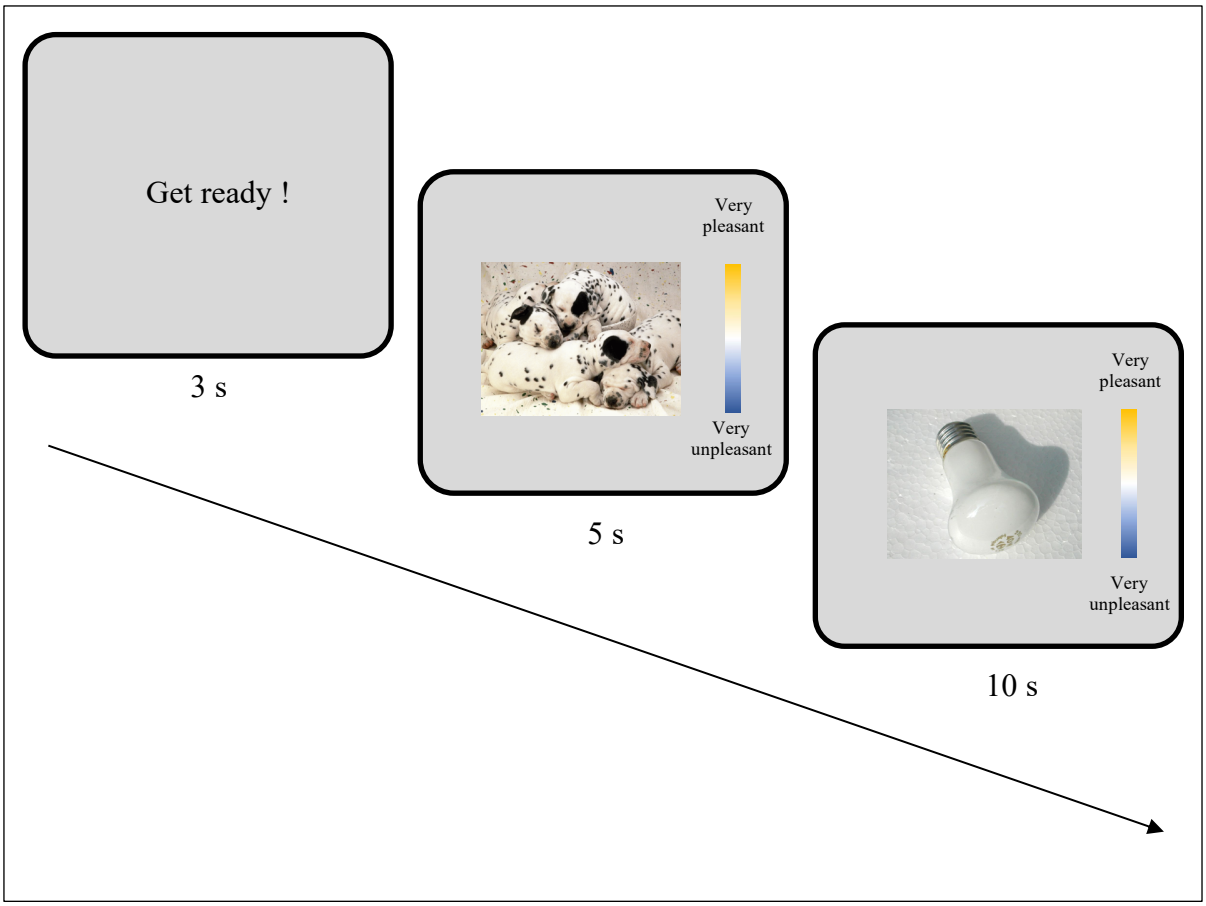

Figure 9: Schematic illustration of the DART. Images adapted from the GAPED (Dan-Glauser & Scherer, 2011).

"very pleasant" appeared at the top and "very unpleasant" at the bottom, while for the other half, this orientation was reversed.

2.3.3. Indices calculation

Continuous affective ratings were recorded at a high temporal resolution and preprocessed to ensure comparability across trials and participants. We temporally standardized and smoothed the raw time series to reduce high-frequency motor noise, following procedures commonly used in previous DART studies (e.g., Irvin et al., 2022). One methodological adaptation concerned the definition of peak amplitude. Whereas prior work operationalized the peak as the first inflection point following response onset, in the present study we defined peak amplitude as the maximum pleasantness or unpleasantness reached during the response trajectory. This choice was motivated by the observation that the first inflection point may

reflect an initial stabilization or early inflection that is subsequently followed by a second, higher increase in emotional intensity. Defining the peak as the maximum value thus allowed a more comprehensive characterization of emotional reactivity across the full response trajectory. Full preprocessing details and the rationale for this adaptation are provided in the 11.3.2. Supplemental Material. An example of a full response trajectory is illustrated in the 11.3.2. Supplemental Material in Figure A.1.

Based on the resulting time series, we computed three indices to characterize the temporal dynamics of emotional responding: onset time (when an emotional response began), peak amplitude (the maximal deviation from neutrality) and velocity (the rate of emotional change). We assessed the reliability of indices using ICC estimates derived from null mixed models including random effects for participants and images. The proportion of variance attributable to participants ranged from .22 to .39, indicating moderate consistency across trials. ICC estimates for images were higher for peak amplitude (.21 and .28) than for onset time and velocity (.05 to .13), suggesting that peak amplitude was more influenced by stimulus properties than onset time and velocity.

2.4. Data preprocessing

Prior to analysis, we screened the data to ensure interpretability and compatibility with the analytic framework. Because gender was included as a binary covariate in the statistical models, we could not include in the analyses two participants who identified their gender as "other", and we excluded them prior to preprocessing. This exclusion was purely methodological and was not based on participant characteristics or response behavior.

In addition, we excluded two participants due to atypical and inconsistent response patterns in the DART. Specifically, both individuals provided predominantly unpleasant ratings to stimuli normatively categorized as pleasant, violating a key assumption required for reliable detection of affective onsets and trajectories within the task (e.g., Irvin et al., 2022). Such

response patterns precluded meaningful modeling of temporal emotional dynamics and justified exclusion to preserve the interpretability and validity of the estimated parameters.

At the trial level, we examined onset times to identify potential artifacts. Trials with unusually late onset times, defined as deviations exceeding three standard deviations from both the overall sample distribution and the participant-specific distribution, were visually inspected. Trials in which the emotional response evolved in a direction opposite to the stimulus valence for more than one second were considered invalid and were recoded as missing. These cases were extremely rare, representing approximately 0.06% of all trials[26].

2.5. Transparency and openness

We conducted this research in accordance with the Transparency and Openness Promotion guidelines. The dataset, analysis scripts, and experimental materials are openly available on the Open Science Framework (OSF) at https://osf.io/bmgdf/overview?view_only=8772d877a94d46129b188ec19c71aaa0. We did not preregister the study. We report all data exclusions, measures, and analysis decisions in the manuscript and Supplementary Materials. We conducted all analyses in R (version 4.4.1; R Core Team; 2025) and fitted mixed-effects models using the *lme4* package (Bates D et al., 2015). We estimated degrees of freedom for fixed effects using the Satterthwaite approximation implemented in the *lmerTest* package (Kuznetsova et al., 2017). We computed effect sizes using the *partR2* package (Stoffel et al., 2021). The research adhered to the APA Journal Article Reporting Standards.

[26] To assess the impact of these preprocessing steps, all statistical analyses were conducted both with and without the excluded participants and trials. The pattern of results was virtually identical across datasets, indicating that the findings were robust to preprocessing decisions.

3. Results

3.1. Descriptive statistics and correlations between variables

Means, standard deviations and Pearson correlations for all study variables are presented in Table 20. At the descriptive level, emotion recognition was associated with earlier onset times and lower peak amplitudes in the pleasant condition, whereas emotion understanding showed consistent negative associations with peak amplitude and velocity across both pleasant and unpleasant conditions. By contrast, emotion management was not reliably correlated with any DART index in either valence condition.

Table 20: Descriptive statistics and correlations among EI facets and DART indices

	M	SD	1	2	3	4	5	6	7	8
1. GERT	0.66	0.13								
2. STEU	0.65	0.11	0.30***							
3. STEM	0.52	0.11	0.27***	0.21**						
Pleasant condition										
4. Onset time	1.71	0.45	0.27***	0.03	-0.12					
5. Peak amplitude[a]	297	94	-0.19*	-0.29***	-0.08	-0.45***				
6. Velocity	259	154	-0.02	-0.29***	-0.17*	0.02	0.51***			
Unpleasant condition										
7. Onset time	1.62	0.41	0.13	-0.08	-0.16	0.74***	-0.27**	0.20*		
8. Peak amplitude[a]	413	70	-0.07	-0.22**	-0.03	-0.36***	0.64***	0.35***	-0.32***	
9. Velocity	404	215	-0.03	-0.21**	-0.04	-0.10	0.41***	0.58***	-0.02	0.57***

Note: GERT: Geneva Emotion Recognition Test, STEU: Situational Test of Emotion Understanding, STEM: Situational Test of Emotion Management. [a] To facilitate interpretation, peak amplitude values are converted to their absolute values to ensure consistency across descriptive and regression analyses. *p < .05, **p < .01, ***p < .001.

3.2. Analytic strategy for mixed-effects models

Our goal was to examine whether individual differences in EI facets, in combination with the valence of the image, predicted each DART index: onset time, peak amplitude, and velocity. The analytic strategy proceeded in three sequential steps: (1) residuals diagnostics and transformation, (2) mixed-effects modeling including EI facets and valence, and (3) evaluation and control of potential confounds.

To ensure that linear modeling assumptions were met, we assessed residual distributions for each DART index using the Box–Cox procedure (Box & Cox, 1964). Strong right skew was observed in the residuals for onset time and velocity ($\lambda \approx 0$), which warranted natural-log transformation of these variables prior to analysis. Residuals for peak amplitude approximated normality and were therefore left untransformed.

We used linear mixed-effects models (LME) to account for the nested structure of the data (i.e., repeated measures across participants and valence) and to model both between- and within-subject variability. We fitted separate models for each DART index and each EI_K facet. All models contained fixed effects or our variables of interest, namely EI_K facets and valence, as well as their interaction, gender, and a random intercept and slope for valence by participant, as well as a random intercept for each image.

We included valence as a predictor in the analyses, based on prior evidence showing that emotional responses systematically differ between pleasant and unpleasant stimuli (e.g., Robinson et al., 2024) and that the relationship between EI_K and emotional sensitivity depends on emotional valence (Fiori et al., 2024; Gillioz et al., 2025). Beyond its general relevance for emotional reactivity, valence was particularly essential in the context of emotion regulation, as we hypothesized that the emotion management facet of EI would moderate responses to pleasant versus unpleasant stimuli. Accordingly, valence was contrast-coded in all models (pleasant = +0.5, unpleasant = –0.5). We also included gender as a covariate, because previous results have shown that women have more intense emotional responses, reflected in larger peak amplitudes (Robinson et al., 2024).

Simple slope analyses were conducted by probing significant EI × valence interactions directly within the fitted mixed-effects models. Slopes of the standardized EI predictor were estimated separately for pleasant and unpleasant stimuli using post-estimation probing, while

retaining the same fixed effects, covariate (gender), and random-effects structure as in the primary models.

Continuous predictors were standardized (z-scored) prior to analysis. Outcome variables were retained in their original metric. Accordingly, regression coefficients represent unstandardized effects (b), reflecting the change in the outcome associated with a one standard deviation increase in the predictor.

3.3. Results of the mixed-effects models

3.3.1. Onset time

No significant effect of valence was observed on onset time. In the model including emotion recognition (ER), no main effect of ER emerged, but the interaction between ER and valence was significant. Simple slope analyses indicated that higher ER scores predicted longer onset times for pleasant images ($b = 0.07$, 95%CI [0.03 – 0.11], $t = 3.29$, $p < .001$) (Figure 10a). The model including emotion understanding (EU) showed no significant effect of this predictor or its interaction with valence (Figure 10b). In contrast, in the model including emotion management (EM), higher EM scores predicted shorter onset times ($b = -0.04$, 95%CI [-0.08 – -0.00], $t = -1.99$, $p = .049$) (Figure 10c). There was no significant interaction between valence

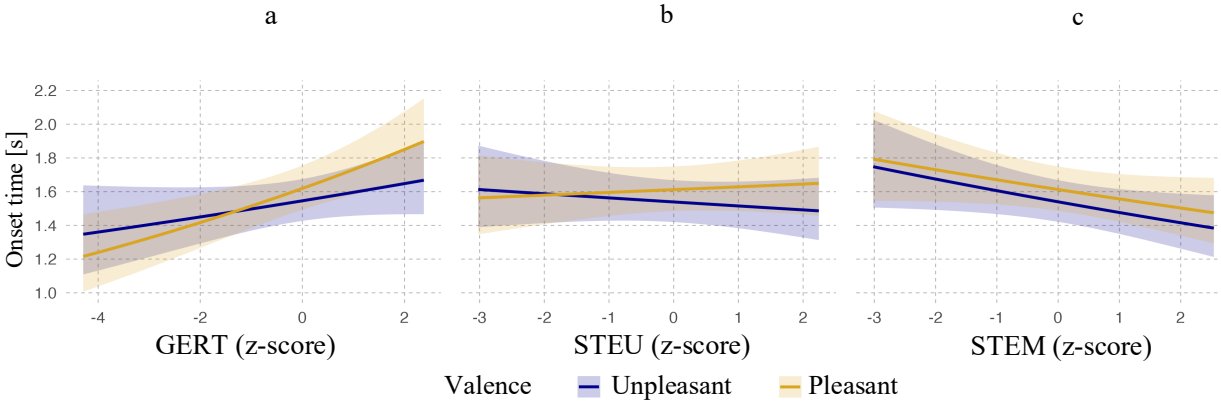

Figure 10: Onset time as a function of EI_K facets. Predicted onset times are displayed on the original scale [s]. Simple slope values are reported on the log-transformed scale. GERT: Geneva Emotion Recognition Test, STEU: Situational Test of Emotion Understanding, STEM: Situational Test of Emotion Management.

and EM. Full model specifications with fixed effects and random-effects structures are provided in the 11.3.2. Supplemental Material in Table A.2.

3.3.2. Peak amplitude

In all models, responses to pleasant images were associated with reduced peak amplitude relative to unpleasant ones.

In the model including ER, no main effect of ER was observed, but the interaction between ER and valence was significant. Simple slope analyses indicated that higher ER scores predicted lower peak amplitudes for pleasant images (b = 17.88, 95%CI [-32.85 – -2.90], t = -2.34, p = .021) but not for unpleasant ones (Figure 11a). By contrast, the model featuring EU indicated that higher EU scores predicted lower peak amplitudes (b = -15.67, 95%CI [-26.46 – -4.88], t = -2.85, p = .005) for both pleasant and unpleasant stimuli (Figure 11b). The model including EM did not show significant effects of EM or its interaction with valence (Figure 11c). Gender was a significant predictor across models, with men showing lower peak amplitudes than women. A full account of model specifications and results with fixed effects and random-effects structures reported is provided in the 11.3.2. Supplemental Material in Table A.3.

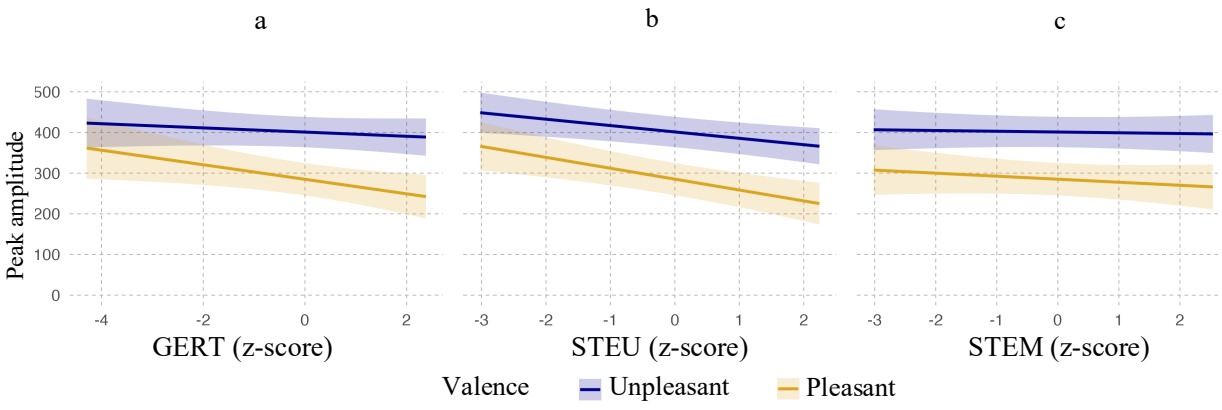

Figure 11: Peak amplitude as a function of EI_K facets. GERT: Geneva Emotion Recognition Test, STEU: Situational Test of Emotion Understanding, STEM: Situational Test of Emotion Management.

3.3.3 Velocity

In all models, pleasant images were associated with lower response velocity compared to unpleasant ones.

The model including ER did not show a significant effect of ER on velocity (Figure 12a). In contrast, in the model incorporating EU, higher EU scores significantly predicted lower velocity (b = -0.14, 95%CI [-0.22 – -0.05], t = -3.01, p = .003) (Figure 12b). The model including EM revealed no significant main effect of EM or interactional effect between valence and EM (Figure 12c). Detailed model outputs with fixed effects and random-effects structures reported are provided in the 11.3.2. Supplemental Material in Table A.4.

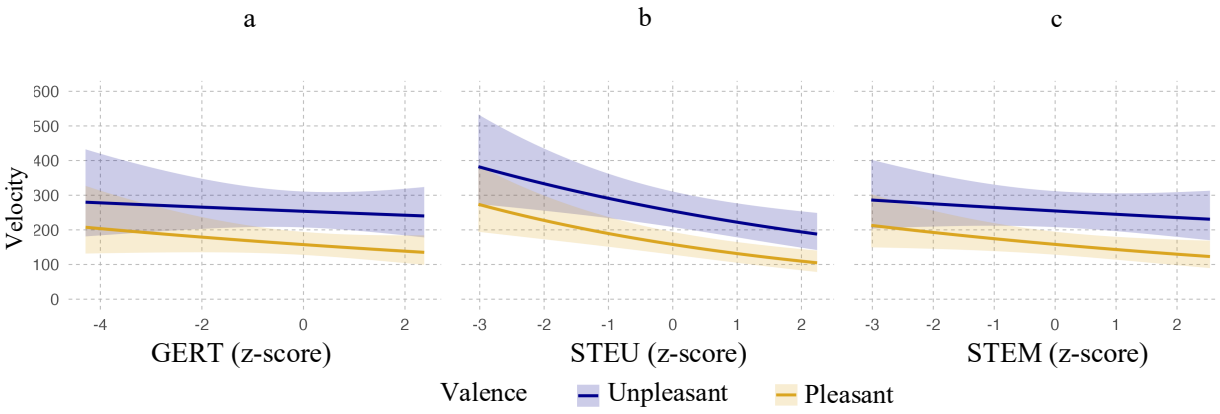

Figure 12: Velocity as a function of EI_K facets. Predicted velocity is displayed on the original scale. Simple slope values (b) are reported on the log-transformed scale. GERT: Geneva Emotion Recognition Test, STEU: Situational Test of Emotion Understanding, STEM: Situational Test of Emotion Management.

4. Discussion

The aim of this study was to determine whether the three facets of EI_K, namely emotion recognition, understanding and management, shape the moment-to-moment course of affective experience. Using the DART, we captured temporal dynamics along three indices: onset time, peak amplitude and velocity.

In line with this objective, we derived the first hypothesis (H1) in line with the hypersensitivity hypothesis (e.g., Fiori & Ortony, 2021), which predicts that individuals higher in EI_K—particularly in emotion recognition and emotion understanding—would exhibit acute emotional sensitivity, reflected in faster onset times and higher peak amplitude and increased velocities of emotional responses. H1 was not supported by the present findings. Rather than showing accelerated or amplified emotional responding, higher emotion recognition was associated with delayed onset times and reduced peak amplitudes for pleasant images, with no reliable association with response velocity. Emotion understanding was associated with reduced peak amplitudes and slower response velocities across both pleasant and unpleasant stimuli. Together, these patterns indicate that emotion recognition and understanding are linked to dampened emotional reactivity once emotional responding unfolds, rather than to acute emotional sensitivity, at the level of consciously experienced emotion captured by the DART.

Importantly, this apparent discrepancy with the hypersensitivity hypothesis emerges at the level of consciously experienced emotion targeted by the DART, rather than at early, automatic stages of emotional processing. From a dual-process perspective, this distinction is theoretically meaningful. Dual-process models posit a fast, automatic "hot" system that supports rapid emotional sensitivity, and a slower, reflective "cool" system that shapes, constrains, or regulates emotional experience once it becomes consciously accessible (e.g., Metcalfe & Mischel, 1999). Whereas prior work linking EI_K to acute emotional sensitivity has primarily focused on "hot" indices of processing (Gillioz et al., 2023; Nicolet-dit-Félix et al.,

2023), the present findings pertain to “cooler” stages of emotional responding that unfold during conscious evaluations. From this perspective, emotion recognition and understanding may not uniformly amplify emotional responses across processing stages. Instead, these facets of EI_K may be associated with acute sensitivity at early stages, while contributing to attenuation of emotional reactivity once emotional experience enters conscious awareness. Notably, this later attenuation phase parallels evidence linking higher cognitive ability to dampened emotional reactivity at deliberative stages of processing (Robinson et al., 2023).

Several mechanisms may account for the regulatory modulation observed at later stages of processing. Higher emotion recognition and understanding may facilitate more rapid and precise identification of emotional meaning, thereby reducing ambiguity and limiting the need for prolonged emotional engagement. Once the emotional significance of a stimulus has been explicitly resolved, emotional responses may be more readily down-modulated. Evidence consistent with this interpretation comes from affect labeling research, which shows that explicitly identifying emotional states is associated with reduced emotional reactivity at reflective stages, as indexed by decreased amygdala activation (Lieberman et al., 2007). In parallel, higher emotion recognition and understanding may be associated with more efficient attentional disengagement from emotional stimuli. Reduced peak amplitudes and slower velocities may index a flexible allocation of attentional and cognitive resources, allowing individuals to disengage from emotional material when continued processing is no longer necessary.

Across indices, emotion understanding showed a largely valence-independent pattern, whereas emotion recognition displayed valence-specific effects. Specifically, emotion recognition was associated with delayed onset times and reduced peak amplitudes for pleasant images only. Although modest in size, this pattern indicates that the influence of emotion recognition on emotional dynamics is selectively expressed for pleasant stimuli. One plausible

interpretation is that pleasant stimuli often require more extensive integration of contextual and social cues to resolve emotional meaning. Individuals higher in emotion recognition ability may therefore engage in more fine-grained evaluative processing before an emotional response becomes consciously accessible, resulting in delayed onset times. This more elaborated evaluations may also constrain the emotional response, leading to reduced peak amplitudes. By contrast, unpleasant stimuli, given their greater survival relevance, tend to elicit rapid emotional responses that reach higher levels, leaving less scope for individual differences in emotion recognition to shape early response timing or peak amplitude. These valence-specific patterns refine EI theories by challenging the assumption that ability-based EI uniformly amplifies or regulates emotional responses, especially at conscious stage of emotion information processing. Instead, they support a differentiated account in which EI-related abilities selectively shape emotional dynamics depending on stimulus valence and processing demands.

The hypotheses concerning emotion management, which posited valence-specific modulation of emotional responding through attenuation of responses to unpleasant stimuli (H2) and amplification of responses to pleasant stimuli (H3), were largely not supported. Instead, emotion management predicted shorter onset times irrespective of stimulus valence, while peak amplitude and response velocity were not reliably associated with this facet.

This pattern indicates that emotion management primarily reflects regulatory processes operating prior to, or at the threshold of, conscious emotional experience, rather than modulation of emotional reactivity once emotional responding is underway. Individuals higher in emotion management may be more effective at anticipating emotional demands and at orienting attention toward emotionally relevant information, allowing emotional responses to be initiated more rapidly when stimuli are encountered. This interpretation aligns with process-oriented models of emotion regulation, in which Gross (2013) distinguishes antecedent-focused processes, particularly situation selection and attentional deployment. Such processes are well

positioned to shape the timing of emotional responding, while leaving later response characteristics largely unaffected.

Taken together, the present findings indicate that at the level of consciously experienced emotion targeted by the DART paradigm, higher EI_K is not associated with acute emotional sensitivity. Instead, emotion recognition and understanding predicted dampened emotional reactivity, whereas emotion management predicted greater readiness to emotional information. This pattern contrasts with prior evidence of acute sensitivity at early, automatic stages and underscores the stage-dependent expression of EI_K across emotional processing.

5. Limitations and Future Directions

The present findings should be interpreted in light of four key limitations, each pointing to a valuable direction for future research.

First, the study did not include an objective measure of general cognitive ability. Given evidence that higher intelligence is associated with attenuated emotional responding at reflective stages (Robinson et al., 2023), and given the moderate correlations between EI_K and general intelligence (Hendel & Brysbaert, 2024), it remains unclear whether the observed effects reflect emotional knowledge per se versus broader cognitive control resources. Future research that incorporates standardized measures of general intelligence would be necessary to disentangle the unique and shared contributions of emotional and cognitive abilities to moment-to-moment emotional dynamics.

Second, the present study relied exclusively on self-reports emotional experience and therefore did not capture the automatic physiological responses that precede conscious awareness. While this focus was appropriate given the aim of examining consciously experienced emotional dynamics, it limits insight into earlier, less reflective stages of emotional processing. From a psychological perspective, physiological responses index more automatic and spontaneous components of emotional reactivity that are not necessarily accessible to conscious report. As a result, attenuation of emotional responding observed at reflective stages may arise from qualitatively different underlying mechanisms such as genuinely reduced early emotional sensitivity, or alternatively intact (or even acute) early physiological reactivity followed by efficient regulatory modulation before emotions enter conscious awareness. Combining continuous subjective ratings with physiological measures such as facial electromyography or skin conductance would allow future research to adjudicate between these competing explanations.

Third, the nature of the emotional stimuli—static photographs—may have constrained the multimodal and interpersonal richness of the emotional dynamics captured in the present study. Future research would benefit from using of dynamic video clips, virtual-reality scenes, or live social interactions to test whether the same effects emerge when emotions are stronger and socially embedded.

Finally, the sample consisted primarily of female psychology students drawn from a Western, educated, industrialized, rich, and democratic (WEIRD) population, which may limit the generalizability of the present findings. Previous research has shown that emotional intelligence knowledge varies as a function of age, gender, and cultural context (Cabello et al., 2016; Fernández-Berrocal et al., 2012; Karim & Weisz, 2010; Salguero et al., 2012; Schlegel et al., 2014) suggesting that the distribution and expression of EI abilities may differ across populations. Importantly, emerging evidence from dynamic paradigms indicates that demographic factors, such as gender, also shape the temporal dynamics of emotional responding (Robinson et al., 2024). Replication in more diverse and representative samples will therefore be necessary to determine whether the observed stage-dependent patterns of EI_K extend beyond this population.

Future research could incorporate additional indicators of emotional dynamics. In particular, recovery latency—the time between the peak response and the return to baseline—may provide valuable insight into how different facets of EI_K operate. This parameter may be especially informative for understanding the role of emotion management, which is expected to contribute to the dampening and recovery of emotional responses once they have reached their peak.

Further work could also examine whether and how distinct EI_K facets differentially shape the amplification of affective responses *in oneself*, as compared with the perception of emotional intensity *in others*. Clarifying these potentially divergent processes would help refine

our understanding of how EI contributes both to the regulation of one's own emotional reactions and to the sensitivity to emotions expressed by others.

6. Conclusion

The present findings provide a more nuanced understanding of how EI_K shapes the moment-to-moment unfolding of subjective emotional experience. Specifically, the emotion recognition and understanding facets consistently dampened emotional reactivity, reflected in lower peak amplitudes and slower velocities across valence conditions. In contrast, the management facet faster initiation of emotional responding, reflected in earlier onset time while leaving later peak amplitude and velocity unchanged.

Together, these patterns indicate that higher EI_K equips individuals to keep emotional reactivity in check once deliberate emotional experience begins, facilitating more adaptive emotional responding. This differentiation among EI_K facets highlights distinct functional roles during emotional processing: emotion recognition and emotion understanding appear to modulate the amplitude and unfolding of emotional experience, while management may support rapid mobilization.

By elucidating how different facets of EI_K uniquely influence the temporal dynamics of emotional experience at reflective stages of processing, we refined existing accounts of EI and underscore the value of adopting a dynamic, process-oriented perspective in EI research.

Author Contribution

NICOLET-DIT-FELIX Maroussia: conceptualization, methodology, investigation, software, data curation, formal analysis, visualization, writing – original draft; GILLIOZ Christelle: conceptualization, methodology, formal analysis, writing – original draft; FIORI Marina: conceptualization, writing – review and editing, funding acquisition.

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References

Allen, V., Rahman, N., Weissman, A., MacCann, C., Lewis, C., & Roberts, R. D. (2015). The Situational Test of Emotional Management–Brief (STEM-B): Development and validation using item response theory and latent class analysis. *Personality and Individual Differences, 81*, 195-200. https://doi.org/10.1016/j.paid.2015.01.053

Allen, V. D., Weissman, A., Hellwig, S., MacCann, C., & Roberts, R. D. (2014). Development of the situational test of emotional understanding–brief (STEU-B) using item response theory. *Personality and Individual Differences, 65*, 3-7. https://doi.org/10.1016/j.paid.2014.01.051

Ashkanasy, N. M., & Daus, C. S. (2005). Rumors of the death of emotional intelligence in organizational behavior are vastly exaggerated. *Journal of Organizational Behavior, 26*(4), 441-452. https://doi.org/10.1002/job.320

Bates D, Mächler M, Bolker B, & S., W. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistica Software, 67*, 1-48. https://doi.org/10.18637/jss.v067.i01

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of general psychology, 5*(4), 323-370. https://doi.org/10.1037/1089-2680.5.4.323

Box, G. E., & Cox, D. R. (1964). An analysis of transformations. *Journal of the Royal Statistical Society Series B: Statistical Methodology, 26*(2), 211-243. https://doi.org/10.1111/j.2517-6161.1964.tb00553.x

Cabello, R., Sorrel, M. A., Fernández-Pinto, I., Extremera, N., & Fernández-Berrocal, P. (2016). Age and gender differences in ability emotional intelligence in adults: A cross-sectional study. *Developmental psychology, 52*(9), 1486-1492. https://doi.org/2016-40977-005

Carretié, L., Tapia, M., López-Martín, S., & Albert, J. (2019). EmoMadrid: An emotional pictures database for affect research. *Motivation and Emotion, 43*(6), 929-939. https://doi.org/10.1007/s11031-019-09780-y

Dan-Glauser, E. S., & Scherer, K. R. (2011). The Geneva affective picture database (GAPED): a new 730-picture database focusing on valence and normative significance. *Behavior research methods, 43*(2), 468-477. https://doi.org/10.3758/s13428-011-0064-1

Davidson, R. J. (1998). Affective style and affective disorders: Perspectives from affective neuroscience. *Cognition & Emotion, 12*(3), 307-330. https://doi.org/10.1080/026999398379628

Fernández-Berrocal, P., Cabello, R., Castillo, R., & Extremera, N. (2012). Gender differences in emotional intelligence: The mediating effect of age. *Behavioral Psychology, 20*(1), 77-89.

Fiori, M. (2026). The scientific journey of emotional intelligence: From foundational concept to refined dimension of human ability. In A. J. Nurick (Ed.), *Research handbook on emotional intelligence at work.* Edward Elgar Publishing.

Fiori, M., Gillioz, C., & Nicolet-dit-Félix, M. (2024). Emotional intelligence and emotional reactivity: Understanding the hypersensitivity hypothesis. *Personality and Individual Differences, 230*, 112792. https://doi.org/10.1016/j.paid.2023.112792

Fiori, M., & Ortony, A. (2021). Initial evidence for the hypersensitivity hypothesis: Emotional intelligence as a magnifier of emotional experience. *Journal of Intelligence, 9*(2), 24. https://doi.org/10.3390/jintelligence9020024

Fiori, M., Udayar, S., & Vesely Maillefer, A. (2022). Emotion information processing as a new component of emotional intelligence: Theoretical framework and empirical evidence. *European journal of personality, 36*(2), 245-264. https://doi.org/10.1177/08902070211007

Fiori, M., & Vesely-Maillefer, A. K. (2018). Emotional intelligence as an ability: Theory, challenges, and new directions. In K. Keefer, J. D. A. Parker, & D. H. Saklofske (Eds.), *Emotional intelligence in education: Integrating research with practice* (pp. 23-47). Springer. https://doi.org/10.1007/978-3-319-90633-1_17

Fiori, M., Vesely-Maillefer, A. K., Nicolet-Dit-Félix, M., & Gillioz, C. (2023). With great sensitivity comes great management: how emotional hypersensitivity can be the superpower of emotional intelligence. *Journal of Intelligence, 11*(10), 198. https://doi.org/10.3390/jintelligence11100198

Gillioz, C., Nicolet-dit-Félix, M., Delplanque, S., Mortillaro, M., Sander, D., & Fiori, M. (2025). How do emotionally intelligent individuals react to other people's emotions? A study on emotional and facial reactions. *BMC psychology, 13*(1), 1-15. https://doi.org/10.1186/s40359-025-02104-5

Gillioz, C., Nicolet-dit-Félix, M., Wilhelm, O., & Fiori, M. (2023). Emotional intelligence and emotion information processing: Proof of concept of a test measuring accuracy in discriminating emotions. *Frontiers in Psychology, 14*, 1085971. https://doi.org/10.3389/fpsyg.2023.1085971

Gross, J. J. (2013). Emotion regulation: taking stock and moving forward. *Emotion, 13*(3), 359-365. https://doi.org/10.1037/a0032135

Hendel, E., & Brysbaert, M. (2024). *Towards understanding the low correlation between subjective and performance-based measures of emotion perception: Is one measure better than the other?* https://www.researchgate.net/profile/Marc-Brysbaert/publication/379745098_Towards_understanding_the_low_correlation_betw

een_subjective_and_performance-based_measures_of_emotion_perception_Is_one_measure_better_than_the_other/links/661b63c8f7d3fc2874522f63/Towards-understanding-the-low-correlation-between-subjective-and-performance-based-measures-of-emotion-perception-Is-one-measure-better-than-the-other.pdf

Irvin, R. L., Klein, R. J., & Robinson, M. D. (2022). Faster, stronger, and more obligatory? A temporal analysis of negative (versus positive) emotional reactions. *Journal of Experimental Social Psychology, 99*, 104272. https://doi.org/10.1016/j.jesp.2021.104272

Ito, T. A., Larsen, J. T., Smith, N. K., & Cacioppo, J. T. (1998). Negative information weighs more heavily on the brain: the negativity bias in evaluative categorizations. *Journal of personality and social psychology, 75*(4), 887. https://doi.org/10.1037//0022-3514.75.4.887

Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.

Karim, J., & Weisz, R. (2010). Cross-cultural research on the reliability and validity of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). *Cross-Cultural Research, 44*(4), 374-404. https://doi.org/10.1177/1069397110377603

Kuppens, P. (2015). It's about time: A special section on affect dynamics. *Emotion review, 7*(4), 297-300. https://doi.org/10.1177/1754073915590947

Kurdi, B., Lozano, S., & Banaji, M. R. (2017). Introducing the open affective standardized image set (OASIS). *Behavior research methods, 49*(2), 457-470. https://doi.org/10.3758/s13428-016-0715-3

Kuznetsova, A., Brockhoff, P. B., & Christensen, R. H. (2017). lmerTest package: tests in linear mixed effects models. *Journal of statistical software, 82*, 1-26. https://doi.org/10.18637/jss.v082.i13

Libbrecht, N., & Lievens, F. (2012). Validity evidence for the situational judgment test paradigm in emotional intelligence measurement. *International Journal of Psychology, 47*(6), 438-447. https://doi.org/10.1080/00207594.2012.682063

Lieberman, M. D., Eisenberger, N. I., Crockett, M. J., Tom, S. M., Pfeifer, J. H., & Way, B. M. (2007). Putting feelings into words. *Psychological science, 18*(5), 421-428. https://doi.org/10.1111/j.1467-9280.2007.01916.x

Marchewka, A., Żurawski, Ł., Jednoróg, K., & Grabowska, A. (2014). The Nencki Affective Picture System (NAPS): Introduction to a novel, standardized, wide-range, high-quality, realistic picture database. *Behavior research methods, 46*(2), 596-610. https://doi.org/10.3758/s13428-013-0379-1

Mayer, J., & Salovey, P. (1997). What is emotional intelligence ? In S. D. Salovey P (Ed.), *Emotional development and emotional intelligence: Educational implications* (pp. 3-34). New York: Basic Books.

Metcalfe, J., & Mischel, W. (1999). A hot/cool-system analysis of delay of gratification: dynamics of willpower. *Psychological review, 106*(1), 3. https://doi.org/10.1037/0033-295X.106.1.3

Nicolet-dit-Félix, M., Gillioz, C., Mortillaro, M., Sander, D., & Fiori, M. (2023). Emotional intelligence and attentional bias to emotional faces: Evidence of hypersensitivity towards emotion information. *Personality and Individual Differences, 201*, 111917. https://doi.org/10.1016/j.paid.2022.111917

O'Connor, P. J., Hill, A., Kaya, M., & Martin, B. (2019). The measurement of emotional intelligence: A critical review of the literature and recommendations for researchers and practitioners. *Frontiers in Psychology, 10*, 429307. https://doi.org/10.3389/fpsyg.2019.01116

Petrides, K. V., & Furnham, A. (2000). On the dimensional structure of emotional intelligence. *Personality and Individual Differences, 29*(2), 313-320. https://doi.org/10.1016/S0191-8869(99)00195-6

R Core Team. (2025). *R Core Team R: A language and environment for statistical computing.* In R Foundation for Statistical Computing. (Version 4.4.1) [Computer software]. https://www.R-project.org/

Robinson, M. D., Irvin, R. L., & Asad, M. R. (2024). Threat sensitivity in emotion dynamics: Negativity effects and sex differences. *Behaviour Research and Therapy, 178*, 104542. https://doi.org/10.1016/j.brat.2024.104542

Robinson, M. D., Irvin, R. L., & Klein, R. J. (2021). Dynamic negativity effects in emotional responding: Onsets, peaks, and influences from repetition. *Emotion, 21*(5), 972–980. https://doi.org/10.1037/emo0000973

Robinson, M. D., Irvin, R. L., Pringle, T. A., & Klein, R. J. (2023). General cognitive ability, as assessed by self-reported ACT scores, is associated with reduced emotional responding: Evidence from a Dynamic Affect Reactivity Task. *Intelligence, 99*, 101760. https://doi.org/10.1016/j.intell.2023.101760

Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and social psychology review, 5*(4), 296-320. https://doi.org/10.1207/S15327957PSPR0504_2

Salguero, J. M., Extremera, N., & Fernández-Berrocal, P. (2012). Emotional intelligence and depression: The moderator role of gender. *Personality and Individual Differences, 53*(1), 29-32. https://doi.org/10.1016/j.paid.2012.02.006

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, cognition and personality, 9*(3), 185-211. https://doi.org/10.2190/DUGG-P24E-52WK-6CDG

Scherer, K. R. (2009). The dynamic architecture of emotion: Evidence for the component process model. *Cognition and emotion, 23*(7), 1307-1351. https://doi.org/10.1080/02699930902928969

Schlegel, K., Grandjean, D., & Scherer, K. R. (2014). Introducing the Geneva emotion recognition test: an example of Rasch-based test development. *Psychological assessment, 26*(2), 666-672. https://doi.org/10.1037/a0035246

Schlegel, K., & Scherer, K. R. (2016). Introducing a short version of the Geneva Emotion Recognition Test (GERT-S): Psychometric properties and construct validation.

Behavior research methods, 48(4), 1383-1392. https://doi.org/10.3758/s13428-015-0646-4

Stoffel, M. A., Nakagawa, S., & Schielzeth, H. (2021). partR2: Partitioning R2 in generalized linear mixed models. *PeerJ, 9*, e11414. https://doi.org/10.7717/peerj.11414

Vesely Maillefer, A., Udayar, S., & Fiori, M. (2018). Enhancing the prediction of emotionally intelligent behavior: The PAT integrated framework involving trait EI, ability EI, and emotion information processing. *Frontiers in Psychology, 9*, 1078. https://doi.org/10.3389/fpsyg.2018.01078

Waugh, C. E., & Kuppens, P. (2021). *Affect dynamics*. Springer.

11.3.2. Supplemental Material

Other measures collected in the study but not reported in the paper

As this study is part of a greater project on emotional intelligence, hypersensitivity and well-being, the online testing session contained several additional questionnaires that are not investigated in the present paper. Participants filled in Rotterdam Emotional Intelligence Scale (Pekaar et al., 2018), Cognitive Emotional Regulation Questionnaire (Jermann et al., 2006), Satisfaction with Life Scale (Diener, 1985) and Satisfaction in interpersonal relationships Ryff scale (Ryff, & Keyes, 1995).

Indices calculation

Given that mouse trajectories were recorded at a very high but slightly irregular sampling rate (approximately every 8 ms), raw time series differed in their temporal spacing across participants and trials. To ensure a common temporal reference and restore comparability, we interpolated the raw data to generate a continuous time series with evenly spaced anchor points every 10 milliseconds (100Hz). Following interpolation, we downsampled the data to 10 Hz to reduce high-frequency motor noise and to align the temporal resolution with the validated algorithmic framework used in previous DART studies (e.g., Irvin et al., 2022). Based on this preprocessed time series, we computed several affective indices were computed to characterize the temporal dynamics of emotional responses.

Onset time was defined using the criteria proposed by Irvin et al. (2022) as the first time point followed by two consecutive directional changes consistent with the valence of the stimulus (e.g., movement in a pleasant direction for a positive image), provided that the average magnitude of these movements exceeded a threshold of 4. This criterion served to distinguish intentional affective responses from random noise. Consistent with the procedure described by Irvin et al. (2022), an additional condition to ensure that the onset time corresponded to a meaningful affective shift: the initial amplitude had to be followed by three successive

movement changes whose positions were all congruent with the stimulus valence. This aspect of the procedure ensured that feeling onset time could be reliably detected starting from the neutral baseline position (i.e., position 0), thereby improving the temporal precision of affective response detection. Internal consistency was then assessed for each dynamic index after aggregating responses at the participant-by-stimulus level within each valence condition. For each index, Cronbach's alpha was computed across images, treating stimuli as items and participants as observations, thereby avoiding non-independence due to repeated trials. The onset time indices demonstrated very good internal consistency, with Cronbach's alpha values of 0.88 for pleasant stimuli and 0.90 for unpleasant stimuli.

Peak amplitude was defined as the extreme value within a 0–6 second window: for trials involving pleasant stimuli, it corresponded to the highest value, while for trials involving unpleasant stimuli, it was the lowest value within the same time frame. This window included the 5-second emotional image presentation plus an additional second to allow participants sufficient time to respond, given that affective ratings are not produced instantaneously. This operationalization slightly differs from the procedure used by Irvin et al. (2022), who defined the peak as the first inflection point following response onset. We adopted the present definition to capture the maximum amplitude reached over the full response trajectory, as visual inspection indicated that initial inflection points were sometimes followed by a further increase in pleasantness or unpleasantness. The peak amplitude indices demonstrated very good internal consistency, with values of 0.92 for pleasant stimuli and 0.91 for unpleasant stimuli.

Velocity was defined as the peak amplitude divided by the time elapsed between the onset time of the emotional response and the moment the peak amplitude was reached, following the same logic as in Irvin et al. (2022). This measure reflects how rapidly participants' emotional response increased in reaction to the emotional images. The velocity indices

demonstrated good internal consistency, with values of .83 for both pleasant and unpleasant stimuli.

References

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of personality assessment, 49*(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13

Irvin, R. L., Klein, R. J., & Robinson, M. D. (2022). Faster, stronger, and more obligatory? A temporal analysis of negative (versus positive) emotional reactions. *Journal of Experimental Social Psychology, 99*, 104272. https://doi.org/10.1016/j.jesp.2021.104272

Jermann, F., Van der Linden, M., d'Acremont, M., & Zermatten, A. (2006). Cognitive emotion regulation questionnaire (CERQ). *European Journal of Psychological Assessment, 22*(2), 126-131. https://doi.org/10.1027/1015-5759.22.2.126

Pekaar, K. A., Bakker, A. B., van der Linden, D., & Born, M. P. (2018). Self-and other-focused emotional intelligence: Development and validation of the Rotterdam Emotional Intelligence Scale (REIS). *Personality and Individual Differences, 120*, 222-233. https://doi.org/10.1016/j.paid.2017.08.045

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology, 69*(4), 719–727. https://doi.org/10.1037/0022-3514.69.4.719

Table A.1: List of images presented in the main part Dynamic Affective Rating Task (DART)

Image Name	Valence	Database
EM0018	pleasant	EMOMadrid
EM0075	pleasant	EMOMadrid
EM0147	pleasant	EMOMadrid
EM0228	pleasant	EMOMadrid
EM0316	pleasant	EMOMadrid
EM0358[1]	pleasant	EMOMadrid
Faces_120_h	pleasant	EMOMadrid
Faces_134_h	pleasant	EMOMadrid
Faces_232_h	pleasant	EMOMadrid
Faces_321_h	pleasant	NAPS
Faces_347_h	pleasant	NAPS
Faces_356_h	pleasant	NAPS
P078	pleasant	NAPS
People_185_h	pleasant	NAPS
Animals_053_h	unpleasant	NAPS
Animals_063_h	unpleasant	NAPS
EM0596	unpleasant	OASIS
EM0710	unpleasant	OASIS
EM0719	unpleasant	OASIS
Faces_009_h	unpleasant	OASIS
Faces_159_h	unpleasant	OASIS
Faces_172_h	unpleasant	OASIS
Faces_302_h	unpleasant	EMOMadrid
Faces_366_h	unpleasant	EMOMadrid
People_127_h	unpleasant	EMOMadrid
People_145_h	unpleasant	EMOMadrid
People_200_h	unpleasant	EMOMadrid
People_227_h	unpleasant	EMOMadrid
People_238_h	unpleasant	EMOMadrid
Bark 4	neutral	NAPS
Bottle 1	neutral	NAPS
Cotton swabs 2	neutral	NAPS
Cotton swabs 3	neutral	NAPS
Cups 1	neutral	NAPS
Cups 4	neutral	NAPS
EM0035	neutral	OASIS
EM0076	neutral	NAPS
EM0209	neutral	NAPS
EM0244	neutral	NAPS
EM0414	neutral	OASIS
EM0446	neutral	OASIS
EM0497	neutral	OASIS

Keyboard 2	neutral	OASIS
Landscapes_091_h	neutral	GAPED
Objects_185_h	neutral	OASIS
Objects_241_h	neutral	OASIS
Office supplies 1	neutral	OASIS
Office supplies 2	neutral	OASIS
Office supplies 4	neutral	OASIS
Office supplies 5	neutral	NAPS
Paper 2	neutral	NAPS
Paper 3	neutral	NAPS
Paper 4	neutral	NAPS
Paperclips 3	neutral	NAPS
Paperclips 4	neutral	NAPS
Phone 1	neutral	OASIS
Yarn 2	neutral	OASIS
Yarn 3	neutral	OASIS
Yarn 4	neutral	OASIS

[1] This image was inadvertently presented twice during the experiment.

Table A.2: Linear mixed models predicting onset time: Valence model and EI-facet models

	Valence model	**GERT model**	**STEU model**	**STEM model**
Intercept	0.403***	0.401***	0.403***	0.403***
	[0.330, 0.477]	[0.328, 0.475]	[0.330, 0.477]	[0.330, 0.476]
Valence	0.046	0.046	0.046	0.046
	[-0.042, 0.135]	[-0.042, 0.135]	[-0.042, 0.135]	[-0.042, 0.135]
GERT		0.032		
		[-0.010, 0.074]		
STEU			-0.016	
			[-0.057, 0.026]	
STEM				-0.042*
				[-0.083, -0.001]
Valence x GERT		0.035*		
		[0.007, 0.063]		
Valence x STEU			0.026	
			[-0.002, 0.054]	
Valence x STEM				0.007
				[-0.022, 0.035]
Gender	0.056	0.068	0.056	0.057
	[-0.052, 0.163]	[-0.037, 0.174]	[-0.052, 0.163]	[-0.049, 0.163]
R^2 Marginal	0.006	0.024	0.007	0.016
R^2 Conditional	0.490	0.490	0.489	0.489
Partial R^2 (interaction)	-	< 0.001	0.001	0.003
Partial R^2 (EI facet)	-	< 0.001	< 0.001	< 0.001
AIC	1888.3	1879.6	1889.2	1888.4
BIC	1938.9	1942.9	1952.4	1951.6
RMSE	0.27	0.27	0.27	0.27
Nb Observations	4118	4118	4118	4118
Random effects				
ID Intercept	0.062	0.061	0.062	0.060
ID Valence Intercept	0.020	0.019	0.019	0.020
ID Valence Intercept-slope	-0.322	-0.372	-0.316	-0.319
Image Intercept	0.013	0.013	0.013	0.013
Residual	0.078	0.078	0.078	0.078

Note: Valence was effect-coded (−0.5 = unpleasant, +0.5 = pleasant). Gender was dummy-coded with women as the reference category. R^2 marginal: variance explained by fixed effects; R^2 conditional: fixed + random effects. ΔR^2 values represent the additional variance explained by including each EI facet [main and interaction effects combined] relative to the Valence-only model. Partial R^2 (interaction): Proportion of variance uniquely explained by the interaction term. Partial R^2 (EI facet): Proportion of variance uniquely explained by the main effect of the EI facet. Random intercepts were specified for participants (ID) and stimuli (Image). Random slopes for valence were included at the participant level (ID), allowing intercept–slope correlations. Reported values are variances and correlations of the random effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. [] 95% Confidence intervals are shown in parentheses. Mixed-effects models were fitted using the lme4 package. Degrees of freedom for fixed effects were estimated using the Satterthwaite approximation implemented in the lmerTest package.

Table A.3: Linear mixed models predicting peak amplitude: Valence model and EI-facet models

	Valence model	**GERT model**	**STEU model**	**STEM model**
Intercept	418.768***	418.815***	418.650***	418.735***
	[382.455,	[382.518,	[382.453,	[382.424,
Valence	-116.053***	-116.053***	-116.053***	-116.053***
	[-166.723, -	[-166.676, -	[-166.680, -	[-166.714, -
GERT		-5.151		
		[-16.213, 5.910]		
STEU			-15.669**	
			[-26.457, -4.880]	
STEM				-1.852
				[-12.931, 9.228]
Valence x GERT		-12.728*		
		[-24.252, -1.203]		
Valence x STEU			-11.103	
			[-22.671, 0.466]	
Valence x STEM				-5.590
				[-17.262, 6.083]
Gender	-35.416*	-35.719*	-34.662*	-35.206*
	[-65.745, -5.087]	[-65.939, -5.498]	[-64.031, -5.293]	[-65.521, -4.892]
R2 Marginal	0.147	0.154	0.167	0.149
R2 Conditional	0.591	0.591	0.591	0.591
Partial R^2 (interaction)	-	0.005	0.007	0.001
Partial R^2 (EI facet)	-	< 0.001	< 0.001	< 0.001
AIC	51991.2	51989.3	51982.3	51994.2
BIC	52042.1	52052.8	52045.9	52057.7
RMSE	95.81	95.82	95.82	95.81
Nb Observations	4263	4263	4263	4263
Random effects				
ID Intercept	4043	4016	3797	4040
ID Valence Intercept	3889	3726	3765	3857
ID Valence Intercept-	0.033	0.017	-0.013	0.030
Image Intercept	4579	4578	4577	4579
Residual	9791	9791	9791	9791

Note: Valence was effect-coded (−0.5 = unpleasant, +0.5 = pleasant). Gender was dummy-coded with women as the reference category. R^2 marginal: variance explained by fixed effects; R^2 conditional: fixed + random effects. ΔR^2 values represent the additional variance explained by including each EI facet [main and interaction effects combined] relative to the Valence-only model. Partial R^2 (interaction): Proportion of variance uniquely explained by the interaction term. Partial R^2 (EI facet): Proportion of variance uniquely explained by the main effect of the EI facet. Random intercepts were specified for participants (ID) and stimuli (Image). Random slopes for valence were included at the participant level (ID), allowing intercept–slope correlations. Reported values are variances and correlations of the random effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. [] 95% Confidence intervals are shown in parentheses. Mixed-effects models were fitted using the lme4 package. Degrees of freedom for fixed effects were estimated using the Satterthwaite approximation implemented in the lmerTest package.

Table A.4: Linear mixed models predicting velocity: Valence model and EI-facet models

	Valence model	**GERT model**	**STEU model**	**STEM model**
Intercept	5.626***	5.626***	5.625***	5.624***
	[5.436, 5.815]	[5.436, 5.816]	[5.437, 5.813]	[5.435, 5.814]
Valence	-0.477***	-0.477***	-0.477***	-0.476***
	[-0.722, -0.231]	[-0.722, -0.231]	[-0.722, -0.231]	[-0.722, -0.231]
GERT		-0.023		
		[-0.113, 0.068]		
STEU			-0.135**	
			[-0.223, -0.047]	
STEM				-0.039
				[-0.129, 0.052]
Valence x GERT		-0.041		
		[-0.115, 0.032]		
Valence x STEU			-0.047	
			[-0.120, 0.026]	
Valence x STEM				-0.060
				[-0.133, 0.013]
Gender	-0.177	-0.180	-0.173	-0.169
	[-0.411, 0.058]	[-0.414, 0.054]	[-0.397, 0.051]	[-0.401, 0.064]
R^2 Marginal	0.067	0.070	0.095	0.073
R^2 Conditional	0.513	0.513	0.513	0.513
Partial R^2 (interaction)	-	0.001	0.001	0.001
Partial R^2 (EI facet)	-	< 0.001	< 0.001	< 0.001
AIC	9066.2	9077.3	9064.6	9074.7
BIC	9123.2	9146.9	9134.2	9144.3
RMSE	0.64	0.64	0.64	0.64
Nb Observations	4141	4141	4141	4141
Random effects				
ID Intercept	0.284	0.283	0.266	0.283
ID Valence Intercept	0.145	0.143	0.143	0.142
ID Valence Intercept-slope	-0.282	-0.288	-0.327	-0.299
Image Intercept	0.103	0.103	0.103	0.103
Residual	0.439	0.439	0.439	0.439

Note: Valence was effect-coded (−0.5 = unpleasant, +0.5 = pleasant). Gender was dummy-coded with women as the reference category. R^2 marginal: variance explained by fixed effects; R^2 conditional: fixed + random effects. ΔR^2 values represent the additional variance explained by including each EI facet [main and interaction effects combined] relative to the Valence-only model. Partial R^2 (interaction): Proportion of variance uniquely explained by the interaction term. Partial R^2 (EI facet): Proportion of variance uniquely explained by the main effect of the EI facet. Random intercepts were specified for participants (ID) and stimuli (Image). Random slopes for valence were included at the participant level (ID), allowing intercept–slope correlations. Reported values are variances and correlations of the random effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. [] 95% Confidence intervals are shown in parentheses. Mixed-effects models were fitted using the lme4 package. Degrees of freedom for fixed effects were estimated using the Satterthwaite approximation implemented in the lmerTest package.

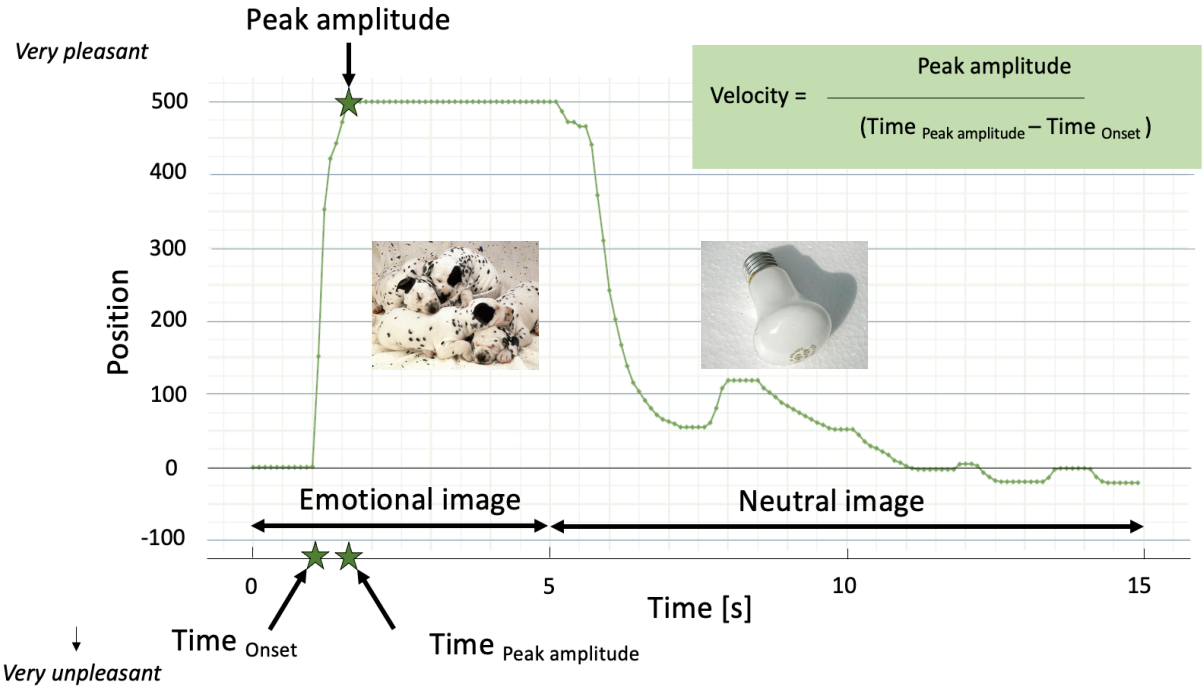

Figure A.1: Illustration of the indices derived from mouse-trajectory data. The figure displays the three affective indices—onset time, peak amplitude, and velocity—computed from a single trial involving the presentation of a positive image. The trajectory shown corresponds to the response of one participant and illustrates how each index was identified based on the temporal dynamics of the movement.

11.4. Study 4

11.4.1. Manuscript

Reference: Ability Emotional Intelligence and Emotional Memory: No Evidence for a Positive Bias, but Enhanced Memory Accuracy. Nicolet-dit-Félix, M., Gillioz, C., Fiori, M., & Clément, F. [Manuscript in preparation].

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Note: This article constitutes an additional study beyond the three papers required for the thesis (one published and two submitted). The sections describing the *Current Study*, *Methodology*, and *Results* are currently being finalized, while the *Introduction*, *Discussion*, and *Conclusion* are in preparation.

1.3. The current research

The present study examines whether a valence-specific sensitivity mechanism operating within memory processes involved in emotion information processing contributes to the association between ability EI (i.e., emotion recognition and understanding) and SWB (i.e., life satisfaction and positive relations). Although ability EI has been associated with SWB across several studies (Brackett et al., 2006; Extremera et al., 2011; MacCann & Roberts, 2008), the emotional processes translating this association into differential SWB have been rarely examined. Specifically, it remains unknown whether *valence-specific mechanism* within memory processes—indexed by preferential recognition of positive relative to negative information—mediate the link between ability EI and SWB. Addressing this gap, the current study tests a mediation model in which the ratio of correctly recognized positive to negative images may serve as a mechanism explaining how higher ability EI scores might contributes to higher levels of SWB (Figure 13).

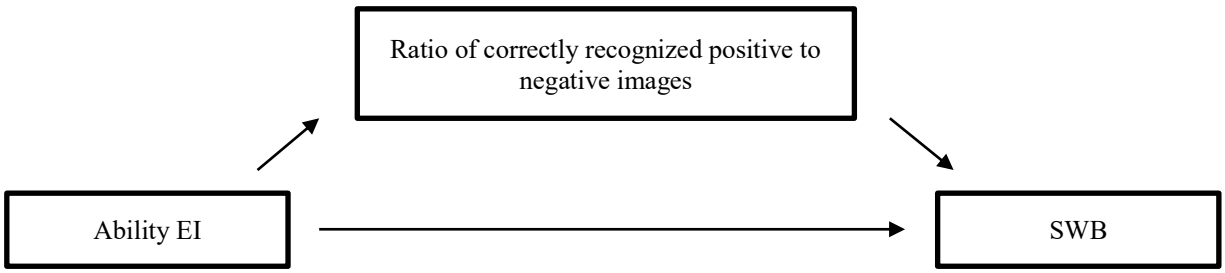

Figure 13: Relationships between ability EI, ratio of correctly recognized positive to negative images, and SWB.

A key strength of this study lies in its use of performance-based measures of ability EI, which minimize biases inherent to self-report measures, particularly those embedded within personality traits (Pekaar et al., 2018a; Petrides et al., 2007b; Van der Linden et al., 2017; Van der Linden et al., 2012) and self-efficacy (Vesely-Maillefer et al., 2018). SWB was assessed using self-reported instruments of life satisfaction and positive relations. The ratio of correctly recognized positive to negative images was derived from a memory task designed for this study,

providing a behavioral index of participants' ability to correctly distinguish previously seen from new emotional images. A ratio of 1 indicates balanced memory performance for positive and negative stimuli, values greater than 1 reflect a positive memory bias (better memory for positive images), and values below 1 indicate a negative bias (better memory for negative images).

Given that prior studies reported gender differences in ability EI (Cabello et al., 2016) and SWB (Joshanloo & Jovanovic, 2020), sex was included as a covariate[27]. Mood was additionally assessed due to its association with life satisfaction (Yap et al., 2017) and age was included as a covariate because of its relationship with working memory performance (Pläschke et al., 2020).

By integrating well-established validated measures, this study provides a rigorous test of whether ability EI is associated with a stronger memory bias toward positive information, which in turn is linked with the enhancement of SWB.

1.4. Study Hypotheses

Emotion recognition and emotion understanding facets of ability EI were expected to be positively associated with life satisfaction and positive relations SWB (H1), and with a memory bias toward positive images (H2).

The memory bias toward positive images was expected to be positively associated with life satisfaction and positive relations (H3).

The link between ability EI and SWB was expected to be mediated by a stronger memory bias toward positive images (H4).

[27] This choice reflects the design of the larger research program, where sex was consistently collected across studies.

2. Method

2.1. Participants and procedure

144 women and 55 men, mostly students, were recruited at the University of Neuchâtel and Lausanne, and completed all the questionnaires related to this study. The recruitment criterion for participants was to be aged between 18 and 35 years, and to have a high proficiency in French, as the survey was administered in this language. The participants completed an online survey comprising a battery of questionnaires, a primary memory task involving images, and a visuospatial working memory task. We conducted a power analysis to determine the required sample size, estimating moderate effects of 0.3 between ability EI (independent variable), the ratio of correctly recognized positive to negative images (mediator), and aspects of SWB (dependent variable). A sample size of 154 participants was necessary to achieve a power of 0.8. As this study was part of a larger project, we recruited additional participants to ensure sufficient power for other studies. Consequently, with 186 participants, we achieved a power close to 0.87. As the entire procedure lasted about fifty minutes and was completed online, a strict exclusion procedure was performed to ensure that participants were fully attentive during the survey. We excluded 2 participants who failed the control question[28] and had less than 25% correct responses in the primary memory task and 11 participants for whom it was not possible to calculate a correct recognition score for positive, negative or neutral images as they gave more incorrect than correct responses. Among them, 4 completed the recognition part more than 1 hour after the memory task, 3 reported technical issues and 4 gave more incorrect than correct responses for an undefined reason. The final sample consisted of 186 participants (137 women, 49 men) aged between 18 and 35 (M = 22.81, SD = 3.91). Participants were

[28] An attention control question was embedded within the questionnaire battery to ensure data quality. This item required participants to provide a specific response explicitly indicated in the question instructions, allowing the identification of inattentive or random responding.

remunerated 20 CHF for their participation (approximatively 22 USD). The current study was approved by the Ethical Committee of the University of Neuchâtel and all participants gave their informed consent.

2.2. Measures

2.2.1. The Geneva Emotion Recognition Test short version

The Geneva Emotion Recognition Test (GERT-S; Schlegel & Scherer, 2016) is a performance-based test comprising 42 items that assess respondents' ability to identify emotions in facial expressions, vocal tones, and body language. It includes 42 brief video clips with audio (lasting 1–3 seconds), featuring professional actors portraying 14 distinct emotions. After viewing each clip, respondents must select the emotion expressed by the actor from the 14 options provided. Responses are scored as correct or incorrect. Internal consistency of the scale was acceptable, with a Cronbach's alpha of .66.

2.2.2. The Situational Test of Emotional Understanding-Brief

The Situational Test of Emotional Understanding-Brief (STEU-B; Allen et al., 2014) is a performance-based assessment consisting of 19 items designed to evaluate respondents' understanding of emotions experienced by characters in brief scenarios. Each item prompts respondents to select the most appropriate emotion from five options that best corresponds to the given scenario. For example, one item might ask: "Xavier completes a challenging task on time and within budget. Xavier is most likely to feel?" (Pride). Responses are scored as either correct (1) or incorrect (0). The full version of the test has a test-retest reliability of .72 (Libbrecht & Lievens, 2012).

2.2.3. The Satisfaction with Life Scale

The Satisfaction with Life Scale (SWLS; Diener et al., 1985) is a concise 5-item self-report tool designed to measure SWB through overall cognitive evaluations of life satisfaction. Respondents rate their agreement with statements such as "I am satisfied with my life" on a 7-

point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Internal consistency of the scale was good, with a Cronbach's alpha of .84.

2.2.4. Positive relations

The Positive relations subscale is a 14-item component of the self-report instrument Ryff Scales of Psychological Well-Being (Ryff 1989). It assesses the perceived quality of one's interpersonal relationships through statements such as "I enjoy personal and mutual conversations with family members and friends." Items are rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Internal consistency of the scale was good, with a Cronbach's alpha of .78.

2.2.5. Brief Mood Introspection Scale

The Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1988) is used to assess the current mood of individuals. This scale includes the item "Overall, your mood right now is," which respondents rate on a scale from 0 (Very unpleasant) to 10 (Very pleasant). This measure provides a snapshot of the emotional state before engaging in tasks, such as memory assessments.

2.2.6. The Corsi Block-Tapping Test

The Corsi Block-Tapping Test (CBTT; Corsi & Michael, 1972) measures visuospatial short-term and working memory. In this task, blocks light up and then go out in a particular order. Participants are asked to visualize the order in which blocks light up and then to reproduce the exact same sequence in the same (forward version) or reverse (backward version) order. The task begins with a sequence of two blocks. Across the nine trials, the sequence length increases by one when the preceding sequence is accurately reproduced or decreases when it is not. Two scores, representing the length of the longest sequence correctly recalled, are computed for both the forward and backward versions. These scores are then summed to obtain a single final working memory score.

2.3. Experimental materials

2.3.1. Emotional and neutral images

Participants initially viewed 42 images, 28 emotional (14 negative and 14 positive), 14 neutral ones[29]. Within each emotional valence group and neutral group, two third of the images consisted of scenes including people and faces and one third were pictures of animals, nature scenes, or inanimate objects. All images were selected from the Nencki Affective Pictures System (NAPS, Marchewka et al., 2014), a set of stimuli for which there are normative emotional valence and arousal ratings for each image. Valence is assessed using a Likert-type scale ranging from 1 (*very negative*) to 9 (*very positive*), with 5 representing a *neutral* state. The NAPS emotion valence scores for each group (negative, positive, and neutral) differed significantly from each other, $F(2, 39)$, $p < .001$, MSE = 0.12, $\eta^2 = 0.94$, with the valence of positive images averaging 7.21 ($SD = 0.27$), neutral images 5.43 ($SD = 0.34$) and negative image 3.65 ($SD = 0.46$). NAPS images also include normative ratings for overall arousal, ranging from 1 (*relaxed*) to 9 (*aroused*), with 5 indicating a *neutral* or *ambivalent* state. The arousal level of negative ($M = 5.68$, $SD = 0.20$) and positive images ($M = 5.57$, $SD = 0.46$) did not vary significantly from each other, $t(17.82)$, -0.79, $p = 0.44$, but both were higher than the arousal scores for the neutral images from the NAPS ($M = 4.72$, $SD = 0.25$), $F(2, 39)$, $p < .001$, MSE = 0.10, $\eta^2 = 0.65$.

Each of these 42 images had a novel partner similar in content, valence and arousal that was used in the recognition part of the memory task. Like the original images, the 42 matching, novel images were selected from the NAPS. All images used in this study are given in the 11.4.2. Supplemental Material in Table A.1.

[29] Two fillers were incorporated into the sequence to mitigate the influence of primacy and recency effects, which suggest that items at the beginning and end of a sequence are more easily remembered (e.g., Morisson et al., 2014). By placing fillers in the first and last positions, we ensured that critical items were positioned in the middle of the sequence, thereby minimizing these effects.

2.3.2 Memory task

The memory task involved attentively viewing a series of images on a computer screen (Figure 14). A total of 42 images were presented consecutively at intervals of 500 milliseconds, in a fixed pseudo-randomized sequence, identical for all participants, with filler images consistently placed in the first and last positions. Following this initial presentation, the task continued with the working memory task (Corsi Block-Tapping Task, Corsi, 1972), after which participants completed an unrelated filler questionnaire that was not used in the present analyses. After approximately 10 minutes, 84 images were presented, half of which had been previously viewed and half of which were novel. These images were presented in random order, and participants were asked to endorse whether the image presented was novel or had been presented previously by pressing either the "new" or "already seen" buttons. After responding, the next image would appear.

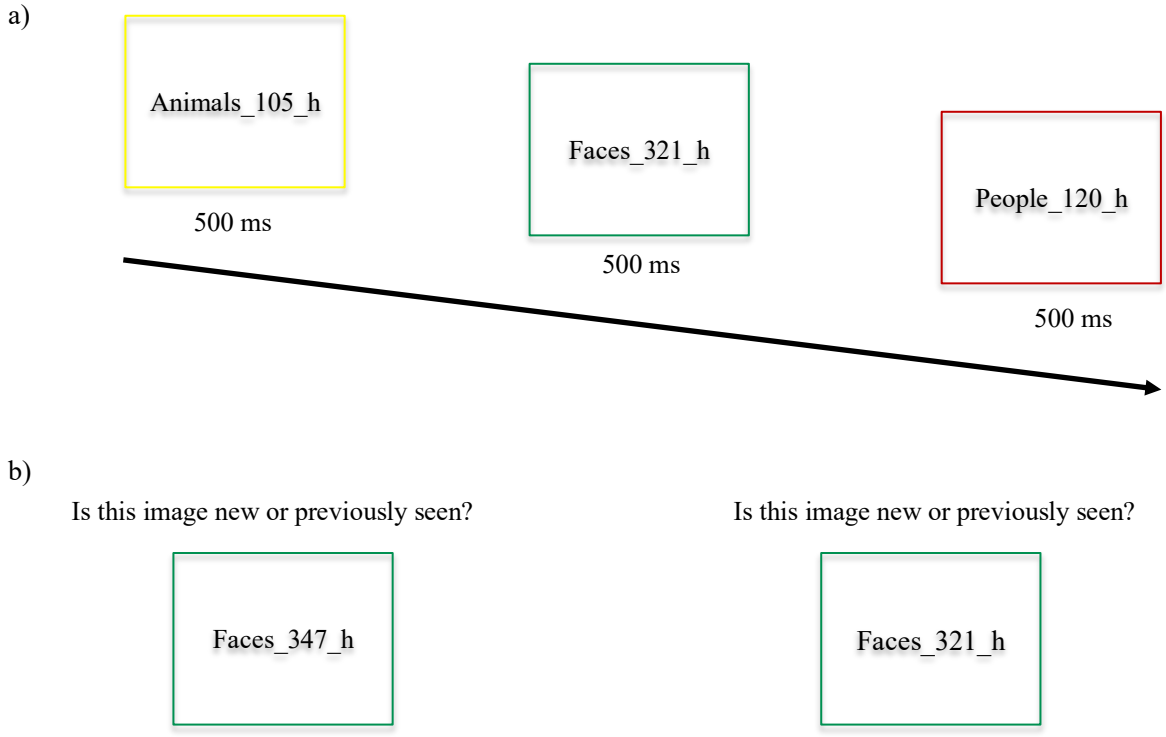

Figure 14: Overview of the memory task procedure.
a) Encoding phase: participants viewed 42 images presented sequentially for 500 ms.
b) Recognition phase: 84 images were presented in random order, and participants indicated whether each image was "*new*" or "*previously seen*" by pressing the corresponding button before proceeding to the next trial.
In the example shown, the correct response is "*new*" for the image on the left and "*already seen*" for the image on the right.

3. Results

3.1. Analytical Strategy

All analyses were conducted using R (R Core Team, 2025). The analytical strategy followed a multi-step approach designed to sequentially test the hypotheses.

First, descriptive statistics and bivariate correlations were computed to examine the relationships among ability EI facets (i.e., emotion recognition and understanding), the ratio of correctly recognized positive to negative images, and the two indicators of SWB (i.e., life satisfaction and positive relations). This preliminary step provided an overview of the data structure and initial evidence for the expected bivariate associations (H1–H3).

Second, a series of hierarchical linear regression models were estimated to clarify the unique and combined contributions of distinct ability EI facets and positive memory bias to SWB. Within each model, predictors were entered in successive steps to evaluate their incremental explanatory power. In the first step, the focal ability EI facet and control variables (sex, mood) were included to establish a baseline model. In the second step, the ratio of correctly recognized positive to negative images was added to examine its additional predictive value and its potential mediating role in the relationship between the specific ability EI facet and the corresponding SWB outcome[30]. Changes in explained variance (ΔR^2) across steps were examined to assess whether including memory bias attenuated the direct association between ability EI facets and SWB.

Third, mediation analyses were performed using the *lavaan* package (Rosseel, 2012) to formally test whether ratio of correctly recognized positive to negative images mediated the association between ability EI and each SWB (H4). Separate models were estimated for life satisfaction and positive relations. Within each outcome, distinct mediation models were

[30] Working memory was not included as a control variable, as it was not related to any of the memory performance indices assessed in the present study.

specified for emotion recognition and emotion understanding, such that each ability EI facet served as the independent variable, the ratio of correctly recognized positive to negative images as the mediator, the focal SWB indicator as the dependent variable, and sex and mood as covariates.

Indirect effects were estimated via a nonparametric bootstrapping procedure (5000 resamples, $\alpha = .05$) using bias-corrected 95% confidence intervals. This method was chosen for its robustness and minimal distributional assumptions, allowing reliable estimation of mediation effects even in moderately sized samples.

3.2. Descriptive statistics

3.2.1. Correct recognition score in memory task

Correct recognition score was calculated by subtracting the proportion of images the participant reported as viewed but were actually novel (false alarms) from the proportion of correctly identified previously viewed images (hits) (Charles et al., 2003). Numbers of hits and false alarms for positive, negative, and neutral images are presented in Table 20.

Table 20: The proportion of hits and false alarms for each image category

	Hits		**False alarms**	
Image category	**M**	**SD**	**M**	**SD**
Positive	78.57	14.59	9.90	10.70
Negative	83.91	12.85	16.36	15.02
Neutral	70.70	16.41	14.13	12.76

Correct recognition scores for positive, negative, and neutral image categories across all participants are illustrated in Figure 15.

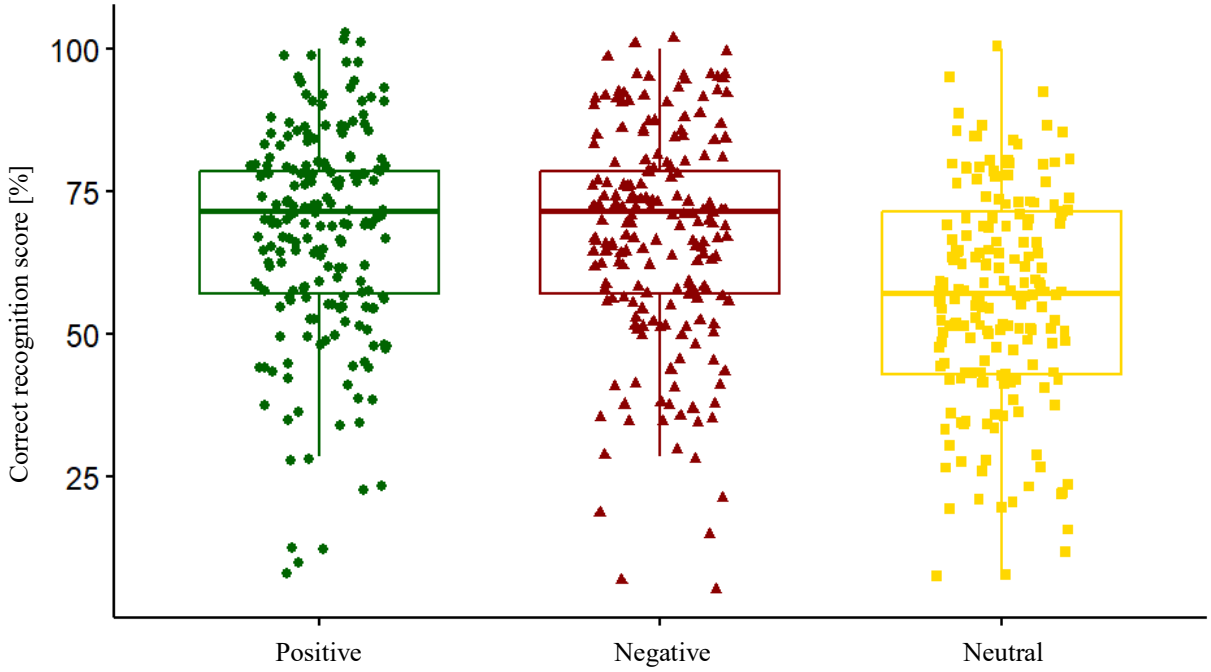

Figure 15: Correct recognition score for each image category.

3.2.2. Correlations

Table 21 presents the means, standard deviations, and intercorrelations, for all study variables, including ability EI, SWB indicators, and the ratio of correctly recognized positive to negative images.

Emotion recognition and understanding were not significantly associated with life satisfaction or positive relations, providing no support for H1. Likewise, emotion recognition and understanding did not correlate with the ratio of correctly recognized positive to negative images, which does not support H2. In addition, the ratio of correctly recognized positive to negative images was unrelated to both SWB indicators, failing to support H3.

Table 21: Means, standard deviations, and intercorrelations among ability EI facets, emotion recognition scores, and SWB indicators

	M	SD	1	2	3	4	5	6	7
1. Age	22.82	3.92							
2. Sex	1.74	-	-0.20**						
3. Mood	6.47	1.73	0.08	-0.02					
4. GERT	0.66	0.12	0.01	0.05	-0.02				
5. STEU	0.65	0.11	-0.01	0.06	-0.02	0.32***			
6. Pos/neg	1.15	0.87	0.05	-0.23**	-0.01	-0.03	-0.01		
7. Life satisfaction	5.03	1.20	-0.04	0.06	0.37***	-0.02	-0.07	-0.15*	
8. Positive relations	4.72	0.82	0.06	0.07	0.20**	0.02	0.04	-0.16*	0.48***

Note: GERT: Geneva Emotion Recognition Test. STEU: Situational Test of Emotion Understanding. Pos/neg: Ratio of correctly recognized positive to negative images. * $p < .05$, ** $p < .01$, *** $p < .001$.

3.3.1. Emotion recognition

Emotion recognition and the ratio of correctly recognized positive to negative images were evaluated as predictors of life satisfaction and positive relations, controlling for sex and mood (Table 22). In Step 1, each outcome was modeled as a function of sex, mood, and emotion recognition score to estimate emotion recognition's unique contribution net of covariates. Emotion recognition did not predict life satisfaction nor positive relations. Mood was the only robust predictor, and sex was non-significant. In Step 2, model, the ratio of correctly recognized positive to negative images was added to assess its incremental contribution. This addition produced only a small increase in explained variance ($\Delta R^2 = .02$) and a weak negative association with both outcomes, while emotion recognition remained non-significant.

Table 22: Hierarchical regression analysis predicting life satisfaction and positive relations

	Life satisfaction		**Positive relations**	
Predictors	**Step 1**	**Step 2**	**Step 1**	**Step 2**
Sex	0.07	0.04	0.08	0.04
Mood	0.37***	0.37***	0.20**	0.20**
GERT	−0.01	−0.01	0.02	0.02
Pos/neg		−0.14*		−0.15*
Model fit				
F	9.81***	8.51***	2.85*	3.20*
R^2	0.14	0.16	0.05	0.07
ΔR^2		0.02		0.02

Note: GERT: Situational Test of Emotion Recognition. Pos/neg: Ratio of correctly recognized positive to negative images. * $p < .05$, ** $p < .01$, *** $p < .001$.

3.3.2. Emotion understanding

Emotion understanding and the ratio of correctly recognized positive to negative images were evaluated as predictors of life satisfaction and positive relations, controlling for sex and mood (Table 23). In Step 1, each outcome was modeled as a function of sex, mood, and emotion understanding to estimate emotion understanding's unique contribution net of covariates. Emotion understanding did not predict either outcome. Mood was the only robust predictor, and sex was non-significant. In Step 2, the ratio of correctly recognized positive to negative images was added to assess its incremental contribution. This yielded a small increase in explained variance ($\Delta R^2 = .02$; total $R^2 = .16$ for life satisfaction and .07 for positive relations). The ratio of correctly recognized positive to negative images showed a weak negative association with life satisfaction ($b = -.14$, $p < .05$) and positive relations ($b = -.15$, $p < .05$), while emotion understanding remained non-significant in both models.

Table 23: Hierarchical regression analysis predicting life satisfaction and positive relations

	Life satisfaction		**Positive relations**	
Predictors	**Step 1**	**Step 2**	**Step 1**	**Step 2**
Sex	0.07	0.04	0.08	0.04
Mood	0.37***	0.37***	0.20**	0.20**
STEU	−0.06	−0.06	0.04	0.04
Pos/neg		−0.14*		−0.15*
Model fit				
F	10.12***	8.75***	2.93*	3.26*
R^2	0.14	0.16	0.05	0.07
ΔR^2		0.02		0.02

Note: STEU: Situational Test of Emotion Understanding. Pos/neg: Positive over negative images recognition score. * $p < .05$, ** $p < .01$, *** $p < .001$.

3.4. Mediation analyses

The mediation analyses did not reveal any significant indirect effects (Table 24). Neither emotion recognition nor emotion understanding were associated with the mediating variable, and the indirect pathways to life satisfaction or positive relations were not statistically significant. These findings indicate that the hypothesized mediation effect was not supported.

Table 24: Summary of bootstrapped mediation analyses of the effect of ability EI facets on SWB indicators through correct recognition proportion of positive images among emotional ones (N=186; 5000 bootstraps)

Predictors	Outcomes	Mediator	Total effect	Direct effect	Indirect effect		
					Point estimate	95% CI	
						Lower	Upper
GERT	SWLS	Pos/emo	-0.12	-0.14	0.02	-0.17	0.22
GERT	PR	Pos/emo	0.15	0.14	0.01	-0.09	0.18
STEU	SWLS	Pos/emo	-0.67	-0.63	-0.04	-0.32	0.16
STEU	PR	Pos/emo	0.29	0.32	-0.03	-0.22	0.14

Note: Paths were estimated while controlling for age and sex. Unstandardized regression coefficients shown for each path. STEU: Situational Test of Emotion Understanding, GERT: Geneva Emotion Recognition Test, Pos/emo: Positive over negative images recognition score, SWLS: Satisfaction with life, PR: Positive relations. Each row represents a distinct mediation model. 95% CI represents 95% confidence interval.

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References

Allen, V. D., Weissman, A., Hellwig, S., MacCann, C., & Roberts, R. D. (2014). Development of the situational test of emotional understanding–brief (STEU-B) using item response theory. *Personality and Individual Differences, 65*, 3-7. https://doi.org/10.1016/j.paid.2014.01.051

Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: a comparison of self-report and performance measures of emotional intelligence. *Journal of personality and social psychology, 91*(4), 780. https://doi.org/10.1037/0022-3514.91.4.780

Cabello, R., Sorrel, M. A., Fernández-Pinto, I., Extremera, N., & Fernández-Berrocal, P. (2016). Age and gender differences in ability emotional intelligence in adults: A cross-sectional study. *Developmental psychology, 52*(9), 1486. https://doi.org/2016-40977-005

Charles, S. T., Mather, M., & Carstensen, L. L. (2003). Aging and emotional memory: the forgettable nature of negative images for older adults. *Journal of experimental psychology: general, 132*(2), 310. https://doi.org/10.1037/0096-3445.132.2.310

Corsi, P. M. (1972). *Human memory and the medial temporal region of the brain.* [Doctoral dissertation, McGill University]. Montréal, Canada.De Vries, R. E. (2013). The 24-item brief HEXACO inventory (BHI). *Journal of Research in Personality, 47*(6), 871-880. https://doi.org/10.1016/j.jrp.2013.09.003

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of personality assessment, 49*(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13

Extremera, N., Ruiz-Aranda, D., Pineda-Galán, C., & Salguero, J. M. (2011). Emotional intelligence and its relation with hedonic and eudaimonic well-being: A prospective study. *Personality and Individual Differences, 51*(1), 11-16. https://doi.org/10.1016/j.paid.2011.02.029

Jermann, F., Van der Linden, M., d'Acremont, M., & Zermatten, A. (2006). Cognitive emotion regulation questionnaire (CERQ). *European Journal of Psychological Assessment, 22*(2), 126-131. https://doi.org/10.1027/1015-5759.22.2.126

Joshanloo, M., & Jovanovic, V. (2020, Jun). The relationship between gender and life satisfaction: analysis across demographic groups and global regions. *Arch Womens Ment Health, 23*(3), 331-338. https://doi.org/10.1007/s00737-019-00998-w

Libbrecht, N., & Lievens, F. (2012). Validity evidence for the situational judgment test paradigm in emotional intelligence measurement. *International Journal of Psychology, 47*(6), 438-447. https://doi.org/10.1080/00207594.2012.682063

Marchewka, A., Żurawski, Ł., Jednoróg, K., & Grabowska, A. (2014). The Nencki Affective Picture System (NAPS): Introduction to a novel, standardized, wide-range, high-quality, realistic picture database. *Behavior research methods, 46*(2), 596-610. https://doi.org/10.3758/s13428-013-0379-1

Mayer, J. D., & Gaschke, Y. N. (1988). The experience and meta-experience of mood. *Journal of personality and social psychology, 55*(1), 102. https://doi.org/10.1037/0022-3514.55.1.102

Morrison, A. B., Conway, A. R., & Chein, J. M. (2014). Primacy and recency effects as indices of the focus of attention. *Frontiers in human neuroscience, 8*. https://doi.org/10.3389/fnhum.2014.00006

Pekaar, K. A., Bakker, A. B., van der Linden, D., & Born, M. P. (2018). Self-and other-focused emotional intelligence: Development and validation of the Rotterdam Emotional Intelligence Scale (REIS). *Personality and Individual Differences, 120*, 222-233. https://doi.org/10.1016/j.paid.2017.08.045

Petrides, K. V., Pita, R., & Kokkinaki, F. (2007). The location of trait emotional intelligence in personality factor space. *British Journal of Psychology, 98*(2), 273-289. https://doi.org/10.1348/000712606X120618

Pläschke, R. N., Patil, K. R., Cieslik, E. C., Nostro, A. D., Varikuti, D. P., Plachti, A., Lösche, P., Hoffstaedter, F., Kalenscher, T., & Langner, R. (2020). Age differences in predicting working memory performance from network-based functional connectivity. *Cortex, 132*, 441-459. https://doi.org/10.1016/j.cortex.2020.08.012

Preece, D., Becerra, R., & Campitelli, G. (2019). Assessing emotional reactivity: Psychometric properties of the Perth Emotional Reactivity Scale and the development of a short form. *Journal of personality assessment, 101*(6), 589-597. https://doi.org/10.1080/00223891.2018.1465430

R Core Team. (2025). *R Core Team R: A language and environment for statistical computing.* In R Foundation for Statistical Computing. (Version 4.4.1) [Computer software]. https://www.R-project.org/

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of statistical software, 48*(1), 1-36. https://doi.org/10.18637/jss.v048.i02

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of personality and social psychology, 57*(6), 1069. https://doi.org/10.1037/0022-3514.57.6.1069

Schlegel, K., & Scherer, K. R. (2016). Introducing a short version of the Geneva Emotion Recognition Test (GERT-S): Psychometric properties and construct validation. *Behavior research methods, 48*(4), 1383-1392. https://doi.org/10.3758/s13428-015-0646-4

Van der Linden, D., Pekaar, K. A., Bakker, A. B., Schermer, J. A., Vernon, P. A., Dunkel, C. S., & Petrides, K. (2017). Overlap between the general factor of personality and emotional intelligence: A meta-analysis. *Psychological bulletin, 143*(1), 36-52. https://doi.org/10.1037/bul0000078

Van der Linden, D., Tsaousis, I., & Petrides, K. V. (2012). Overlap between General Factors of Personality in the Big Five, Giant Three, and trait emotional intelligence. *Personality and Individual Differences, 53*(3), 175-179. https://doi.org/10.1016/j.paid.2012.03.001

Vesely Maillefer, A., Udayar, S., & Fiori, M. (2018). Enhancing the prediction of emotionally intelligent behavior: The PAT integrated framework involving trait EI, ability EI, and emotion information processing. *Frontiers in Psychology, 9*, 1078. https://doi.org/10.3389/fpsyg.2018.01078

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of personality and social psychology, 54*(6), 1063. https://doi.org/10.1037/0022-3514.54.6.1063

Yap, S. C., Wortman, J., Anusic, I., Baker, S. G., Scherer, L. D., Donnellan, M. B., & Lucas, R. E. (2017). The effect of mood on judgments of subjective well-being: Nine tests of the judgment model. *Journal of personality and social psychology, 113*(6), 939. https://doi.org/10.1037/pspp0000115

11.4.2. Supplemental Material

Other measures collected in the study but not reported in the paper

As this study is part of a greater project on exploring the mechanisms mediating the relationship between emotional intelligence and well-being, the online testing session contained several additional questionnaires that are not investigated in the present paper. Participants filled in the Rotterdam Emotional Intelligence Scales (REIS; Pekaar et al., 2018), the Perth Emotional Reactivity Scale short-form (PERS-S; Preece et al., 2019), the Cognitive Emotional Regulation Questionnaire short-form (Jermann et al., 2006), the 24-item Brief HEXACO Inventory (De Vries, 2013), the Positive Affect and Negative Affect Scales (PANAS; Watson et al., 1988).

References

De Vries, R. E. (2013). The 24-item brief HEXACO inventory (BHI). *Journal of Research in Personality*, *47*(6), 871-880. https://doi.org/10.1016/j.jrp.2013.09.003

Jermann, F., Van der Linden, M., d'Acremont, M., & Zermatten, A. (2006). Cognitive emotion regulation questionnaire (CERQ). *European Journal of Psychological Assessment, 22*(2), 126-131. https://doi.org/10.1027/1015-5759.22.2.126

Pekaar, K. A., Bakker, A. B., van der Linden, D., & Born, M. P. (2018). Self-and other-focused emotional intelligence: Development and validation of the Rotterdam Emotional Intelligence Scale (REIS). *Personality and Individual Differences, 120*, 222-233. https://doi.org/10.1016/j.paid.2017.08.045

Preece, Becerra, R., & Campitelli, G. (2019). Assessing Emotional Reactivity: Psychometric Properties of the Perth Emotional Reactivity Scale and the Development of a Short Form. *J Pers Assess, 101*(6), 589-597. https://doi.org/10.1080/00223891.2018.1465430

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology, 69*(4), 719–727. https://doi.org/10.1037/0022-3514.69.4.719

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of personality and social psychology, 54*(6), 1063-1070. https://doi.org/10.1037/0022-3514.54.6.1063

Table A.1: Norms and Characteristics of Emotional and Neutral Images Used in the Memory Task

Image name	Category	Subcategory	Status
Faces_321_h.jpg	Positive	Humans	Already seen
Faces_347_h.jpg	Positive	Humans	New
Faces_120_h.jpg	Positive	Humans	Already seen
Faces_116_h.jpg	Positive	Humans	New
Faces_352_h.jpg	Positive	Humans	Already seen
Faces_134_h.jpg	Positive	Humans	New
People_183_h.jpg	Positive	Humans	Already seen
People_189_h.jpg	Positive	Humans	New
People_180_h.jpg	Positive	Humans	Already seen
People_187_h.jpg	Positive	Humans	New
Faces_361_v.jpg[1]	Positive	Humans	Already seen
Faces_136_v.jpg[1]	Positive	Humans	New
Faces_356_h.jpg	Positive	Humans	Already seen
Faces_342_h.jpg	Positive	Humans	New
Faces_234_h.jpg	Positive	Humans	Already seen
Faces_122_h.jpg	Positive	Humans	New
Faces_349_h.jpg	Positive	Humans	Already seen
People_130_h.jpg	Positive	Humans	New
Animals_165_h.jpg	Positive	NonHumans	Already seen
Animals_175_h.jpg	Positive	NonHumans	New
Animals_122_h.jpg	Positive	NonHumans	Already seen
Animals_106_h.jpg	Positive	NonHumans	New
Animals_179_h.jpg	Positive	NonHumans	Already seen
Animals_176_h.jpg	Positive	NonHumans	New
Objects_291_h.jpg	Positive	NonHumans	Already seen
Objects_171_h.jpg	Positive	NonHumans	New
Objects_078_h.jpg	Positive	NonHumans	Already seen
Objects_092_v.jpg	Positive	NonHumans	New
People_145_h.jpg	Negative	Humans	Already seen
People_120_h.jpg	Negative	Humans	New
People_119_h.jpg	Negative	Humans	Already seen
People_117_h.jpg	Negative	Humans	New
Faces_155_h.jpg	Negative	Humans	Already seen
Faces_011_h.jpg	Negative	Humans	New
Faces_017_h.jpg	Negative	Humans	Already seen
Faces_033_h.jpg	Negative	Humans	New
Faces_161_h.jpg	Negative	Humans	Already seen
Faces_279_h.jpg	Negative	Humans	New
Faces_288_h.jpg	Negative	Humans	Already seen
People_126_h.jpg	Negative	Humans	New
People_137_h.jpg	Negative	Humans	Already seen
People_121_h.jpg	Negative	Humans	New
Faces_035_h.jpg	Negative	Humans	Already seen
Faces_036_h.jpg	Negative	Humans	New
Faces_168_h.jpg	Negative	Humans	Already seen

Faces_303_h.jpg	Negative	Humans	New
Animals_053_h.jpg	Negative	NonHumans	Already seen
Animals_049_h.jpg	Negative	NonHumans	New
Animals_057_h.jpg	Negative	NonHumans	Already seen
Animals_018_h.jpg	Negative	NonHumans	New
Animals_036_h.jpg	Negative	NonHumans	Already seen
Animals_051_h.jpg	Negative	NonHumans	New
Objects_111_h.jpg	Negative	NonHumans	Already seen
Objects_120_h.jpg	Negative	NonHumans	New
Objects_117_h.jpg	Negative	NonHumans	Already seen
Objects_151_h.jpg	Negative	NonHumans	New
Faces_305_h.jpg	Neutral	Humans	Already seen
Faces_078_h.jpg	Neutral	Humans	New
Faces_049_h.jpg	Neutral	Humans	Already seen
Faces_048_h.jpg	Neutral	Humans	New
Faces_196_h.jpg	Neutral	Humans	Already seen
Faces_205_h.jpg	Neutral	Humans	New
People_146_h.jpg	Neutral	Humans	Already seen
People_097_h.jpg	Neutral	Humans	New
People_114_h.jpg	Neutral	Humans	Already seen
People_102_h.jpg	Neutral	Humans	New
Faces_058_h.jpg	Neutral	Humans	Already seen
Faces_045_h.jpg	Neutral	Humans	New
Faces_309_h.jpg	Neutral	Humans	Already seen
Faces_311_h.jpg	Neutral	Humans	New
Faces_276_h.jpg	Neutral	Humans	Already seen
Faces_222_h.jpg	Neutral	Humans	New
People_056_h.jpg	Neutral	Humans	Already seen
Faces_180_h.jpg	Neutral	Humans	New
Animals_209_h.jpg	Neutral	NonHumans	Already seen
Animals_088_h.jpg	Neutral	NonHumans	New
Animals_105_h.jpg	Neutral	NonHumans	Already seen
Animals_218_h.jpg	Neutral	NonHumans	New
Landscapes_111_h.jpg	Neutral	NonHumans	Already seen
Landscapes_130_h.jpg	Neutral	NonHumans	New
Objects_311_h.jpg	Neutral	NonHumans	Already seen
Objects_308_h.jpg	Neutral	NonHumans	New
Objects_189_h.jpg	Neutral	NonHumans	Already seen
Objects_204_h.jpg	Neutral	NonHumans	New

Note: The column named “Status” indicates whether an image was presented during the initial session ('Already seen') or is being shown for the first time ('New'). [1] Images, originally in a vertical orientation, have been cropped to be displayed horizontally.