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TRAIT EMOTIONAL INTELLIGENCE:

Evidence From Italian Adolescents and Adults

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Links with other scientific material

Part of the data presented in the current dissertation overlaps with the following published or submitted articles:

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Contents

CHAPTER 1

Introduction

Interest toward emotional intelligence (EI) has highly increased in the last decade, so much that a search for any scientific publication based on the phrase "emotional intelligence" using the PsycINFO database has returned 1,969 records over the past five years. Furthermore, a large number of popular books exclusively on this topic, starting from a bestseller by Goleman (1995), have been published, making EI object of interest for both academia and medias. The expanding body of literature demonstrating the important functional accounts of emotions (e.g., Keltner & Gross, 1999; Keltner & Kring, 1998), as well as revealing that the realms of cognition, behavior and affect are inherently interdependent (e.g., Forgas, 2001; Izard et al., 2001), has in fact contributed to the interest in the scientific study and development of EI. Such a growing attention may be also attributed to the appeal towards the study of people's variability in emotion-related skills or dispositions, as well as to the idea that EI may be crucial to important real-life domains (e.g., workplace, social relationships and family functioning).

Current theories and studies on EI can be seen not only as a development of conventional intelligence research (see Zeidner, Roberts, & Matthews, 2008), but also as an expression of the progressive emphasis of the scientific literature on the importance of emotion-related competencies, or dispositions, in successful adaptation. New additional influences, such as the advent of positive psychology (Seligman, 1999), further contributed to the attractiveness of, and the increasing interest towards, this psychological attribute. At the same time, the growing number of publications on EI may be a consequence of a certain degree of skepticism which was repeatedly expressed within the scientific community (Antonakis, 2004; Keele & Bell, 2008; Fineman, 2004; Waterhouse, 2006) on the real value of the construct.

Toward a Consensual Definition of Emotional Intelligence

Behind the construct of EI lies the firm belief that psychosocial adaptation depends upon the extent to which an individual is able to understand the causes and consequences of feelings, to recognize their nature, and to regulate them effectively (Izard, 2001; Salovey, 2001). The notion of the importance of emotional skills is not a brand-new one, as the theoretical roots of some of these basic principles can be found in the work of prominent theorists and philosophers. For instance, in Aristotle's Nicomachean Ethics (c. 322 B.C.E./1962) the Greek philosopher reached the conclusion that emotional reactions have to be developed and regulated according to the precepts of good judgment and self-awareness. In the Nicomachean Ethics Aristotle argued that "*Anyone can become angry – that is easy. But to be angry with the right person, to the right degree, at the right time, for the right purpose, and in the right way – that is not easy*" (Gibbs, 1995). Another more recent example lies in Freud's thinking, which emphasized the role of unexpressed emotions in personalities functioning. The father of psychoanalysis postulated that mental disorders develop from repressed, or denied, emotions in the unconscious mind (1915/1957), thus revolving his theories on mental disorders around emotional processes such as maladaptive emotion management. Even though the hypothetical antecedents of EI can be traced back to centuries ago, the conceptualization of EI as a scientific and measurable construct can be considered as a more recent issue, still challenging many psychologists and beyond.

As a term *emotional intelligence* has been used several times since 1960s (e.g., Greenspan, 1989; Leuner, 1966; Payne, 1985, 1986; Van Ghent, 1961). Nevertheless, EI has not been formally described until 1990, when its first systematic framework and measurement were proposed in two journal papers (Mayer, DiPaolo, & Salovey, 1990; Salovey & Mayer, 1990). At that time, EI was conceived as a ''subset of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate them and to

use this information to guide one's thinking and actions'' (Salovey & Mayer, 1990, p. 189). After Salovey and Mayer's definition, which was subsequently revised (Mayer & Salovey, 1997), a number of alternative models appeared (e.g., Bar-On, 1997; Cooper & Sawaf, 1997; Goleman, 1995; Wessinger, 1998), and attempts to develop assessment methods of EI were proposed (Bar On, 1997; Mayer, Caruso, & Salovey, 1999; Schutte et al., 1998).

To date, EI can be defined as a multi-dimensional construct, encompassing a set of abilities and dispositions concerning the way individuals identify, make use of, deal with, and process emotions of self and others (Bar-On & Parker, 2000). Even though it is possible to provide a general definition of the construct, two different theoretical and operational school of thought for EI can be currently identified. While some researchers conceptualize EI as a set of abilities, measurable through maximal performance tests, others view EI as a cluster of emotion-related self-perceptions and dispositions, that can be evaluated via typical performance instruments, akin to traditional personality testing. Maximal performance tests differ to a large extent from self-report measures of EI because, for instance, they examine how individuals perform at their best in specific circumstances (e.g., at the time of instruments' administration), rather than assessing how individuals perform on a daily basis, which is the case for typical performance instruments.

Despite their diversity, on the one hand models and instruments developed according to these perspectives were for long used interchangeably or otherwise dismissed as incompatible (Zeidner et al., 2008). On the other, the neglect of the evident differences between the two conceptualizations brought to the development of a wide array of self-report measures claiming to assess EI as a set of cognitive abilities (e.g., Schutte et al., 1998). In an effort to bring clarity to the field, Petrides and Furnham (2000, 2001) formally distinguished these two opposite approaches into *ability* and *trait EI* respectively. The conceptual separation of these models took into account the psychometric difference between measures

of typical and maximal performance (e.g., Ackerman & Heggestad, 1997; Cronbach, 1949), and its implications on construct operationalization.

For reasons which will be described in the following sections, the present thesis focuses solely on the trait EI model. However, given that the coexistence of trait and ability EI can be considered as the most divisive issue within the EI literature, it is important to briefly take a closer look at both models separately. Not only a description of such different perspectives will provide a clearer picture of the state of the art in the field, but it will also help in a more thorough understanding of key unresolved issues concerning EI.

Ability EI

Ability EI is conceptualized as a form of intelligence for reasoning about emotion, measured by means of analogous instruments to traditional cognitive testing (Mayer, Roberts, & Barsade, 2008), where respondents are asked to solve problems and scenarios involving abilities such as emotion understanding, perception and recognition (e.g., MacCann & Roberts, 2008; Mayer, Salovey, Caruso, & Sitarenios, 2003). Over the years there have been many attempts to operationalize EI as a set of cognitive abilities (Mayer, Salovey, & Caruso, 1997), as well as to provide an appropriate framework for its measurement. The Four-Branch Model of EI (Mayer & Salovey 1997; Salovey & Mayer, 1990) is perhaps the most widely used approach to conceptually, as well as operationally, define ability EI. The model views overall EI as joining abilities from four areas: (a) accurately perceiving emotion, (b) using emotions to facilitate thought, (c) understanding emotion, and (d) managing emotion (Mayer & Salovey, 1997; Mayer, Salovey, Caruso, & Sitarenios, 2003). Each of these domains is viewed as developing from early childhood onward. Proponents of this model maintain that as skills grow in one area (e.g., understanding emotions), so will skills in other areas (e.g., regulating emotions and being able to appropriately perceive them).

Even though there are several published performance tests that measure distinct emotional abilities, such as the Diagnostic Analysis of Nonverbal Accuracy Scales (DANVA and DANVA-2; Nowicki & Duke, 1994) for perceptual accuracy of emotion, and the Level of Emotional Awareness Scale (LEAS; Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990) for emotional awareness, the most comprehensive performance test of EI is the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2002). The MSCEIT is based upon Mayer and Salovey's four branch models, according to which EI is organized in a hierarchical structure with one global EI factor, and 4 abilities or branches. The MSCEIT comprises eight individual tasks, with each branch being assessed by two tasks. Each task is scored according to two scoring-systems: consensus and expert-based scoring. With respect to the consensus based method, an answer that was chosen by 90% of the respondents, will attribute a score of .90 to the persons that select it. As noted by Fiori and colleagues (2014) the main intrinsic issue of such system resides in its logic, and appears particularly evident when answers are easy to endorse. In fact, in the case of an easy to endorse answer, most people will get the highest score for a question that is, in fact, easy (i.e., most people identify the correct answer). Regarding the expert-based scoring, correct answers reflect the responses provided by the majority of a pool of emotion experts. The use of the consensus-based scoring is considered more reliable, for this reason it is preferred to the use of expert method (Mayer, Caruso, & Salovey, 1999).

Trait EI

Trait EI theory advanced by Petrides and Furnham (2000, 2001) offers a way to redefine EI models traditionally operationalized through typical-performance measures, in order to connect them, and the measures based on them, to scientific theories of psychology (Petrides, 2011). As the label of the construct represents an oxymoron itself, *emotional self-efficacy* was thought to be an appropriate alternative term for the construct (Petrides &

Furnham, 2001; Petrides, Pérez-González, & Furnham, 2007). However, given that trait EI encompasses aspects of self-perception and dispositions that are not primarily pertinent to emotional self-efficacy, such as low impulsiveness and trait happiness, the two concepts should not be viewed as identical (Kirk, Schutte, & Hine, 2008). For this reason, throughout the present thesis only the term trait EI will be used. An explanation for the use of *trait EI* can be provided though. On the one hand, the word *trait*, viewed in the Eysenckian way of "disposition" (Eysenck & Eysenck, 1985), is used to raise emphasis to the affiliation of the construct to the domain of personality, as well as to underline that the construct does not belong to the realm of cognitive abilities. On the other hand, the term *EI* links this conceptualization to the extant EI literature (Petrides & Furnham, 2001).

Trait EI is conceived as a constellation of dispositions referring to typical patterns of behaviors, thoughts and feelings, associated to the perception, regulation, management and expression of emotion-related information as well as individual dispositions, including self-control and self-motivation (Petrides, 2010, 2011). This definition explicitly acknowledges the subjective nature of human emotional experience by recognizing that self-reports of EI assess respondents' perception of skills and beliefs, rather than actual abilities. Self-reported competencies may only be partially based on actual EI abilities, as they may reflect other variables, including social influences, personal standards and values, that contribute to emotionally adaptive behaviors. Trait EI theory also provides an appropriate and systematic framework for the interpretation of results obtained with self-report measures of EI, asking respondents to report answers on their characteristic abilities and behaviours (e.g., Bar-On, 1997; Petrides, 2009).

A fundamental postulation of trait EI theory is that the construct is located at the lower levels of extant frameworks of human personality (Pérez-González & Sanchez-Ruiz, 2014; Petrides, Pita, & Kokkinaki, 2007). Support to this claim has been found in not only factor

location studies demonstrating that a partially distinct trait EI factor can be isolated in both Eysenckian and Big-Five factor space (Davies, Stankov, & Roberts, 1998; Pérez-González & Sanchez-Ruiz, 2014; Petrides, Pita, et al., 2007), but also behavioral genetic investigations (Vernon, Petrides, Bratko, & Schermer, 2008; Vernon, Villani, Schermer, & Petrides, 2008; Veselka et al., 2010). Behavioral genetic studies have revealed that the magnitude of genetic contribution to phenotypic variance in trait EI approximates the estimates of heritability for higher-order personality dimensions (Vernon et al., 2008), and that the observed phenotypic covariation between trait EI and personality super-factors is attributable to a genetic overlap in the region of 20% to 80%. These results suggest that a substantial proportion of the genes that contribute to individual differences in personality higher-order dimensions also influence variation in trait EI (Vernon et al., 2008; Veselka et al., 2010), thus reinforcing the conceptualization of trait EI as a personality construct. Many trait EI instruments have been developed over the years, for a summary of the most prominent trait EI measures see Chapter 2.

State of the Art and Open Issues

Trait and ability EI are not mutually exclusive and their bifurcation is now widely recognized by researchers (e.g., Austin, 2010; Neubauer & Freudenthaler, 2005). Results of a number of independent investigations support their distinction by attesting that measures of trait and ability EI have weak and not always significant correlations in samples of adults (e.g., Brackett & Mayer, 2003; Goldenberg, Matheson, & Mantler, 2010; Van Rooy, Viswesvaran, & Pluta, 2005; Warwick & Nettelbeck, 2004), as well as adolescents (Davis & Humphrey, 2012a). Moreover, trait and ability EI provide independent predictive contributions over various criteria (Brackett & Mayer 2003; Brannick, Wahi, Arce, Johnson, Nazian, & Goldin, 2009; Davis & Humphrey, 2012a), and are differentially linked to other constructs. Particularly, tests of ability EI tend to relate with cognitive intelligence (Brackett

& Mayer, 2003; Farrelly & Austin, 2007), whereas trait EI questionnaires are more strongly associated with personality (e.g., Ferguson & Austin, 2010; Mikolajczak, Luminet, Leroy, & Roy, 2007).

More recently, researchers of the field have started acknowledging that ability and trait EI reflect different aspects of the individual's overall emotional resource (Schutte, Malouff, & Hine, 2011; Petrides, 2011). For instance, some individuals may result high at ability-based tests, as they may possess the adequate emotional knowledge to perform well on such tasks, but, at the same time, they may score poorly at trait EI questionnaires as they may lack self-efficacy to apply their knowledge habitually in real-life situations. For this reason we can safely say that there is a growing consensus that ability and trait EI represent complementary, rather than conflicting, perspectives. Although this seems to be a "meeting point" of the two different school of thought, a number of captivating issues concerning primarily the assessment of EI are still enlivening the scientific debate.

Over the past two decades various aspects of EI have been empirically linked to outcomes pertaining diverse areas of functioning, from psychological well-being and mental (Martins, Ramalho, & Morin, 2010; Schutte, Malouff, Thorsteinsson, Bhullar, & Rooke, 2007), as well as physical (Schutte et al., 2007) health, to job performance (Joseph, Jin, Newman, & O'Boyle, 2014), and academic achievement (Perera & DiGiacomo, 2013), in samples of different ages and different cultural backgrounds. The attention of researchers has been directed particularly toward a number of psychological disorders, including borderline personality (Gardner & Qualter, 2009; Leible & Snell, 2004; Webb & McMurran, 2008), addictions (Kun & Demetrovics, 2010), and eating problems (Hambrook, Brown, & Tchanturia, 2012; Markey & Vander Wal, 2007), with studies showing that EI may be a useful concept for improving our understanding of these psychopathologies. Furthermore, in line with the principle that adaptive emotional functioning has relevant implications for a

number of health-related outcomes, the use of EI has expanded to include applied contexts, as various intervention programs aimed at promoting emotion-related abilities have been developed (Castillo, Salguero, Fernández-Berrocal, & Balluerka, 2013; Ciarrochi & Mayer, 2013; Nelis, Quoidbach, Mikolajczak, & Hansenne, 2009; Pool & Qualter, 2012; Ruttledge & Petrides, 2011).

The idea of EI is certainly an appealing one. However, despite the outburst of research focusing on its potential applications, construct and instruments validation have been largely neglected (Stough, Saklofske, & Parker, 2009). Subsequently a potential source of bias for the interpretation of past findings resides in the measure chosen for the assessment of EI. In fact, a number of meta-analyses revealed significant variations in EI predictive potential as a function of the measure chosen for the operationalization of the construct (Martins et al., 2010; Resurrección, Salguero, & Ruiz-Aranda, 2014). From an applied standpoint, this shortcoming poses a significant challenge to research and clinical progress. In addition, issues such as the non-convergence between the two EI operationalizations raise a number of questions about the nature of the constructs they measure, thus keeping lively the debate on how to best conceptualize and operationalize ability and trait EI (e.g., Fiori, 2009; Ybarra, Kross, & Sanchez-Burks, 2014).

Regarding the ability model, attempts to operationalize EI objectively as a set of competencies related to intelligence have been meeting with a number of difficulties which have been observed by several investigations and reviews (e.g., Fiori & Antonakis, 2011; Fiori et al., 2014; Keele & Bell, 2008; MacCann et al., 2003; Maul, 2012; Palmer, Gignac, Manocha, & Stough, 2005). As it has been repeatedly noted, the heart of those issues refers to the inherently subjective nature of emotional experiences (e.g., Brody, 2004; Robinson & Clore, 2002), which is barely taken into account by an objective right-or-wrong scoring format (Petrides, 2010). Furthermore, when the correct answer derives from expert's

judgments or consensus with the majority, as in the case of the MSCEIT, high scores may indicate something other than emotional abilities. For instance, high test scores may reflect a combination of other variables such as conformity to social norms (Matthews, Emo, Roberts, & Zeidner, 2006), confounding with vocabulary size (Wilhelm, 2005), theoretical knowledge about emotions (Brody, 2004), and stereotypical judgments (O'Sullivan, 2007). As a consequence of these criticisms, questions about what is actually assessed by ability EI tests have been pointed out. In fact, the correctness of answer in the domain of EI testing is among the most difficult issues to address, particularly when it comes to establish the one best way of using emotions, of feeling and regulating them, across individuals. If we consider individuals' variety in how they feel and manage emotions effectively, this aspect turns out as one of the most problematic. Furthermore, pertinence of emotional reactions may depend on the frame of reference for judging a response as correct and effective. For example, suppressing sadness and disappointment when receiving a negative feedback may be an effective way to manage emotions if the goal of the person is to preserve a good relationship with the supervisor. However, it may not be considered as an effective reaction if the criterion is to reduce frustration and feel better.

With respect to trait EI, a specific issue raised by experts of the field refers to the redundancy between the construct and other well-established psychological attributes, such as the Big Five and alexithymia (Zeidner et al., 2008), with subsequent criticisms pertaining its overall utility. Particularly, given the conceptualization of trait EI as part of the major personality taxonomies, numerous studies have examined the degree of overlap between the construct and the personality models of the Eysenckian Giant Three (Eysenck, 1994) and the Big Five (Costa & McCrae, 1992). On the one hand, correlational investigations (e.g., Austin, Farrelly, Black, & Moore, 2007; Collins, Freeman, & Chamorro-Premuzic, 2012; Petrides et al., 2010; Van der Linden, Tsaousis, & Petrides, 2012) and behavioral-genetic

studies (Petrides, Vernon, Schermer, & Veselka, 2011; Vernon, Villani, Schermer, & Petrides, 2008) support the claim for inclusion of trait EI into personality hierarchies. On the other hand, the large magnitude (Cohen, 1988) of the associations between trait EI and personality dimensions, particularly Neuroticism and Extraversion, feeds into arguments about the construct's redundancy. Many researchers therefore maintain that the construct does not add substantially to the prediction of psychological variables after controlling for the effects of higher-order personality dimensions and other emotion-related constructs (e.g., Landy, 2005; Schulte et al., 2004). In fact, the predictive validity of trait EI inventories is generally deemed to be accounted in large part by the extent of their overlap with sub-facets of higher-order traits relevant to the outcomes being considered (Harms & Credé, 2010). Another point of debate pertains the content domain of trait EI. It has been argued that the current conceptualization may not yet reflect the underlying emotion-related personality trait, therefore a potential refinement of the construct has been suggested (Siegling, Petrides, & Martskvishvili, 2014; Siegling, Vesely, & Saklofske, 2013).

Last, the largest number of studies on EI have generally focused on adulthood. For example, results of previous reviews and meta-analyses which consistently suggest that higher levels of EI are associated with better psychological well-being, included studies performed on adult samples only (Martins et al., 2010; Schutte et al., 2007). In their recent systematic review Resurrección and colleagues (2014) maintain that an analogue pattern of findings can be observed in adolescents. However, considering that the relationship between EI and emotional adjustment in developmental age samples is much less explored compared to adulthood, the authors also emphasized that more studies are needed to fill such a lack of knowledge and understanding (Resurrección et al., 2014). Making efforts for elucidating the contribution of EI over indicators of adolescents' psychological well-being may enhance our understanding of the extent to which an emotion-related construct such as EI plays a part in

their psychological adjustment. Yet, exploring the role of EI on adolescents' adjustment may have a number of implications for the allocation of time and resources to the development and implementation of structured interventions aimed at targeting emotional skills and self-perceptions.

Overview and Rationale for the Present Dissertation

In clinical practice, the importance of working with emotions is undeniable. Given the potential of EI for better psychological adjustment, it is imperative to evaluate whether the assessment tools for this construct are valid predictors of theoretically meaningful outcomes. Improving the accuracy of EI measurement itself can provide psychologists with a clearer framework for its description and assessment. The purpose of the present research was to address some of the abovementioned unresolved issues in the EI literature, paying particular attention to the construct of trait EI. For reasons better specified in the subsequent Chapter, focus of the current dissertation is on trait EI as measured through a commonly used trait EI scale, viz., the Trait Emotional Intelligence Questionnaire (TEIQue; Petrides, 2009). The TEIQue is a multi-dimensional instrument designed to assess four conceptual trait EI-domains (Well-Being, Self-Control, Emotionality, and Sociability), and it is currently one of the most widely used scales for the assessment of trait EI.

The main reason for this choice resides in the recognition of the subjective core of human emotional experience, which is well-represented by trait EI and its assessment methodologies. The obstacles that arise from conceptualizing and operationalizing EI as a set of pure cognitive abilities have been described multiple times (e.g., Brody, 2004; Keele & Bell, 2008; Maul, 2012; Rossen, Kranzler, & Algina, 2008). Instead, self-reports do not rely on the (potentially invalid) criteria of what the "correct" answer should be; they take into account the possibility that different profiles of perceived strengths and weaknesses might be more or less advantageous in different areas of life. The integration of emotional self-

perceptions within the broader hierarchy of personality variables, recognizes trait EI as an aspect of the self that pertain specifically to feelings and emotions (Petrides, Pita, et al., 2007).

This work is therefore aimed to address some of the above-discussed gaps in the trait EI literature by focusing primarily on the TEIQue (Petrides, 2009). Given the lack of a validated adaptation of the TEIQue for the Italian population, first objective of the present research is to validate the Italian form of the questionnaire in a sample of adolescents and adults respectively (Studies 1 and 2). Secondly, by examining the patterns of associations between trait EI and a number of construct-relevant attributes, including higher-order personality dimensions (i.e., the Big Five), and symptoms of depression and anxiety, this work addresses the issue of the construct's predictive and incremental utility (Studies 3 and 4). Thus the current dissertation presents four studies which were developed in order to examine the following general research questions:

Is the TEIQue a valid and reliable tool to assess trait EI? Is trait EI a useful construct to account for indicators of psychological health? To what extent do the conceptual and operational definition of trait EI overlap? Are the results consistent across age groups (i.e., adolescents and adults)?

As mentioned, the analyses and results presented in the next Chapters were based on two samples who completed measures through a cross-sectional data-collection. What follows is a brief overview of the thesis.

Chapter 2 reviews the literature on the existing measures for trait EI, and provides the rationale for the choice of the TEIQue as main assessment tool of the present project. This

chapter also presents two studies aimed at investigating the internal structure of the Italian adaptation of the TEIQue in its full-form for adolescents (Study 1), and adults (Study 2). Additionally, both studies scrutinize internal consistencies and gender differences at the facets, factor, and global level of the measures.

Chapter 3 illustrates the results of a study investigating the predictive and incremental utility of trait EI in a sample of adolescents (Study 3). The potential application of trait EI were studied over internalizing conditions (i.e., symptoms of anxiety and depression) and academic performance (grades at math and Italian language/literacy). The concurrent effect of demographic variables, higher order personality dimensions and non-verbal cognitive ability were controlled.

Chapter 4 presents a study aimed at addressing analogue research questions of the previous chapter, in a sample of Italian adults (Studies 4a and 4b). After meta-analyzing data from the existing literature, the predictive utility of the TEIQue was evaluated over several indicators of psychological health, including anxiety, depression, and somatic complaints. Effects of demographic variables, emotion regulation strategies, and the Big Five were controlled.

Chapter 5 provides a discussion on the overall findings of the current research. In this Chapter general conclusions are drawn and direction for future research are suggested.

CHAPTER 2

The Italian Trait Emotional Intelligence Questionnaire (TEIQue): Findings from Adolescents and Adults

Abstract

One of the most prominent models of EI is trait EI, which conceptualizes EI as a constellation of emotional self-perceptions located at the lower levels of personality hierarchies. The present Chapter focuses on investigating the structure and psychometric properties of the Italian translation of one of the most widely used tools to assess trait EI, viz., the full-length Trait Emotional Intelligence Questionnaire (TEIQue). To this end, Study 1 presents results from a sample of 351 (163 males) adolescents, whereas Study 2 describes findings from a sample of 227 (66 males) adults. The version of the questionnaire targeting either adolescents (TEIQue–AFF) or adults (TEIQue v. 1.50) was administrated to the respective group of participants. Results of both studies provide support for the four-factor hierarchical structure of the Italian TEIQue instruments, thus confirming their cross-cultural stability.

CHAPTER 2

Introduction

The debate surrounding EI continues to captivate, as demonstrated by the consistent increase in the number of peer-reviewed EI articles. One of the most prominent and promising models in this field is trait EI (Petrides & Furnham, 2000, 2001). As mentioned in the previous Chapter (p. 10-11), trait EI is defined as an umbrella construct of emotion-related dispositions and self-perceptions, located at the lower levels of personality hierarchies (Pérez-González & Sanchez-Ruiz, 2014; Petrides, Pita, et al., 2007). Trait EI is measurable through self-report inventories generally asking to the respondents to indicate the degree to which each item reflects the way they feel, think, or act in most situations on a daily basis.

Over the last 20 years a variety of questionnaires claiming to assess EI have been developed (Petrides, Furnham, & Mavroveli, 2008). So much that a review focusing on the measurement of the construct described 15 different scales, which have been used to operationalize trait EI up to 2005 (Pérez-González, Petrides, & Furnham, 2005). The issue of the increasing growth of EI self-reports has been noted by several researchers (e.g., Fineman, 2004; Pérez-González et al., 2005; Roberts, Schulze, Zeidner, & Matthews, 2005), and even brought Roberts and colleagues (2005) to claim: "in the interest of advancing the field, we contend that a moratorium is needed on the development of still further measures assessing the more temperamental aspects of EI" (p. 335). Despite this, at least other six new trait EI questionnaires have been introduced to the scientific psychology community since then (i.e., the Brain Resource Inventory for Emotional intelligence Factors, Kemp et al., 2005; the Self-report Emotional Ability Scale, Freudenthaler & Neubauer, 2005; the Emotional Intelligence Self-Description Inventory, Groves, McEnrue, & Shen, 2008; the Multidimensional Emotional Intelligence Assessment, Tett, Fox, & Wang, 2005; the Traits Emotional Intelligence Questionnaire, Tsaousis & Nikolaou, 2005; the Swinburne University Emotional

Intelligence Test – Early Years, Lloyd et al., 2014), thus bringing to 21 the number of EI self-reports.

Not only the number of currently available trait EI instruments keeps increasing (which is potentially faulty *per se*), but these pool of questionnaires also seems intrinsically heterogeneous, as there is substantial variation in their representation of the underlying construct. For example, despite the shared theoretical background (both measures were developed on the original model of EI by Salovey and Mayer, 1990), the Multidimensional Emotional Intelligence Assessment (MEIA; Tett et al., 2005) and the Trait Meta-Mood Scale (TMMS; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995) seem to cover different sampling domain. While the MEIA comprises sub-dimensions such as creative thinking, motivating emotion and self-orientation (Tett et al., 2005), the TMMS evaluates "attention" to feelings and "clarity" of emotions (Mayer et al., 1995). Moreover, independent studies concurrently examining different self-reports of EI support such variability, as they show weak to moderate correlations among measures presumably aimed to assess the same psychological attribute (i.e., trait EI; Brackett & Mayer, 2003; Freudenthaler et al., 2008; Gardner & Qualter, 2010). Nonetheless an incredibly small number of studies took into account different self-reports of EI at the same time, thus requiring further research into this issue.

Another flaw of trait EI instruments is that for long they were used to assess emotion-related abilities rather than perceived competencies and dispositions, as previously noted elsewhere (e.g., Pérez-González et al., 2005; Petrides, 2011). In fact, contrarily to performance-based tests, which are aimed to assess abilities of any kind, self-report measures capture typical performance (Cronbach, 1949). Therefore, self-assessment tools should be the primarily operational vehicle for personality alike constructs, including trait EI. In addition to this, many EI questionnaires have been developed without adequate reference to underlying

theory, leaving much to be desired theoretically as well as psychometrically (Conte, 2005; Matthews, Zeidner, & Roberts, 2004). Nonetheless, it is worth to mention that not all trait EI measures are open to such criticisms (see for instance Zeidner, Matthews, & Roberts, 2012).

Considering the variety of trait EI measures, the following section presents a critical overview of the most widely used[1] instruments developed to assess the construct: the Trait Meta-Mood Scale (TMMS; Salovey et al., 1995), Bar-On's Emotional Quotient-Inventory (EQ-i; Bar-On, 1997), Schutte's Emotional Intelligence Scale (EIS; Schutte et al., 1998), and the TEIQue (Petrides, 2001, 2009). The entries are organized by publication year in ascending order. Given the paucity of questionnaires developed specifically for adolescent samples, where possible the versions for adult and adolescents are treated separately. In line with the aim of the present dissertation, for the TEIQue forms a more detailed description will be provided.

Trait Meta-Mood Scale (TMMS; Salovey et al., 1995)

The TMMS is the first tool developed to assess trait EI, and, more in general, the first EI questionnaire based on the 1990 model by Salovey and Mayer. The TMMS was developed as a measure of individual's beliefs and attitudes towards emotion related skills such as regulation, monitoring, and appraisal (i.e., *emotional meta-knowledge*; Salovey et al., 1995). This measure was designed to be employed with adult samples, however, there is emerging evidence supporting its use in adolescent samples as well (Gorostiaga, Balluerka, Aritzeta, Haranburu, & Alonso-Arbiol, 2011; Pedrosa, Suárez-Álvarez, Lozano, Muñiz, & García-Cueto, 2014; Salguero, Fernandez-Berrocal, Balluerka, & Aritzeta, 2010); a specific version

[1] A search conducted in the Scopus database for every trait EI measure currently available, revealed that the TEIQue the TMMS the EIS the EQ-i were the most widely used self-reports for EI. Results were limited to scientific publications in the field of psychology. According to Scopus, from their development until February 2015, the EQ-i, the EIS, the TEIQue, and the TMMS have been employed 82, 79, 62, and 55 times respectively.

targeting youth is not available. The TMMS comprises 30-items rated on a 5-point Likert scale. Contrary to the assumption of many users (e.g., Lumley, Gustavson, Partridge, & LabouvieVief, 2005; Warwick & Nettlebeck, 2004), the TMMS was not designed to provide a global EI score. It provides instead three orthogonal component scores which are, therefore, not combinable: "attention to emotion", "emotional clarity", and "emotion repair". This psychometric shortcoming should be considered when analyzing data and interpreting results.

Bar-On's Emotional Quotient-Inventory (Bar-On, 1997)

Adult version. The EQ-i is a 133-item scale, providing a broad representation of self-perceived emotional competencies. The theoretical background of the EQ-i resides in Bar-On's model of emotional-social intelligence. The model postulates that in order to be emotionally and socially intelligent, individuals have to learn to effectively manage changes in their social, personal, and environmental domains by flexibly and pragmatically coping with the immediate situation, making decisions, and solving problems (Bar-On, 2006). The EQ-i was converted from a well-being inventory to an EI questionnaire, and in its current form it comprises 15 different subscales to be included in five factors: Intrapersonal (Self-Regard, Emotional Self Awareness, Assertiveness, Independence, and Self-Actualization); Interpersonal (Empathy, Social Responsibility, and Interpersonal Relationship); Stress Management (Stress Tolerance and Impulse Control); Adaptability (Reality-Testing, Flexibility, and Problem-Solving); and General Mood (Optimism and Happiness). From the EQ-i a global "emotional-quotient" score can also be computed. However, a potential limitation of the EQ-i is that while it comprises sub-dimensions such as "problem solving", "reality testing", "independence", which are not primarily related to trait EI, it doesn't include many relevant ones, such as "emotion regulation", "emotion perception", and "emotion expression". Additionally, several empirical investigations do not support the proposed 1-5-15 structure (Arteche, Chamorro-Premuzic, Furnham, & Crump, 2008; Livingstone & Day,

2005; Palmer, Manocha, Gignac, & Stough, 2003; Petrides & Furnham, 2001; Stanimirovic & Hanrahan, 2012). Evaluations of a new brief version of the questionnaire are giving promising results (Parker, Keefer, & Wood, 2011).

Adolescent version. Bar-On's Emotional Quotient Inventory: Youth Version (EQ-i:YV; Bar-On & Parker, 2000b) is a 60-item self-report measure of EI developed for children and adolescents between the ages of 7 and 18 years. Responses are rated by the participant on four-point Likert scales, ranging from 1 for "very seldom or not true of me" to 4 "very often true or true of me". Besides a global trait EI composite, the instrument provides scores to six scales: intrapersonal (6 items), interpersonal (12 items), stress management (12 items), adaptability (10 items), general mood (14 items), and positive impression validity (6 items). A high score on any individual ability scale (or the total score) reflects a high level of social and emotional competency. Bar-On and Parker (2000) report that the EQ-i:YV has a replicable factor structure (developed with a normative sample of 9172 school-aged children and adolescents); the various scales on the instrument correlate highly with comparable scales on the adult version of the inventory (the Emotional Quotient Inventory; Bar-On, 1997).

Emotional Intelligence Scale (EIS Schutte et al., 1998)

The EIS consists of a brief and easy to use tool to assess trait EI, as it comprises 33 items responded to on a 5-point Likert scale. Although the EIS was originally developed as a measure of global trait EI (Schutte et al., 1998), independent studies on its internal structure provided mixed results. Indeed, a number of investigations has tested its psychometric properties and it has been found to have between three and six factors (e.g., Austin, Saklofske, Huang, & McKenney, 2004; Jonker & Vosloo, 2008; Petrides & Furnham, 2000). Another issue relevant to the use of the EIS is that it doesn't cover trait EI's sampling domain comprehensively (Pérez-González et al., 2005). The EIS was developed to assess the three dimensions postulated in the early Salovey and Mayer (1990) model. Despite these

conundrums, it has been used extensively in the literature and can be employed as a short measure of global trait EI (Schutte et al., 2001).

Trait Emotional Intelligence Questionnaire (Petrides, 2001, 2009)

Adult version. In order to generate a comprehensive representation of the personality dimension covered by trait EI, a content analysis of prominent EI models (i.e., Bar-On, 1997; Goleman, 1995; Salovey & Mayer, 1990) and related personality constructs, such as alexithymia, well-being, and empathy, was performed (Petrides & Furnham, 2001). Only the core elements common to more than a single model of EI were retained with peculiar facets unique to individual conceptualizations excluded. This systematic procedure resulted into the current trait EI sampling domain, which is shown in Table 1. The TEIQue was subsequently developed with the aim of covering trait EI's sampling domain thoroughly.

The TEIQue provides a broad and heterogeneous operationalization of the construct by means of 15 narrow traits (e.g., emotion expression, stress management, trait empathy), which comprises the construct's first-order dimensions. Each item of the TEIQue was systematically developed to represent each facet of trait EI's sampling domain, yielding roughly ten items per facet for the full form of 153 items. Examples of items include '*I'm able to "read" most people's feelings like an open book*', '*I find it difficult to calm down after I have been strongly surprised*', and '*Others tell me that I get stressed very easily*'. Thirteen of the 15 facets load on four oblique factors, whereas the remaining two, namely self-motivation and adaptability, do not go through any specific factor, thus contributing exclusively to the global trait EI score. As depicted in Table 1, on the one hand, the factors Well-Being and Self-Control include those facets pertaining more to the intrapersonal domain (e.g., trait happiness and stress management). On the other hand, Emotionality and Sociability comprise more interpersonally-laden sub-dimensions (e.g., assertiveness and trait empathy). Therefore, in line with the hierarchical structure of the construct, the TEIQue

provides scores on global trait EI, four factors, and 15 facets. The TEIQue presents robust psychometric properties, which are reflected in the trans-cultural stability of its four-factor structure (e.g., Freudenthaler, et al., 2008, German adaptation; Jolić-Marjanović & Altaras-Dimitrijević, 2014, Serbian adaptation; Martskvishvili, Arutinov, & Mestvirishvili, 2013, Georgian adaptation; Mikolajczak, Luminet, et al., 2007, French adaptation; Petrides, 2009, English original). A short 30-items version of the TEIQue also exists (the TEIQue–SF, Petrides, 2009). All TEIQue instruments are free of charge and can be downloaded from www.psychometriclab.com.

Table 1

The Sampling Domain of the TEIQue in Adolescents and Adults (Petrides, 2009).

Factors	Facets	High scorers perceive themselves as
Well-Being		
	Trait optimism	...confident and likely to 'look on the bright side' of life...
	Trait happiness	...cheerful and satisfied with their lives...
	Self-esteem	...successful and self-confident...
Sociability		
	Emotion management (others)	...capable of influencing other people's feelings...
	Assertiveness	...forthright, frank and willing to stand up for their rights...
	Social awareness	...accomplished networkers with excellent social skills...
Emotionality		
	Trait empathy	...capable of taking someone else's perspective...
	Emotion perception (self and others)	...clear about their own and other people's feelings...
	Emotion expression	...capable of communicating their feelings to others...
	Relationships	...capable of having fulfilling personal relationships...
Self-Control		
	Emotion regulation	...capable of controlling their emotions...
	Impulsiveness (low)	...reflective and less likely to give in to their urges...
	Stress management	...capable of withstanding pressure and regulating stress...
Auxiliary facets		
	Self-motivation	...driven and unlikely to give up in the face of adversity...
	Adaptability	...flexible and willing to adapt to new conditions...

Adolescent version. The adolescent form of the TEIQue (TEIQue–AFF) was developed on the adult form of the TEIQue, and comprises 153 brief statements responded to

on a 7-point scale, ranging from completely disagree to completely agree. Beyond a global trait EI composite, scores on the same 15 facets and four factors of the adult version of the scale can be derived from the TEIQue–AFF, which therefore presents an analogue four-factor hierarchical structure. Given that the main target audience is adolescents between 13 and 17 years, the formulation of the items was adapted to this specific age-group. Example items include '*I can control my anger when I want to*' and '*I feel good about myself*' (Petrides, 2009). In line with the adult form, a 30-items version of the TEIQue–AFF has also been developed (TEIQue–ASF; Petrides, Sangareau, Furnham, & Frederickson, 2006). With the exception of a study on a sample of Chinese youths (Mavroveli & Siu, 2012), the TEIQue–AFF has not been widely used, differently from its brief version, which was employed in relation to outcomes as diverse as bullying and victimization (Kokkinos & Kipritsi, 2012) and self-harm (Mikolajczack, Petrides, & Hurry, 2009).

Aims and Rationale for Studies 1 & 2

It is unlikely that different measures of the same psychological attribute will be equally valid indicators of the underlying construct (Grucza & Goldberg, 2007). This statement becomes particularly relevant to the field of EI, where the substantial differences in both operational definitions and content domains among measures also reflect, to a certain extent, a lack of clarity in the sector. Why, then, choosing the TEIQue?

If compared to other self-report measures of EI, a major advantage of the TEIQue instruments is that they have been developed systematically (Matthews et al., 2007; Petrides, Pita et al., 2007), so much that they provide complete coverage of the construct's sampling domain. This couples with their well-defined theoretical background, which overcomes the conceptual flaws of many previously developed trait EI instruments (Petrides, Furnham, & et al., 2008). In other words: differently from many self-report instruments of EI, the TEIQue presents strong theoretical, as well as psychometrical basis, including superior predictive

validity when compared to other trait EI measures (Freudenthaler et al., 2008; Gardner & Qualter, 2010; Martins et al., 2010). As a consequence of these considerations, together with its trans-cultural stability (e.g., Freudenthaler et al., 2008; Martskvishvili, et al., 2013; Mikolajczak, Luminet, et al., 2007), the TEIQue was thought to be the best option for the present research.

Questionnaires aimed at assessing trait EI, particularly the TEIQue, have been widely used. Nonetheless, additional empirical investigations on their psychometric features are required, especially when these measures are subjected to processes of translation and adaptation, to be used in different countries (Li, Saklofske, Bowden, Fung, & Yan, 2012). The first objective of the present dissertation was to contribute in this sense. Given that there's no currently validated Italian version of the adult- and adolescent- forms of the TEIQue, Study 1 and Study 2 focus specifically on an analysis of the robustness of the factor structure, scale reliability, and gender differences of the Italian versions of the TEIQue devoted to adolescents and adults respectively. In both cases, a replication of the internal hierarchical four-factor structure was expected. In order to proceed with an in depth investigation of the criterion and incremental validity of both measures, this step was deemed essential.

Study 1

In light of the afore-discussed considerations, the present study investigated the structure of the Italian translation of the TEIQue–AFF (Petrides, 2009). So far, the TEIQue–AFF has been evaluated in two languages only, viz., English (original, Petrides, 2009) and Chinese (Mavroveli & Siu, 2012). The latter version only partially replicated the UK four-factor structure. Subsequently for the purposes of the present study an exploratory approach was chosen. In line with the existing literature on adults from Western-cultures (e.g., Freudenthaler et al., 2008; Martskvishvili, et al., 2013; Mikolajczak, Luminet, et al., 2007;

Petrides, 2009), a replication of the hierarchical factor structure of the instrument was expected. Considering that the EI literature focusing on developmental age has generally overlooked gender differences (Resurrección et al., 2014), and given the few studies analyzing this issue did not take into account trait EI's sub-factors but only the global trait EI level, finding a lack of significant differences (e.g., Davis & Humphrey, 2012a; Mavroveli, Petrides, Rieffe, & Bakker, 2007), no specific hypotheses on gender differences were formulated. However, given the heterogeneity of the TEIQue's components, variations at the instrument's facet-levels could be expected.

Method

Participants

Participants were 365 adolescents, recruited from secondary schools in major Italian cities (i.e., Florence, Bologna, and Senigallia). Pupils with special educational needs (n = 8) were excluded from subsequent analyses. Additionally, in line with the TEIQue's guidelines, respondents who miss more than 15% of the items on the questionnaire (n = 6 for the present study) were not included. Therefore, the final sample comprised 351 pupils (163 males), with age ranging from 14 to 18 (M = 15.31, SD = 1.80).

Measures

Trait EI. Trait EI was appraised through the Italian translation of the 153 items TEIQue–AFF (Petrides, 2009; for a description of the questionnaire see p. 27). In order to respect the test translation and adaptation international guidelines (Hambleton, 2001), the items of the TEIQue–AFF were translated into Italian and then back-translated into English by an independent English-native speaker. Although most discrepancies were minor, problematic items were thoroughly discussed and appropriately amended. Item order was preserved and the Italian TEIQue–AFF was administrated on a small group of respondents (N = 30) to evaluate comprehension and ease of answering.

Procedure

Approval for the project was obtained from the university ethics committee. A letter explaining the aims and rationale of the study was sent to the headmasters and teachers in each school. Informed consent was asked to parents/carers of pupils attending the classes who agreed to take part in the research. Participation was on a voluntary basis.

Data were collected during planned class period. After brief group explanations on the purpose of the activities, confidentiality, and the answer formats, participants completed the TEIQue–AFF in their classrooms under the supervision of a trained researcher.

Statistical Analysis

A Principal Axis Factor analysis was performed on the 15 facets of the Italian translation of the TEIQue–AFF. This procedure was aimed at evaluating the questionnaire's theoretical factor structure (see Table 1) on which the a priori scoring key is based. Accordingly to O'Connor (2000), Parallel Analysis (Horn, 1965) was combined with Velicer's (1976) Minimum Average Partial (MAP) test in order to determine the number of factors to retain. The MAP test was performed using a SPSS syntax file (O'Connor, 2000), and the Parallel Analysis was applied by means of the "Marley Watkins Monte Carlo PCA for Parallel Analysis" program (Watkins, 2000). The latter (Watkins, 2000) was employed in order to obtain the eigenvalues and standard deviations generated from completely random data, which are also essential to perform parallel analysis. To this end the following specifications were used: 15 variables, 351 participants, and 1,000 replications. The observed eigenvalues were later compared to the 95th percentile of the eigenvalues generated from these random data to reject factors that were most certainly obtained by chance (at $p = .05$).

Last, Cronbach's alpha was used to estimate the reliabilities of the TEIQue–AFF, while a series of Student's *t* test for independent samples were employed to investigate gender differences. Analyses were performed using PASW (SPSS version 19.0 for Windows).

Results

Validation and Factor Structure of the TEIQue-AFF

Four factors were retained and rotated to simple structure via the Promax algorithm (κ = 4), thus supporting theoretical expectations. The factor pattern matrix is presented in Table 2 and approximate to a simple structure. Despite four cross-loadings, the four factors were substantively identical to the original British structure (Petrides, 2009) and were thus labelled accordingly: Well-Being, Self-Control, Sociability, and Emotionality. This solution accounted for 62.24% of the total variance (according to Velicer's MAP test, a four factor solution, explaining 39.1% of the variance, would be appropriate). As can be seen in Table 3, overall the strength of the associations between factors was above .30, with the exception of Self-Control which correlated less strongly with Emotionality (r = .18, p < .01) and Sociability (r = .26, p < .01).

Reliability Statistics

Number of items and internal consistencies for the TEIQue–AFF facets, factors and global score, are presented in Table 4. Factor and global scores appear to be normally distributed, as indicated by the Kolmogorov–Smirnov (K–S) test (e.g., global score K–S $_{(353)}$ = .66; p > .05). The reliability of trait EI global score was satisfactory (α = .85), while it was acceptable for three factors, varying between .67 and .82, with the exception of Self-Control (α = .63). Seven of the 15 facets had solid reliabilities (between .72 and .84), while internal consistencies for eight facets were low (alpha values ranged between .67 and .50; see Table 4).

Gender Differences

Table 4 presents means, standard deviations, and t statistics for gender comparisons, for the 15 facets, 4 factors, and global trait EI of the TEIQue–AFF. As can be seen, there were no gender differences at the level of the global trait EI score, but findings did reveal

significant differences in a number of factors and facets. Particularly, while females scored lower at Self-Control, self-esteem, emotion management, and stress management, they showed significantly higher scores at Emotionality, trait empathy, emotion expression, and relationships compared to males. Gender differences in the Italian TEIQue are broadly consistent with those reported by Petrides (2009) based on a British sample (N = 1652, 759 males).

Table 2

Factor Pattern Matrix for the TEIQue–AFF Subscales (N = 351)

	Factors			
	Well-Being	Emotionality	Self-Control	Sociability
Trait happiness	**.86**	.07	-.02	-.11
Trait optimism	**.80**	.01	.07	-.05
Self-esteem	**.61**	-.19	.07	**.36**
Self-motivation	**.58**	.01	.05	.11
Emotion-perception	-.05	**.67**	.08	.14
Trait empathy	-.15	**.66**	.12	.05
Emotion expression	.10	**.57**	-.15	.12
Relationships	**.39**	**.49**	-.08	-.17
Emotion control	-.08	-,10	**.91**	.02
Stress management	.19	,13	**.62**	-.06
Impulsiveness (low)	.20	,15	**.30**	-.18
Adaptability	-.04	.18	.19	.16
Emotion management	-.10	.15	-.07	**.63**
Social awareness	.07	**.30**	.03	**.59**
Assertiveness	**.40**	-.14	-.07	**.47**

Note. Coefficients that should theoretically define each factor are highlighted in grey. Factor loadings < .30 are shown in bold-type.

Table 3

TEIQue-AFF Factor and Global Score Intercorrelations

	Well-Being	Self-Control	Sociability	Emotionality	Global trait EI
Well-Being	–				
Self-Control	.36*	–			
Sociability	.55*	.18*	–		
Emotionality	.47*	.26*	.50*	–	
Global trait EI	.82*	.56*	.74*	.77*	–

*p < .01

Table 4

Descriptive Statistics and Gender Differences for the TEIQue-AFF Facets, Factors and Global Score.

			Global sample (N = 351)		Females (n = 188)		Males (n = 163)		
Facets/Factors	*N* items	Cronbach's α	*M*	*SD*	*M*	*SD*	*M*	*DS*	*t*
Self-esteem	11	.77	4.68	.93	**4.59**	**.94**	**4.78**	**.91**	**-2.44***
Emotion-expression	10	.79	4.41	1.07	**4.57**	**1.11**	**4.22**	**.99**	**2.51***
Self-motivation	10	.62	4.51	.79	4.54	.82	4.49	.76	.94
Emotion-regulation	12	.72	3.89	.87	**3.61**	**.86**	**4.22**	**.77**	**-7.07*****
Trait-happiness	8	.84	5.44	1.14	5.49	1.18	5.38	1.09	.83
Trait-empathy	9	.74	4.59	.94	**4.72**	**.92**	**4.43**	**.94**	**3.62*****
Social awareness	11	.74	4.74	.87	4.74	.89	4.74	.85	-.41
Impulsivity (low)	9	.66	4.17	.94	4.21	.95	4.12	.92	1.09
Emotion perception	10	.67	4.70	.85	4.75	.85	4.63	.84	.63
Stress management	10	.65	4.11	.87	**3.95**	**.90**	**4.31**	**.78**	**-3.93*****
Emotion-management	9	.65	4.58	.89	4.57	.88	4.60	.90	-.88
Trait-optimism	8	.76	4.88	1.03	4.81	1.10	4.96	.94	-1.02
Relationships	9	.52	5.19	.80	**5.28**	**.81**	**5.09**	**.75**	**2.08***
Adaptability	9	.51	4.00	.74	3.94	.76	4.07	.71	-1.57
Assertiveness	9	.50	4.63	.80	4.60	.80	4.67	.81	-7.51
Wellbeing	27	.82	5.00	.89	4.96	.92	5.04	.87	-.90
Self-control	31	.63	4.06	.68	**3.92**	**.68**	**4.22**	**.65**	**-4.05*****
Emotionality	38	.74	4.72	.69	**4.83**	**.68**	**4.59**	**.67**	**3.01****
Sociability	30	.67	4.65	.67	4.64	.67	4.67	.68	-.86
Global Trait EI	153	.85	4.57	.51	4.56	.50	4.58	.53	-.56

Note. Significant gender differences are displayed in bold. $^{*}p$ <.05, $^{**}p$ < .01, $^{***}p$ < .001

Study 2

A wide body of research investigating and supporting the four-factor hierarchical structure of the adult form of the TEIQue already exists (e.g., Freudenthaler, et al., 2008; Jolić-Marjanović & Altaras-Dimitrijević, 2014; Martskvishvili et al., 2013; Mikolajczak, Luminet, et al., 2007; Petrides, 2009). For this reason, and contrarily to Study 1, in the current Study it was deemed appropriate to perform a Confirmatory Factor Analyses (CFA) to assess the structure of the Italian TEIQue. As for Study 1, a replication of the four factor structure was expected. Given that previous studies on adults consistently show gender differences at the factor and facet levels of the TEIQue, and much less consistent differences at the global construct level (Arteche et al., 2008; Martskvishvili et al., 2013; Petrides, 2009; Siegling, Saklofske, Vesely, & Nordstokke, 2012), it was hypothesized to find analogous results. Particularly, in line with the literature, men are expected to score higher in those facets pertaining the domains of Well-Being and Self-Control (i.e., intrapersonal domains), and women in Emotionality and Sociability (i.e., interpersonal domains).

Method

Participants

The sample consisted of 227 Italian adults (66 male; M_{age} = 23.84, SD = 5.43). The majority of participants were educated up to high school (53%), whereas the remaining reported a higher level of education (e.g., bachelor's degree, master's degree, PhD). Occupations were diverse, with most participants being students (n = 162) enrolled in different university majors, with highest percentage from nursing (48.1%) and psychology (28%).

Measures

Trait EI. The 153 item version of the Trait Emotional Intelligence Questionnaire (TEIQue; Petrides, 2009; for a description of the questionnaire see p. 26) was employed to

assess trait EI. Prior to its use for the present research, the adult form of the TEIQue had already been translated (by Chirumbolo, A.), and was available on the website of its author (K. V. Petrides; www.psychometriclab.com). For this reason, we present herewith the scrutiny of its psychometric properties only.

Procedure

After a formal approval for the project from the university ethics committee, the TEIQue was completed via an online survey system by 102 participants, whereas the remaining 125 respondents were provided with an envelope and instructed to return their completed questionnaires with no further identifying information. In both cases, participation was on a voluntary basis.

Statistical Analysis

In order to test the fit of the Italian translation of the TEIQue, a CFA framework, analyzed in Mplus 6.0., was employed. Robust maximum likelihood (MLR) was used for all models, while for missing data the pattern missing option in Mplus was chosen. A CFI and a TLI in the range of .95 and a RSMEA in the range of .06 suggest excellent model fit (Byrne, 2012). Moderate model fit is suggested by a CFI and TLI in the range of .90 and a RMSEA in the range of .10 (Byrne, 2001).

The reliabilities of TEIQue were estimated using Cronbach's alpha, while Student's *t* test for independent samples was used for gender differences. These analyses were performed through PASW (SPSS version 19.0 for Windows).

Results

Factor Structure of the TEIQue

A CFA confirmed the four factor structure of the TEIQue, allowing for correlated residuals (see Figure 1), and providing an acceptable model fit: $\chi^2(54) = 127.747$, CFI = .926, TLI = .893, RMSEA = .078 95% CI (.060-.095), SRMR = .068. Standardized factor loadings

ranged from .50 to .96, with the exception of impulsivity (.26). Correlated residuals were specified for the following pairs of facets: optimism and happiness (.46), optimism and stress (.14), relationships and happiness (.14), assertiveness and empathy (-.13), and stress and self-esteem (-.23). In line with the existing literature on the TEIQue (e.g., Freudenthaler et al., 2008), all correlated residuals are theoretically plausible, considering, for instance, that happiness and optimism are closely related to each other, and that assertiveness may often be associated with verbal aggression, leasing to a negative overlap with empathy.

Reliability Statistics

As shown in Table 6, reliabilities for nine facets of the TEIQue were good (α coefficients ranged between .88 for trait happiness .71 for adaptability), four were acceptable (α ranged between .69 for emotion management and .61 for assertiveness), while alpha value was poor for relationship (i.e., .57). With the exception of Self-Control which showed poor reliability (α = .57), reliability was good for three factors and the global TEIQue composite (Cronbach's α = .86, .84, .71, and .77, for trait EI global score, Well-Being, Emotionality, and Sociability respectively).

Gender Differences

Means, standard deviations, and *t* statistics for the 15 facets, 4 factors, and global trait EI can be seen in Table 6. Findings revealed significant differences in some of the factors and facets, whereas no gender difference in global trait EI score was detected (see Table 4). Males scored significantly higher on the facets of Self-esteem, Social awareness, Adaptability, Stress-management and Emotion Regulation, as well as the factors of Self-Control and Sociability.

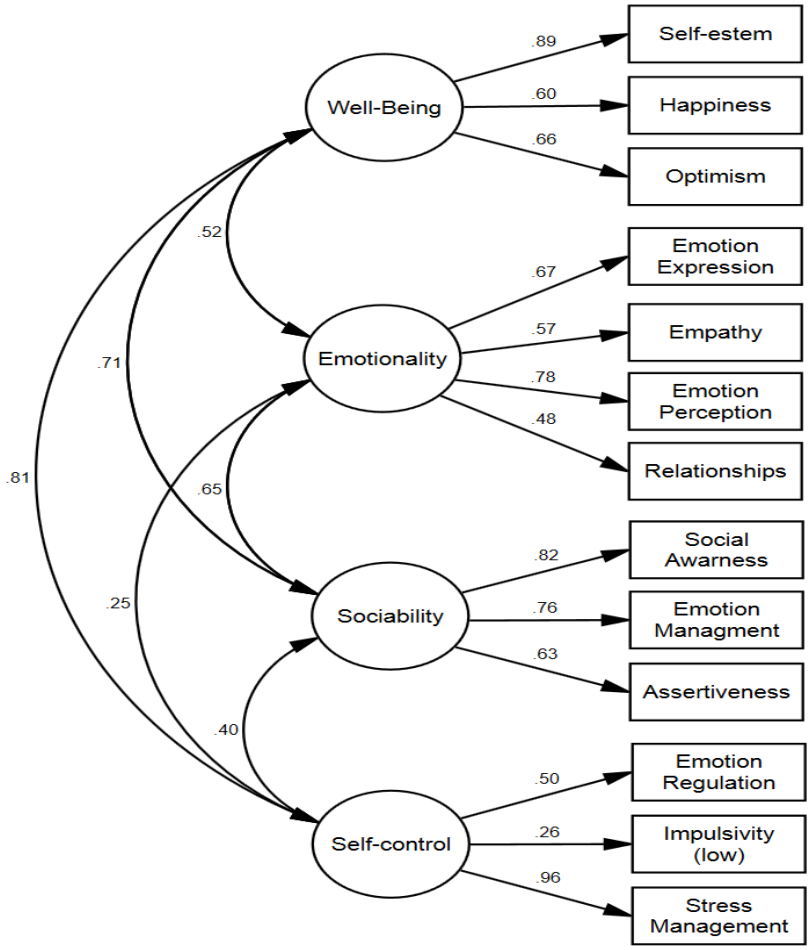

Figure 1

CFA of the Four-Factor Structure of the Italian Translation of the TEQue

Table 5

TEIQue Factor and Global Score Intercorrelations

	Well-Being	Self-Control	Sociability	Emotionality	TEI
Well-Being	–				
Self-Control	.55*	–			
Sociability	.47*	.26*	–		
Emotionality	.41*	.25*	.47*	–	
TEI	.88*	.67*	.70*	.72*	–

*$p < .01$

Table 6

Descriptive Statistics and Gender Differences for the TEIQue Facets, Factors and Global Score.

			Global sample (N = 227)		Females (n = 161)		Males (n = 66)		
Facets/Factors	*N* items	Cronbach's α	*M*	*SD*	*M*	*SD*	*M*	*DS*	*t*
Self-esteem	11	.77	4.74	1.01	**4.61**	**.97**	**5.05**	**1.01**	**3.05****
Emotion-expression	10	.79	4.31	1.25	4.34	1.03	4.25	1.10	-.47
Self-motivation	10	.62	4.74	.85	4.77	.85	4.66	.84	-.83
Emotion-regulation	12	.72	3.92	.74	**3.81**	**.71**	**4.20**	**.75**	**3.74*****
Trait-happiness	8	.84	5.39	1.18	5.44	1.13	5.24	1.30	-1.22
Trait-empathy	9	.74	5.09	.85	5.13	.88	4.98	.77	-1.27
Social awareness	11	.74	4.65	.85	**4.57**	**.82**	**4.84**	**.91**	**2.19***
Impulsivity (low)	9	.66	4.52	.91	4.50	.90	4.56	.92	.40
Emotion perception	10	.67	4.90	.89	4.90	.86	4.91	.96	.10
Stress management	10	.65	4.11	1.04	**3.39**	**.98**	**4.54**	**1.07**	**4.08*****
Emotion-management	9	.65	4.78	.84	**4.69**	**.83**	**5.01**	**.81**	**2.67****
Trait-optimism	8	.76	4.85	1.19	4.79	1.22	5.01	1.11	1.25
Relationships	9	.52	5.39	.75	5.43	.71	5.30	.82	-1.23
Adaptability	9	.51	4.22	.84	**4.13**	**.84**	**4.44**	**.81**	**2.47***
Assertiveness	9	.50	4.55	.81	4.51	.81	4.64	.80	1.07
Well-Being	27	.82	4.99	.98	4.95	.96	5.09	1.01	1.05
Self-Control	31	.63	4.18	.66	**4.08**	**.61**	**4.43**	**.72**	**3.70*****
Emotionality	38	.74	4.93	.69	4.95	.69	4.86	.72	-.89
Sociability	30	.67	4.66	.69	**4.59**	**.66**	**4.83**	**.74**	**2.40***
Global Trait EI	153	.85	4.68	.56	4.64	.51	4.77	.64	1.69

Note. Significant gender differences are displayed in bold. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

Discussion

Study 1 and Study 2 examined the structure and reliabilities of the Italian translation of the TEIQue (Petrides, 2009) in its full versions devoted to adolescents and adults respectively. Gender differences were also investigated. In both sets of analyses the four-factor solution of the TEIQue was broadly replicated, with 15 specific facets grouped under four broader factors, viz., Well-Being, Self-Control, Sociability, and Emotionality. Contrarily to results from Study 1, which can currently be compared to the English-original version of the questionnaire and to results from a non-Western culture (i.e., Chinese; Mavroveli & Siu, 2012) only, results from Study 2 add to the growing list of languages and cultures wherein the four-factor structure has been already replicated (including German, Freudenthaler, et al., 2008; Georgian, Martskvishvili et al., 2013; and French, Mikolajczak, Luminet, et al., 2007). Most importantly, results of both studies demonstrate the equivalence of the Italian and the English-original questionnaires (Petrides, 2009). Additionally, in both studies the good correlations between the factors Well-Being, Self-Control, Sociability and Emotionality, reinforce the rationale for the extraction and use of a global trait EI composite (Petrides, 2009).

The internal consistencies of the Italian TEIQue instruments were generally good, but not as good as those for the original TEIQue (Petrides, 2009) and its various translations (e.g., French: Mikolajczak et al., 2007; Greek: Petrides, Pita, et al., 2007). For this reason, future investigations are needed to improve both scales at the item-level.

Across the two studies moderate gender differences were observed in a number of factors and facets of the Italian TEIQue forms, but not at the level of the global trait EI scores. The lack of significant gender differences for global trait EI was in line to both the expectations for Study 1 and Study 2, and the already existing literature on adults (Arteche et al., 2008; Martskvishvili et al., 2013; Petrides, 2009; Petrides, Furnham, & Martin, 2004;

Siegling, Saklofske, Vesely, & Nordstokke, 2012), and adolescents (Mavroveli et al., 2007). It can be hypothesized that the equality at global level obtained in both samples is the result of moderate-to-strong gender differences in opposite directions at facet level. For instance, a male favoring difference on stress management (Studies 1 and 2) counterbalances a female favoring difference on self-motivation (Studies 1 and 2).

Limitations

Even though the hierarchical structure of the TEIQue was replicated, future studies are required to provide a more exhaustive investigation of the properties of the Italian translation of both the TEIQue and the TEIQue–AFF. More psychometric work is needed particularly to improve internal consistencies through item-level refinement. This avenue becomes particularly salient for the adult form of the Italian TEIQue, given that the sample for Study 2 was limited in both its composition (i.e., it was predominantly from a student population) and small size.

Implications

Together with the already existing literature, these results show that the hierarchical structure of emotion-related self-perceptions at the basis of the TEIQue emerges, virtually identical, in datasets from countries all over the world. These findings speak to the cross-cultural value of the TEIQue instruments, as valid questionnaires for the comprehensive assessment of trait EI.

CHAPTER 3

Trait Emotional Intelligence, Internalizing Symptoms and Scholastic Performance in Italian Adolescents

Abstract

Study 3 was aimed at exploring the incremental predictive utility of the TEIQue–AFF over internalizing symptoms and scholastic performance. To this end, a sample of 200 adolescents (89 males, M_{age} = 16.54, *SD* = 1.12) completed measures for trait EI, personality, IQ, depression and anxiety. Additionally, end of year grades in math and Italian language/literacy were obtained from school offices. At all levels of analysis (i.e., global and factor) the TEIQue–AFF showed significant incremental validity over adolescent's internalizing symptoms, after controlling for the effects of demographics, IQ, and the Big Five personality dimensions. At the factor level, significant effects were related to the contribution of the factor Well-Being thus supporting perspectives arguing for a further refinement of trait EI content domain. Regarding scholastic performance, no significant role of trait EI emerged. Results are discussed with reference to potential theoretical and applied implications.

CHAPTER 3

Introduction

Considering that trait EI provides a comprehensive framework for the study of emotional self-perceptions, it may be a relevant and useful construct during "critical periods" for development, such as adolescence. Adolescence is a developmental stage of mental, social and physical transformations, where the likelihood for the onset of different psychopathological conditions, like eating disorders, mood disorders, and addiction problems, is more pronounced (Chambers, Taylor, & Potenza, 2003; Kessler et al., 2007).

Several factors, such as parental support, relationships with peers, and social environment, may have a role in psychological adjustment during adolescence (Repetti, Taylor, & Seeman, 2002; Rose & Rudolph, 2006). Among these, the literature of the last two decades has increasingly paid attention to EI, and to trait EI more specifically, as a potential predictor of many crucial health-related phenomena during adolescence, including a better scholastic functioning (Frederickson, Petrides, & Simmonds, 2012; Petrides, Sangareau, et al., 2006), and overall psychological adjustment (Salguero, Palomera, & Fernández-Berrocal, 2012). While the repercussion of trait EI levels upon adults' mental and physical health have been widely investigated (e.g., Martins et al., 2010), the analysis of this psychological attribute on populations of children and adolescents is still largely neglected. The study of whether youths perceive themselves as able to regulate their emotions and to be in touch with them may have several important clinical implications, not least because the impact of adolescence on individual's psychological functioning echoes throughout the lifespan. For instance, an in-depth analysis of the trait EI construct may give indications of the degree of adolescents' vulnerability to psychological maladjustment and, ultimately, disorders.

For the present Study internalizing symptoms (i.e., levels of depression and anxiety) and school grades in math and Italian language/literacy were the selected criterion variables,

given their relevance both to the period of life under consideration and to the trait EI literature. Therefore, the following subsections provide a brief overview on the main research findings on the relationship between trait EI and both psychological health and scholastic performance.

Trait EI and Psychological Health

Research on EI in adolescence is still young, and evidence on the relationship between trait EI and psychological health is narrowed almost exclusively to adulthood, though few exceptions do exist. In line with the literature on adults, studies involving adolescents consistently show that trait EI may have an adaptive value in people's life. It has been shown that higher levels of trait EI it predicts lower likelihood to self-harm (Mikolajczack, Petrides, & Hurry, 2009), less somatic complaints (Mavroveli, et al., 2007), greater pro-social behaviours in the school context (Frederickson, Petrides, & Simmonds, 2012; Mavroveli et al., 2007; Petrides et al., 2006), and lower internalizing symptoms in both clinical (Delhaye, Kempenaers, Stroobants, Goossens, & Linkowski, 2013), and non-clinical samples (Gugliandolo, Costa, Cuzzocrea, Larcan, & Petrides, 2015; Petrides, Sangareau, et al., 2006; Williams, Daley, Burnside, & Hammond-Rowley, 2010a, 2010b).

Most research on adolescents has been performed in academic contexts, with results showing that trait EI may be relevant to a successful adaptation within the school environment. Indeed, and confirming the principle that positive perceptions of competency to handle emotion-laden situations may facilitate optimal appraisal and response across contexts (Petrides, Pita et al., 2007), it seems that pupils with higher levels of trait EI generally show both higher levels of social adaptation and less deviant behaviours at school than their low counterparts. For example, Petrides, Frederickson, and Furnham (2004) demonstrated that youth with high trait EI were less likely to be excluded from school and to have unauthorized absences. Along these lines, a study where data triangulation (i.e., teacher ratings of pupils'

trait EI) was used to assess pupils' behaviour within classroom confirmed this pattern of findings (Petrides et al., 2006). Additionally, self-reported data from adolescents showed that higher scores on the TEIQue are negatively related to bullying behaviours and victimization (Kokkinos & Kipritsi, 2012), and to less behavioural difficulties more generally (Poulou, 2014). Overall, this body of evidence suggests that trait EI constitutes a good predictor of adolescents' socio-emotional experiences as related to the school context.

Trait EI and Academic Performance

School performance is a complex phenomenon, which can be intended as an indicator of adolescents' academic functioning. School performance is shaped by a vast array of variables, both external, like peer relationships (Wentzel, 2005) and surrounding environment (Ryan & Patrick, 2001), and internal, like sense of self-efficacy (e.g., Pajares & Schunk, 2001) and intrinsic motivation (Wentzel, 2005), to the adolescent. Therefore, beyond content knowledge and cognitive abilities, which are certainly crucial to academic performance, school grades are affected by various non-cognitive factors that, subsequently, may not be reflected in students' scores on cognitive tests (Farrington et al., 2012). Among these, personality dimensions, including trait EI, may emerge as meaningful constructs to scholastic achievement.

The role of trait EI over academic performance is still at the heart of numerous debates. While a prevailing claim of trait EI theory is that emotion-related dispositions should be orthogonal or only weakly related to cognitive abilities (Mavroveli, Petrides, Shove, & Whitehead, 2008; Petrides & Furnham, 2000, 2001), the absence of strong correlations between personality constructs and cognitive ability measures does not preclude effects on criteria like academic performance (Chamorro-Premuzic & Furnham, 2006). Empirical investigations have yielded an inconsistent and heterogeneous pattern of results on the relationship between trait EI and academic performance (e.g., Costa & Faria, 2015; Di

Fabio & Palazzeschi, 2009; Mavroveli, Petrides, Sangareau, & Furnham, 2009; Mavroveli & Sánchez-Ruiz, 2011; Petrides et al., 2004), suggesting that trait EI effects may depend both on the characteristics of the sample being considered (viz., age, IQ levels, cultural background) as well as on how academic grades are operationalized.

According to Perera and DiGiacomo (2013) the variability of results on the relationship between trait EI and academic performance may be a consequence of methodological and/or theoretical moderators, including operationalization vehicles and demographic variables. Indeed, the results of the authors' recent meta-analysis on this issue revealed that the predictive effects of trait EI over scholastic performance may be influenced by academic level and age (Perera & DiGiacomo, 2013). At the same time trait EI is thought to facilitate emotion-related capabilities which are relevant to coping with the stress and demands of educational environments (e.g., Mikolajczak, Menil, & Luminet, 2007). Along this line, there is preliminary evidence attesting that when academic demands outweigh cognitive resources trait EI is likely to intervene favorably over academic performance (Agnoli et al., 2012; Petrides, Frederickson, & Furnham, 2004). Subsequently, trait EI may be relevant to the prediction of academic grades in specific conditions only.

Aims and Rationale of the Present Study

In order to draw conclusions for an 'adaptive' account of trait EI to be fully realized, we must give consistently and repeatedly proof of its links with psychological health across ages and contexts, and that such associations hold incrementally. While results of the relationship between the construct and academic performance are mixed, current evidence from youth samples suggests that perceived emotional competencies are associated to affectively-laden variables, which may be relevant for psychological adjustment during adolescence.

The aim of the current Study is twofold. Given that trait EI covers a range of relatively stable self-perceived emotion-related abilities and dispositions (Keefer, Holden, & Parker, 2013), from an applied point of view the present Study investigates whether the construct can be considered as an important indicator of adolescent's psychological adjustment, operationalized as academic performance and symptoms of anxiety and depression. Particularly, anxiety and depression were selected because internalizing symptoms, which are marked by dispositional emotionality, should be more robustly associated with trait EI than those typified by context-specific, emotional displays, such as aggression (Garnder & Qualter, 2010; Petrides, Pérez-González, et al., 2007). On the other hand, an analysis of trait EI's role over academic grades not only will provide information about the role of trait EI over more objectively assessed outcomes, but it will also contribute to the discussion pertaining the role of individual differences, particularly personality, in the school setting.

From a psychometric perspective, considering the claims of trait EI's redundancy with the extant personality taxonomies, particularly with the dimension Neuroticism of the Big Five personality model (e.g., Landy, 2005; Schlegel, Grandjean, & Scherer, 2013; Schulte, Ree, & Carretta, 2004), the present Study aims to examine the incremental validity of trait EI as assessed by means of the TEIQue–AFF over internalizing symptoms and scholastic performance, controlling for gender, age, cognitive ability and the Big Five. Focus of the analyses will be both the global- and the factor- levels. Considering the relatively broad conceptualization at the basis of the TEIQue, a systematic analysis of the contribution of its factors over criterion variables relevant for adolescent's psychological functioning is an important step to ascertain which element of the construct may be irrelevant or less representative. While such issue has been addressed extensively by studies focusing on adults which consistently show that the interpersonal subcomponents of the construct, viz.,

Sociability and Emotionality, tend to perform poorly (see Chapter 4), beyond few exceptions (Davis & Humphrey, 2012b; Siegling, Vesely, Petrides, & Saklofske, 2014), whether trait EI holds its influential role in the presence of other relevant potential predictors, including personality and cognitive ability, during adolescence has been largely neglected by researchers of the field. Yet, despite the little research on the incremental validity of the TEIQue in developmental age samples, there is no investigations using the full adolescent form of the questionnaire.

Hence this Study makes a novel contribution to knowledge by exploring trait EI relationships with adolescents' internalizing symptoms and academic performance, and by assessing whether any associations hold in the presence of higher order personality dimensions and general cognitive ability. On the basis of the existing literature, it was hypothesized that:

H1: Trait EI will be poorly associated with cognitive ability.

H2: Trait EI will show positive significant correlations with higher order personality traits (i.e., Big Five), particularly with the dimension Emotional Stability.

H3: Trait EI will show negative significant association with symptoms of both anxiety and depression.

H4: Trait EI will show marginal to zero association with academic grades of math and Italian language/literacy.

H5: Trait EI will show incremental validity at all construct levels over internalizing symptoms after controlling for the effects of demographics, cognitive ability, the Big Five dimensions and self-enhancement.

H6: Trait EI will not incrementally predict academic grades.

H7: At the factor level, the significant incremental contribution of trait EI will be mainly due to the intrapersonal sub-dimensions Well-Being and Self-Control.

Method

Participants

A subsample of 200 adolescents (98 males, M_{age} = 16.77, *SD* = 1.24) from Study 1 took part to Study 3. Similarly, participants were recruited from secondary schools in major Italian cities (i.e., Florence, Bologna and Senigallia). Participants were all native-Italian speakers. An a-priori examination of the adequacy of the sample size for linear multiple regressions was run through G*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009). The results of the analysis showed that a sample of 89 and 129 participants would be appropriate to reach a medium effect-size and satisfactory statistical power (0.95) for the analyses performed at the level of the global- and factor-scores of TEIQue respectively.

Measures

Trait EI. Trait EI was appraised through the Italian TEIQue–AFF (see Study 1).

Personality. The Big Five Questionnaire-2 (BFQ-2; Caprara, Barbaranelli, Borgogni, & Vecchione, 2007) is a 134-item self-report, with items rated on a 5-point Likert scale ranging from complete disagreement (*very false for me*) to complete agreement (*very true for me*). The BFQ-2 was developed to operationalize the personality dimensions of the Big Five model, viz., Energy/Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness, in adolescents and adults, with each dimension being assessed by means of 24 items. The BFQ-2 also provides score to a Lie scale (14 items), aimed at assessing socially desirable responding. The six higher-order factors comprise two sub-dimensions each. However, for the purposes of the present Study, the broader Big Five dimensions and the Lie scale will be considered. Cronbach's reliability coefficients for the BFQ-2 scales were good (α = .82 for Energy/Extraversion, .85 for Agreeableness, .83 for Conscientiousness, .90 for Emotional Stability, .84 for Openness, and .70 for the Lie scale).

Cognitive ability. Raven's Standard Progressive Matrices (SPM; Raven, 2008) comprise 60 items organized in five sets of 12 each and provide a global IQ score. Each item presents multiple choice visual analogy problems, with each problem being a matrix of black and white geometric figures. The items of each set become progressively more difficult to resolve. The respondent is required to infer a rule, relating to the collection of figures, and to select among 6 (Set A and B) to 8 (Sets C, D and E) response options. Each item is scored as 1 (correct response) or 0 (incorrect response). The SPM consists of a measure of pure non-verbal reasoning ability, which is thought to be relatively independent of specific learning acquired in a particular cultural or educational context.

Internalizing symptoms. The Self Administrated Psychiatric Scales for Children and Adolescents (SAFA; Cianchetti & Sannio Fancello, 2001) is an Italian self-report instrument aimed to assess mental health conditions in children and adolescents aged from 8 to 18. It explores a wide series of symptoms and psychiatric conditions by providing scores at six different scales separately, viz., anxiety, depression, obsessive-compulsive symptoms, eating disorders, somatic symptoms and hypochondria, and phobias. Items are rated on a 3-points scale: '*false*', '*middle way*', and '*true*'. The SAFA displayed satisfactory psychometric properties and validity (Franzoni et al., 2009). For the purposes of the present study, the anxiety (48 items) and depression (56 items) scales of the SAFA will be used.

Scholastic performance. First and second term grades in Italian language/literacy and math were obtained from school offices. These subjects reflect pupils' performance in writing, reading and arithmetic abilities; therefore, they were thought to be highly representative of academic achievement. Grades ranged from 4 to 10 (excellent), with sufficiency being 6.

Procedure

Approval for the project was obtained from the university ethics committee. A letter explaining the aims and rationale of the study was sent to the headmasters and teachers in each school. Informed consent was obtained from parents/carers, with no parent refusing consent. After brief group explanations on the purpose of the activities, confidentiality, and the answer formats, participants filled out all measures in their classrooms. Data were collected across two assessment occasions for each participant. In the first session respondents were asked to complete the TEIQue and the BFQ-2 (day 1), whereas in the second session the SPM were given together with the measure for internalizing symptoms (SAFA). Participation was on a voluntary basis, and no student withdrew. Measures were filled in through paper-pencil methods during school time, and participants were allowed to complete the entire test without a time limit being set.

Statistical Analysis

Descriptive statistics (i.e., means and standard deviations) were computed and Pearson's correlation coefficients was used to investigate bivariate associations among the Study variables. In order to test the incremental predictive utility of trait EI over internalizing symptoms and scholastic performance, for each criterion a three-block hierarchical regression was performed at the global and factor level of the TEIQue. This implies that for each criterion variable regressions were run twice: firstly with the overall trait EI score as the last Step of the model (Step 3a) and, secondly, with the factors Well-Being, Self-Control, Sociability, and Emotionality (Step 3b). All analyses were performed using PASW (SPSS version 19.0 for Windows).

Results

Intercorrelations among Study Variables

Intercorrelations amongst study variables and descriptive statistics are presented in Table 1. At the global level, the TEIQue–AFF did not correlate significantly with cognitive ability, but it showed significant positive associations with the Lie scale (r = .34, p < .01) and with all the Big Five dimensions, particularly with Emotional Stability (r = .36, p < .01) and Agreeableness (r = .38, p < .01). The global trait EI composite also showed significant negative correlations with both anxiety (r = -.27, p < .01) and depression (r = -.36, p < .01).

The TEIQue–AFF's factors were positively associated with at least three of the Big Five dimensions, and negatively with both anxiety and depression (all ps < .01 and p < .05 where Self-Control was concerned). Results also showed that the factor Self-Control did not relate significantly with depression (p = n.s.).

Regression Analyses

Table 2 provides the statistical indices (overall F, ΔR^2 for each Step, and βs for each predictor) of the four regression models involving the TEIQue–AFF's scores over internalizing symptoms and scholastic performance. In each model, gender, age and IQ were entered as Step 1, the Big Five and the Lie scale as Step 2, and either global trait EI or the four TEIQue factors as Step 3a and 3b respectively.

Internalizing symptoms. For both internalizing symptoms a significant contribution of gender emerged at Step 1 (β = .19, t = 2.62, p < .05, for depression, and β = .57, t = 9.08, p < .001, for anxiety). At Step 2, the Big Five dimensions and the Lie scale explained an additional 12% of the variance for both depression and anxiety. In both cases, Emotional Stability (β = -.402, t = -5.38, p < .001), Energy (β = -.396, t = -4.77, p < .001), and Openness (β = .335, t = 3.21, p < .01), were individually significant predictors. Where global trait EI was entered as the third block of the equation (Step 3a), the model gained additional 6% and

8% explanatory power for depression and anxiety respectively. The global score of the TEIQue–AFF was a significant predictor both times (β =-.30, t = -3.63, p < .001 for depression, and β =-.34, t = -5.14, p < .001 in the case of anxiety).

Analyses were rerun entering as the last block the four TEIQue factors in place of the global trait EI score (Step 3b). This change resulted in a significant model, which improved the portion of variance explained of 9% and 7% for depression and anxiety respectively. A significant contribution was recorded for the factor Well-Being only, in the case of both depression (β = -.34, t = -5.75, p < .001) and anxiety (β = -.16, t = -5.75, p < .05) symptoms. See Table 2.

Scholastic performance. At Step 1 general cognitive ability emerged as significant predictor over both math (β = .36, t = 5.10, p < .001) and language/literacy (β = .33, t = 4.56, p < .001) grades, explaining 14% and 12% of unique variance in each indicator of scholastic performance respectively. No influence of demographic variables was detected. At Step 2, in both cases the inclusion of the Big Five and the Lie scale resulted in a significant increase of the percentage of explained variance in math (7%) and language/literacy (13%). A substantial positive effect for Conscientiousness over math (β = .29, t = 2.90, p < .01), and of Conscientiousness (β = .33, t = 3.33, p < .001) and Openness (β = .23, t = 2.16, p < .05) over language/literacy was observed. At Step 3a the inclusion of the global trait EI composite derived from the TEIQue–AFF factors did not provide any additional explanation of the variance in neither math (β = .00, t = .03, p = n.s) nor language/literacy (β = .07, t = .79, p = n.s.).

As in the case of internalizing symptoms, analyses were rerun entering as the last block the four TEIQue–AFF factors in place of the global trait EI score (Step 3b). However, no significant results were detected (all *ps* = n.s). See Table 2 for further details.

Table 1

Descriptive Statistics and Intercorrelation Matrix for Study Variables.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. IQ	.															
2. Emotional Stability	.23**	.														
3. Openness	.32**	.36***	.													
4. Conscientiousness	.29**	.27**	.64**	.												
5. Energy/Extraversion	.14	.19**	.52**	.53**	.											
6. Agreeableness	.20**	.26**	.65**	.60**	.33**	.										
7. Lie	.02	.25**	-.06	.09	.08	-.12	.									
8. Well-Being	-.02	.24**	.11	.17*	.34**	.08	.25**	.								
9. Self-Control	.22**	.56**	.15*	.23**	.04	.01	.39**	.30**	.							
10. Emotionality	-.07	.17*	.11	.17*	.14	.37**	.23**	.43**	.22**	.						
11. Sociability	.04	.11	.20**	.15*	.56**	.11	.12	.61**	.16**	.43**	.					
12. TEI	.06	.36**	.21**	.27**	.21**	.38**	.34**	.83**	.55**	.72**	.75**	.				
13. Anxiety	-.07	-.13	.02	.01	-.09	-.07	.00	-.24**	-.02	-.26**	-.22**	-.27**	.			
14. Depression	-.06	-.24**	-.04	-.11	-.15**	-.14**	-.12	-.38**	-.18*	-.25**	-.18**	-.36**	.45**	.		
15. Math	.34**	.11	.21**	.25**	.18*	.07	.03	.14	.15*	-.13	-.13	.02	-.11	-.10	.	
16. Language/literacy	.31**	.03	.32**	.28**	.25**	.14*	.02	.06	.15*	-.06	-.09	.10	-.15*	-.03	.66**	.
M	53.27	47.91	48.39	47.63	53.00	52.42	43.23	4.97	4.02	4.70	4.58	4.53	64.52	59.57	6.71	6.81
SD	4.31	11.48	13.89	14.68	13.26	14.32	9.67	.86	.70	.64	.69	.50	8.86	8.86	1.56	1.04

Note. TEI = Trait Emotional Intelligence. * $p < .05$, ** $p < .01$.

Table 2

Hierarchical Regression Models with Symptoms of Depression and Anxiety and Scholastic Performance as Outcome Variables (N = 200).

	Depression			Anxiety			Math			Language/ literacy		
Predictor	$F_{overall}$	ΔR^2	β	$F_{overall}$	ΔR^2	β	$F_{overall}$	ΔR^2	β	$F_{overall}$	ΔR^2	β
Block 1	4.27*	.05*		27.98***	.32***		9.18***	.14***		7.76***	.12***	
Gender			.19*			.57***			-.03			-.08
Age			.07			-.05			.13			.14
IQ			-.06			-.09			.36***			.33***
Block 2	3.71***	.12***		14.92***	.12***		5.02***	.07*		6.35***	.13***	
ES			-.28**			-.33***			-.14			-.09
Energy			-.19*			-.22**			-.01			-.01
Openness			.23*			.20*			.08			.23*
Conscientiousness			.02			.11			.29**			.33***
Agreeableness			-.13			-.04			-.17			-.18
Lie			-.09			-.01			.03			.00
Block 3a	4.91***	.06***		18.09***	.08***		4.36***	.00		5.2***	.00	
TEI			-.30***			-.34***			.00			.07
Block 3b	4.38***	.09***		13.57***	.07*		4.08***	.03		4.89***	.03	
Well-Being			-.34***			-.16*			.06			.06
Self-Control			-.14			-.10			.19			.16
Emotionality			-.01			.05			-.19			-.15
Sociability			.19			-.13			-.04			.09

Note. As the predictors entered at Steps 1 and 2 were the same for each model, results for Steps 1 and 2 are presented only once. At Step 3, the global score of the TEIQue (Step 3a) was replaced with the four factors (Step 3b). ES = Emotional Stability; TEI = Trait emotional intelligence. 0 = male, 1 = female. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

Discussion

The purpose of this study was twofold: 1) to investigate whether trait EI can be used as indicator of adolescent's psychological adjustment, operationalized as symptoms of anxiety and depression, and academic performance, and 2) to systematically test the convergent, discriminant and incremental validity of the full form of the Italian TEIQue–AFF. As expected, global trait EI did not show relevant associations neither with IQ nor with scholastic performance thus confirming H1 and H4. With the exception of a significant correlation with Self-Control and IQ, these results were consistent at the level of the four factors. The present findings suggest that the global as well as the factor scores of the Italian translation of the TEIQue–AFF correlates substantially with both higher order personality dimensions and non-clinical form of internalizing symptoms. Particularly, trait EI was positively associated with the Big Five, showing stronger Pearson's *r* coefficients with the dimensions of Emotional Stability and Agreeableness, and negatively with anxiety and depression, providing support to H2 and H3 respectively. The moderate effect sizes (Cohen, 1988) suggest for a lack of substantial overlap between measures. Such findings are in line with those obtained by the few published investigation where the short-adolescent TEIQue was used (e.g., Davis & Humphrey, 2012b), and attesting the substantial associations of trait EI with variables pertaining the realm of personality and emotion, rather than with those referring to the cognitive domain.

The incremental validity of trait EI over internalizing symptoms after controlling for demographic variables, non-verbal cognitive ability, the Big Five and self-enhancement was substantial at both the global- and the factor-score levels. Therefore, it can be safely stated that H5 was supported, and that criticisms raised against the utility of trait EI as predictor of relevant psychological outcomes can be questioned (e.g., Landy, 2005). At the same time, results on scholastic performance provide support to H6, as trait EI scores did not predict

neither math nor Italian language/literacy grades. This finding is in line with the theoretical assumption behind the construct of trait EI.

It is also worth mentioning that, differently from trait EI, the Big Five personality dimensions accounted for an additional moderate amount of variance of academic grades after being entered in the second step of the regression model. Nevertheless, as the present results suggest, overall super-factors of personality and trait EI cannot alone explain the variability in a complex construct such as academic performance. The most influent component over academic achievement in the present Study was indeed non-verbal cognitive intelligence.

In accordance with the existing literature on adult (see Chapter 4), the prominent role of the factor Well-Being emerged over both anxiety and depression. However, H7 was only partially supported, as the factor Self-Control did not show any significant contribution to the prediction of the outcome variables considered herein. It is worth to notice that the poor internal consistencies found for the factor Self-Control (see Study 1), may have influenced the predictive value of this factor. The relevance of the Well-Being component of trait EI for adolescents' adjustment raises a "criterion-overlap" issue (Zeidner, Matthews, & Roberts, 2012). The factor Well-Being comprises facets such as trait happiness, trait optimism and self-esteem, which are nearly inevitably associated (i.e., substantially overlapping) with criteria relevant to psychological well-being, as attested by the findings of this Study.

Limitations

This investigation presents a number of methodological limitations, particularly pertaining the self-evaluative nature of both predictors and internalizing symptoms, as well as the cross-sectional nature of the study design. Both elements may raise concerns about common-method bias. In addition, the small sample size of Italian students may limit the generalizability of results. Consequently, further research using larger samples, triangulation of data and longitudinal designs is needed. Last, given the low reliabilities of the Italian

TEIQue–AFF presented in Study 1, it is important for future studies to improve the levels of internal consistencies of this scale and to replicate these analyses at a later stage. In line with the principle that the incremental validity of a measure may be underestimated when the lower scales of such measure suffer from non-satisfactory levels of reliability (Smith, Fischer, & Fister, 2003), new investigations will help to ascertain that low reliabilities found for the TEIQue–AFF did not bias these findings.

Implications

From the practitioner's standpoint, trait EI seems to provide unique insight into adolescents' emotional functioning in the school context. Indeed the present study shows that adolescents who perceive themselves as being in touch with their emotions and able to regulate them tend to report less symptoms of depression and anxiety. Hence, overall high trait EI adolescents seem to be less vulnerable to psychological maladjustment compared to their low trait EI peers.

From a theoretical perspective, the results of the present study confirm once again the conceptualization of trait EI as a personality dimension, and provide cross-cultural evidence on the quality of the TEIQue as assessment tool for trait EI during adolescence.

CHAPTER 4

The Incremental Validity of Trait Emotional Intelligence: A Meta-Analysis of Previous Studies and New Data

Abstract

Study 4 addresses concerns on the incremental predictive utility of the adult-TEIQue through: a) a meta-analytic investigation of the extant literature on this topic, and b) new data using the Italian translation of the scale. To this end, 24 articles, reporting 114 incremental validity analyses of the TEIQue over and above both higher-order personality dimensions and other individual-difference predictors were reviewed (Study 4a), and self-reported data from a sample of 227 participants were collected and analyzed (Study 4b). Overall, the TEIQue showed incremental utility in different psychological domains beyond relevant predictors, including the Big Five personality dimensions, and other emotion-related constructs. Analyses performed at the level of the four-TEIQue factors indicated that its predictive effects were mainly due to the factor Well-Being. These findings are discussed with reference to potential implication for theory and practice.

CHAPTER 4

Introduction

The largest number of studies on trait EI revolves around the utility of the construct in populations of adults. Thanks to such expanding body of investigations, we now know that where the TEIQue instruments are used to operationalize trait EI, the construct predicts a wide range of outcomes referring to different areas of individual functioning, like relationships satisfaction (Smith, Ciarrochi, & Heaven, 2008; Smith, Heaven, & Ciarrochi, 2008), adaptive coping strategies usage (Laborde, You, Dosseville, & Salinas, 2012), and reactions to stress (e.g., Mikolajczak, Menil, et al., 2007). Despite these promising results, a number of conundrums related to the nature of the construct still have to be addressed.

The issue of trait EI's overlap with the extant personality taxonomies, particularly with Neuroticism (alternatively operationalized as Emotional Stability), "stands out" as, perhaps, one of the most widely discussed topics within the field. As trait EI is explicitly conceptualized as part of the major personality taxonomies rather than as independent of them (Petrides, Pita, et al., 2007), numerous studies have examined its degree of convergence with the higher-order personality dimensions of the Eysenckian Giant Three (Eysenck, 1994) and Big Five (Costa & McCrae, 1992) personality trait models. Therefore, besides the expanding body of evidence, including several meta-analytic studies (e.g., Malouff, Schutte, & Thorsteinsson, 2014; Martins et al., 2010), which keeps highlighting the importance of EI as a predictor in a wide array of psychological domains, the overall utility of the construct has been questioned several times (e.g., Antonakis, 2004a, 2004b; Conte, 2005; Harms & Credé, 2010; Schlegel et al., 2013; Schulte et al., 2004; Van Rooy, Alonso, & Viswesvaran, 2005). The main argument against trait EI is therefore its poor/absent predictive utility over and above personality constructs, viz., its lack of incremental validity. Incremental validity can be defined as the degree to which a measure's scores increase the accuracy of prediction of

pertinent outcome variables, after controlling for the effects of other conceptually relevant predictors (Hunsley & Meyer, 2003).

For example, some authors pointed out that trait EI does not add substantially to the prediction of psychological phenomena over the basic personality dimensions (e.g., Schulte et al., 2004). Similarly, others have attributed the predictive validity of trait EI self-reports to their overlap with facets of higher-order traits relevant to the outcomes being considered (Harms & Credé, 2010). More recently, claims pertaining to the redundancy of trait EI with existing social and emotional effectiveness constructs (e.g., assertiveness, empathy, interpersonal sensitivity, and emotion regulation) have been done, concluding that further research is needed in order to provide solid evidence for its overall distinctiveness and incremental validity (Schlegel et al., 2013) beyond both personality and emotion-related psychological attributes. Additionally, Zeidner and colleagues (2012) noticed that the majority of studies on the incremental validity of trait EI focused their analysis on the global trait EI score derived from different self-reports, thus emphasizing the lack of investigations on the predictive contribution of trait EI's sub-dimensions.

Aims and Rationale for Studies 4a and 4b

Given the claims for trait EI to demonstrate its effectiveness over and above higher-order personality traits (Antonakis, 2004a, 2004b; Conte, 2005; Harms & Credé, 2010; Schlegel et al., 2013; Schulte et al., 2004; Van Rooy, Alonso, & Viswesvaran, 2005), addressing concerns raised on trait EI's predictive utility is an important step to take in order to provide deeper insight into the validity of the construct and of its core facets. Incremental validity over cognate attributes is pivotal to the exploration of any psychological construct. As such, a systematic investigation of the incremental validity of trait EI, particularly beyond higher-order personality dimensions such as the Big Five, constitutes an important step for establishing its theoretical and practical utility. Notwithstanding the growing number of

studies investigating the incremental predictive contribution of trait EI beyond relevant variables such as the Big Five, heretofore no studies have reported a systematic, quantitative synthesis of these empirical results.

In addition, considering the multidimensional nature of the construct, tests of the predictive utility of trait EI's components would help to determine whether sub-dimensions are/are not capable of accounting for incremental effects over theoretically meaningful criteria. Expanding the perspective, the results of a number of studies indicate that some TEIQue's facets, most of which fall under the interpersonal components of trait EI (viz., the factors Emotionality and Sociability), compromise the construct's predictive power at the global-composite level (Siegling, Petrides, et al., 2014; Siegling et al., 2013). As previously noted (Siegling, Petrides, et al., 2014; Siegling et al., 2013), such evidence puts to the test the sampling domain used to develop the TEIQue, which, although systematically derived, may not yet represent the underlying disposition in an optimal way. For this reason, investigations at the factor level become particularly important. Examinations at the factor-level are a valuable source of information about a construct constitutive elements, as at the global composite level the contribution of single-elements are averaged (Smith, Fischer, & Fister, 2003).

Therefore, the current study was guided by two aims: (a) to provide a comprehensive quantitative account of the incremental predictive contribution of the third- (i.e., global trait EI composite) and second-order (i.e., factor) levels of the instrument through a series of meta-analyses (Study 4a); and (b) to provide the literature with new data on trait EI's incremental validity controlling for higher-order personality dimensions (i.e., the Big Five) as well as social and emotional effectiveness constructs (viz., emotion regulation strategies; Schlegel et al., 2013) (Study 4b). Specific objectives and hypotheses for Study 4a and Study 4b are presented below, in two separate subsections.

Study 4a: Meta-Analysis Study

Study 4a examines existing evidence on the incremental validity of trait EI as measured with the TEIQue. Such a thorough and systematic investigation will help to address concerns about the uniqueness and utility of the construct. Despite emergent findings supporting the incremental value of the construct in children and adolescents (e.g., Mavroveli & Sanchez-Ruiz, 2011; Russo et al., 2012; Siegling, Vesely, Saklofske, Frederickson, & Petrides, accepted; see also Study 3), the current Study will consider the literature on adult samples only. Hence, the attention is placed on studies in which the adult versions of the TEIQue (i.e., full- and short-forms) were used. The ultimate goal of the current Study is to provide a quantitative indicator of the TEIQue's incremental validity. More specifically, by using groundbreaking meta-analytic techniques, Study 4a represents an effort of answering the following questions:

1) Is the TEIQue a valid predictor of psychological criteria beyond higher-order personality traits and other relevant predictors, at both the global and the factor score levels?;

2) If so, to what extent is this claim consistent across different predictors, criterion domains and populations?;

3) What is the pattern of results for those analyses performed at the factor level?

Method

Literature Search

The main objective of the literature search was to identify studies that have explored trait EI's incremental validity by using the TEIQue. The literature search focused solely on empirical investigations published in peer-reviewed journals to enhance the methodological rigor of the studies reviewed and the conclusions drawn regarding the incremental validity of

the TEIQue. The following inclusion criteria were applied to select eligible studies: (1) focus on adult samples (minimum age 18 years), and (2) use of the TEIQue.

Figure 1 depicts the article selection process. The papers reviewed herein were identified by conducting searches in the PsycINFO, PsycArticles, Scopus, and Web of Knowledge databases, in December 2014, using the following terms individually: *TEIQue, TEIQue–SF, Trait Emotional Intelligence Questionnaire,* and *Trait Emotional Intelligence Questionnaire–Short Form*. Queries were limited to human subjects and English language. In order to include studies that did not come up in the initial database search, the reference list of each identified paper was manually inspected. Based on these searches, 24 articles, presenting 114 analyses on the incremental validity of the TEIQue, were found. Table 1 provides a summary of the methodological features of these studies.

In line with specified aims, the main focus of current Study is on the statistical analyses run by each investigation and examining the incremental validity of the TEIQue. The main features of the chosen meta-analytic technique, first and foremost the use of ΔR^2 as effect size, reduced the number of the reviewed analysis to 105 (i.e., 18 articles), which were therefore included in subsequent meta-analysis.

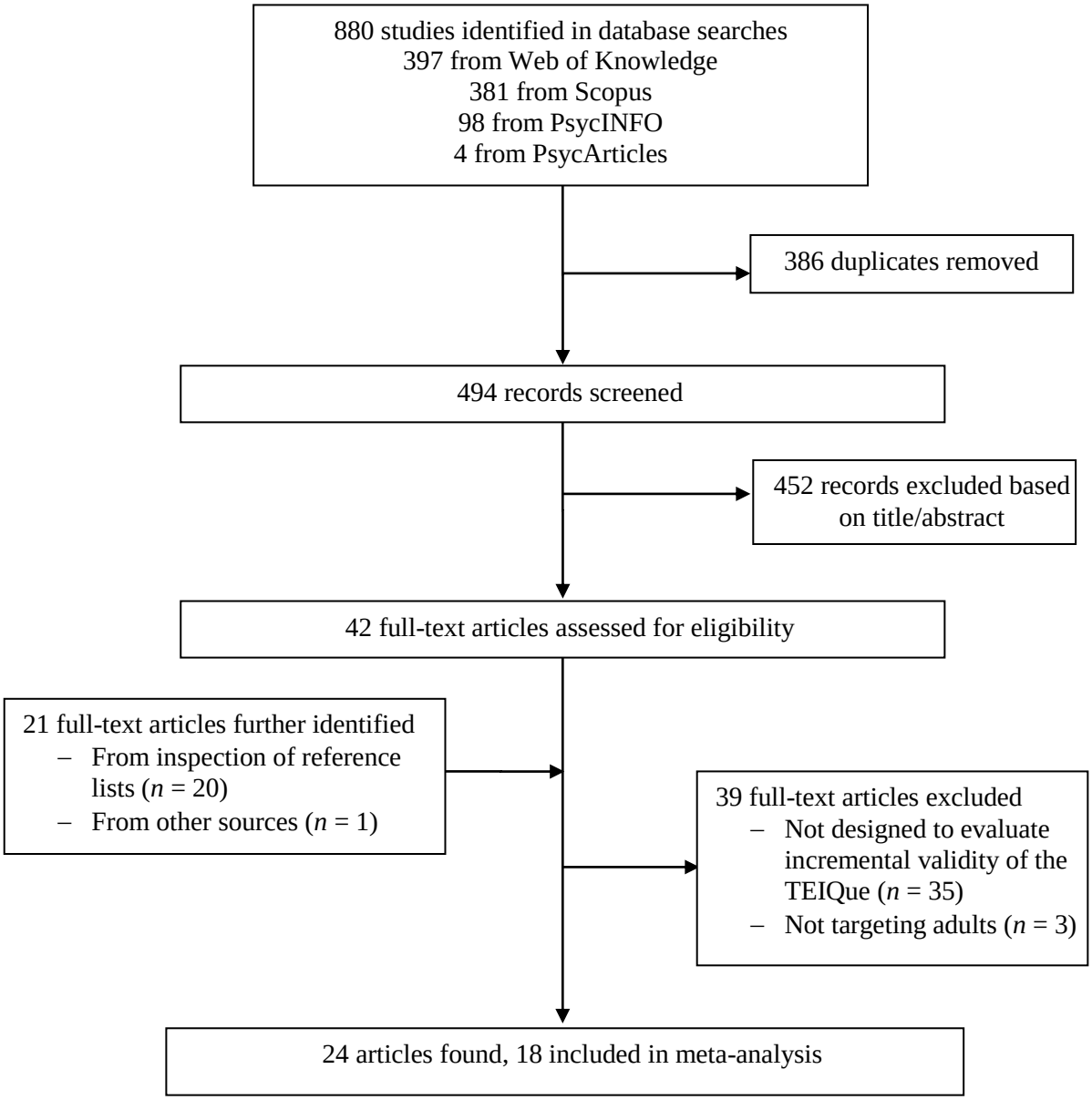

Figure 1

Flow-chart of review process.

Table 1

Summary of Studies Examining the Incremental Validity of Trait EI Using the Trait Emotional Intelligence Questionnaire (TEIQue; N = 24)

Authors (year)	Design	Sample composition[a]	TEIQue form	Predictors (measure) [b]	Criteria (measure)	Contribution of the TEIQue total score (ΔR^2)[c]	Contribution of the TEIQue factors (ΔR^2)[c]
1.Andrei & Petrides (2013)	CS	362 community volunteers (140 female, mean age = 33.69, SD = 11.92)	Short	Mood (PANAS)	Somatic complaints (SCL)	Yes (.038)	
2.Chamorro-Premuzic, Bennett, & Furnham (2007)	CS	112 mixed student and community British sample (61 female, mean age = 25.1, SD = 9.4)	Short	Gender, age, and Big Five (TIPI)	Happiness (OHI)	Yes (.18)	
3.Freudenthaler, Neubauer, Gabler, Scherl, & Rindermann (2008)	CS	150 German students (76 female, mean age = 23.24, SD = 3.96)	Full	Big Five (NEO-FFI)	Somatic complaints (FPI)		Yes (.06)
					Life satisfaction (FPI)		Yes (.08)
				Big Five (NEO-FFI), trait EI (TMMS, SEAS and TEMT)	Somatic complaints (FPI)		Yes (.06)
					Life satisfaction (FPI)		Yes (.05)
4.Furnham & Christoforou (2007)	CS	120 Greek community sample (76 female, mean age = 36.5, SD = 12.5)	Short	Giant Three (EPQ), multiple happiness (MMHI)	Happiness (OHI)	Yes	
				Giant Three (EPQ), happiness (OHI)	Interpersonal happiness (MMHI)	Yes	
					Sensation seeking (MMHI)	No	
5.Furnham & Petrides (2003)	CS	88 undergraduate students (77 female, mean age = 19.79, SD = .83)	Short	Big Five (NEO-FFI)	Happiness (OHI)	Yes	
6.Gardner & Qualter (2010)	CS	310 mixed community and student UK sample (236 female, mean age = 36.70, SD = 12.05)	Full	Age, gender, Big Five (IPIP)	Aggression (AQ):		
					Physical	No	
					Verbal	No	
					Anger	No	
					Hostility	Yes (.08)	
					Loneliness (SELSA-S):		

					Social	Yes (.17)
					Family	Yes (.14)
					Romantic	Yes (.11)
					Eating disorders (EDDS)	No
					Alcohol abuse (SAAST)	Yes (.02)
					Happiness (SHS)	Yes (.09)
					Life satisfaction (SWLS)	Yes (.17)
			Full	Trait EI (SEIS and MEIA)	Aggression (AQ):	
					Physical	Yes (.02)
					Verbal	No
					Anger	Yes (.14)
					Hostility	Yes (.19)
					Loneliness (SELSA-S):	
					Social	Yes (.08)
					Family	Yes (.06)
					Romantic	Yes (.04)
					Eating disorders (EDDS)	Yes (.10)
					Alcohol abuse (SAAST)	Yes (.07)
					Happiness (SHS)	Yes (.22)
					Life satisfaction (SWLS)	Yes (.19)
7.Laborde, Lautenbach, Allen, Herbert, & Achtzehn (2014)	E	28 German speaking tennis players (13 females, mean age = 23.88, SD = n. r.)	Full	Age, somatic anxiety, cognitive anxiety and self-confidence (CSAI-2)	Biological marker of emotion regulation (cortisol secretion)	Yes (.28)
				Somatic anxiety, cognitive anxiety and self-confidence (CSAI-2), biological marker of emotion regulation (cortisol secretion)	Performance under stress (number of errors at a tennis task)	No
8.Marjanovic & Dimitrijvic (2014)	CS	254 Serbian adults (117 females, mean age = 40.21, SD = 8.17)	Full	Big Five (NEO-FFI)	Well-being (RSPWB-S)	Yes (.07)
				Ability EI (MSCEIT), empathy (EQ-Short)	Well-being (RSPWB-S)	Yes (.25)

9.Mikolajczak, Luminet, Leroy, & Roy (2007)	E	n. r.	Full	Condition (neutral vs. stressful), Emotional Stability and Agreeableness (D5D), social desirability (MCSDS)	Emotional reactivity (questionnaire developed for this study)		Yes
10.Mikolajczak, Luminet, & Menil (2006)	CS	100 French-speaking psychology students (85% female, mean age = 18.36, SD = 2.47)	Full	Mental status at baseline (BSI)	Psychological symptoms amid stress (BSI)		Yes
				Physical status at baseline (SMU-HQ)	Somatic symptoms amid stress (PILL)		Yes
				Alexithymia (TAS-20), optimism (LOT-R)	Psychological symptoms amid stress (BSI)		Yes (.16)
					Somatic symptoms amid stress (PILL)		Yes (.12)
11.Mikolajczak, Menil, & Luminet (2007)	CS	124 Nurses (85% female, mean age = 39.4)	Short	Big Five (D5D)	Emotional labour process (D-Quel):		
					Surface acting	Yes (.08)	
					Deep acting	Yes (.07)	
					Positive consonance	Yes (.04)	
					Negative consonance	No	
		49 As above			Somatic complaints (PILL)	No	
					Burnout (MBI)	Yes (.08)	
12.Mikolajczak, Petrides, Coumans, & Luminet (2009)	E	118 French speaking students (51 female, mean age = 18.70, SD = 1.04)	Full	Condition (neutral vs. stressful), negative affect at baseline (PANAS), Big Five (D5D), alexithymia (TAS-20), social desirability (MCSDS)	Negative affect at follow-up (PANAS)	Yes	
				Condition (neutral vs. stressful), positive affect at baseline (PANAS), Openness (D5D), alexithymia (TAS-20), social desirability (MCSDS)	Positive affect at follow-up (PANAS)	No	

Study 2	E	56 French-speaking male students (mean age = 20.18, SD = 2.02)	Full	Condition (neutral vs. stressful), negative affect at baseline (PANAS), resilience (RSA)	Negative affect at follow-up (PANAS)	Yes
13.Mikolajczak, Roy, Luminet, Fillée, & de Timary (2007)	E	56 As above	Full	Condition (neutral vs. stressful), interaction terms of condition with: the Big Five (D5D) and alexithymia (TAS-20)	Biological responses to stress (cortisol secretion)	Yes (.039)
				Condition (neutral vs. stressful), Big Five (D5D), social desirability (MCSDS), condition × alexithymia (TAS-20)	Psychological responses to stress (PANAS)	Yes (.034)
14.Mikolajczak, Roy, Verstrynge, & Luminet (2009)[d]	E	62 Belgian psychology students (47 female, mean age = 18.69, SD = 1.05)	Full	Big Five (D5D), social desirability (MCSDS), depression (BDI), anxiety (STAI-T)	Attention deployment (visual dot probe task)	
15.Petrides, Pérez-González, & Furnham (2007)	CS	200 UK students (125 female, mean age = 22.86, SD = 6.17)	Full	Big Five (NEO PI-R)	Coping (CSQ):	
					Rational	Yes
					Detached	No
					Emotional	Yes
					Avoidance	Yes
					Depression (CES-D)	Yes
					Dysfunctional attitudes (DAS)	Yes
Study 2	CS	154 UK students (124 female, mean age = 21.99, SD = 6.03)	Full	As above	Self-monitoring (RSMS):	
					Ability to modify self-presentation	Yes
					Sensitivity to emotional expression	Yes
					Aggression (AQ):	
					Physical	No
					Verbal	No
					Anger	No

					Hostility	Yes
Study 3		212 Spanish students (175 female, mean age = 23.07, SD = 3.33)	Full	Mood (PANAS)	Depression (BDI-II)	Yes
					Personality disorders (IPDE):	
					Paranoid	Yes
					Schizoid	Yes
					Schizotypal	Yes
					Borderline	Yes
					Dependent	Yes
					Avoidant	Yes
					Obsessive-compulsive	No
					Histrionic	No
					Antisocial	No
16.Petrides, Pita, & Kokkinaki (2007)	CS	274 Greek students (182 female, mean age = 25.45, SD = 5.85)	Full	Giant Three (EPQ)	Life-satisfaction (SWLS)	Yes
					Rumination (ECQ)	Yes
					Coping strategies (CSQ)	
					Rational	Yes
					Detached	No
					Emotional	Yes
					Avoidant	No
			Full	Big Five (ΤΕΧΑΠ)	Life-satisfaction (SWLS)	Yes
					Rumination (ECQ)	Yes
					Coping strategies (CSQ)	
					Rational	Yes
					Detached	Yes
					Emotional	Yes
					Avoidant	No
17.Sanchez-Ruiz, Mavroveli, & Poullis (2013)	CS	323 Cypriot university students (113 female, mean age = 23, SD = 1.65)	Short	Big Five (TIPI), cognitive ability (BRT), university majors	Academic performance (GPA)	Yes (.03)
18.Siegling, Nielsen, & Petrides (2014)[e]	CS	96 Danish employee of a multinational company (25	n = 40 full; n =	Age, gender, cognitive ability (in-house Wonderlic-	Leadership (position held within the company)	

		female, mean age = 37.09, SD = 7.73)	56 short	type test), job tenure			
19.Siegling, Vesely, Petrides, & Saklofske (2014)	CS	645 Canadian undergraduate students (71.5% female, mean age = 22.6, SD = 5.4)	Short	Big Five (BFI), coping strategies (CISS)	Perceived Stress (PSS)	Yes (.01)	Yes (.02)
					Anxiety (OASIS)	Yes (.01)	Yes (.01)
					Amotivation	Yes (.02)	Yes (.03)
Study 2	CS	As above (N = 444; 72.3% female, mean age = 22.6, SD = 5.4)	Short	Big Five (BFMM)	Depression (DASS)	Yes (.14)	Yes (.23)
					Anxiety (DASS)	Yes (.12)	Yes (.14)
					Stress (DASS)	Yes (.08)	Yes (.09)
					Life satisfaction (SWLS)	Yes (.16)	Yes (.33)
20.Singh & Woods (2008)	CS	123 Community Indian sample (34 female, mean age = 32)	Short	Extraversion, Conscientiousness, and Neuroticism (BFI)	Job satisfaction (OJSQ)	Yes (.07)	
					Well-being (GWBQ):		
					Up-tight	Yes (.09)	
					Worn-out	Yes (.06)	
21.Swami, Begum, & Petrides (2010)	CS	108 British female students (mean age = 23.94, SD = 4.28)	Full	Body mass index as kg/m^2 (self-reported height and weight), impact of socio-cultural influences on body image (SATAQ-3)	Actual-ideal weight discrepancy (PFRS)		Yes (.06)
					Body appreciation (BAS)		Yes (.25)
22.Uva et al. (2010)	L	41 French inpatients (n = 41; 47,9% female, mean age = 50.6 years, SD = 9.4)	Full	Negative affect (PANAS)	Craving (OCD)	Yes	
23.van Leeuwen et al. (2014)	CS	178 Dutch patient with vestibular schwannoma diagnosis (83 female, mean age = 56.4)	Full	Balance disorder, cranial nerve dysfunction, educational level	Quality of life (PANQUOL)	Yes	
24.Weaving, Orgeta, Orrell, & Petrides (2014)	CS	203 Dementia family caregivers (57.3% female, mean age = 66.71)	Short	Self-rated health (EQ-5D VAS), burden (RSS), depression (HADS), coping style (Brief COPE)	Anxiety (HADS)	Yes	

Note. CS = Cross-Sectional; E = Experimental; L = Longitudinal. AQ = Aggression Questionnaire; BAS = Body Appreciation Scale; BDI-II = Beck Depression Inventory-II; BFI = Big Five Inventory; BFMM = Big Five Mini-Markers; Brief COPE = Brief Coping Orientations to Problems Experienced; BRT = Baddeley Reasoning Test; BSI = Brief Symptom Inventory; CES-D = Center for Epidemiologic Studies Depression Scale; CISS = Coping Inventory for Stressful Situations; CSAI-2 = Competitive State Anxiety-2; CSQ = Coping Style Questionnaire; DAS = Dysfunctional Attitudes Scale; DASS = Depression, Anxiety, and Stress Scales; D-Quel = Dutch Questionnaire of Emotional Labour; D5D = Description en Cinq Dimensions; ECQ = Emotion

Control Questionnaire; EDDS = Eating Disorders Diagnostic Scale; EPQ = Eysenck Personality Questionnaire; EQ5D VAS = EQ-5D Visual Analogue Scale; EQ-Short = Empathy Quotient Short; FPI = Freiburger Persönlichkeitsinventar; GPA = Grade Point Average; GWBQ = General Well-Being Questionnaire; HADS = Hospital Anxiety and Depression Scale; IPDE = International Personality Disorder Examination; IPIP = International Personality Item Pool; LOT-R = Life Orientation Test-Revised; MBI = Maslach Burnout Inventory; MCSDS = Marlowe–Crowne Social Desirability Scale; MEIA = Multidimensional Emotional Intelligence Assessment; MMHI = Morris Multiple Happiness Inventory; MSCEIT = Mayer-Salovey-Caruso Emotional Intelligence Test; NEO-FFI = Neo-Five Factor Inventory; OASIS = Overall Anxiety Severity Impairment Scale; OCD = Obsessive-Compulsive Drinking Scale; OHI = Oxford Happiness Inventory; OJSQ = Overall Job Satisfaction Questionnaire; PANAS = Positive and Negative Affect Schedule; PANQUOL = Penn Acoustic Neuroma Quality of Life Scale-Dutch Version; PFRS = Photographic Figure Rating Scale; PILL = Physical Inventory of Limbic Languidness; PSS = Perceived Stress Scale; RSA = Resilience Scale for Adult; RSMS = Revised Self-Monitoring Scale; RSPWB-S = Ryff's Scales of Psychological Well-Being Short; RSS = Relatives' Stress Scale; SAAST = Self-Administered Alcoholism Screening Test; SATAQ-3 = Socio-cultural Attitudes Toward Appearance Questionnaire-3; SCL = Somatic Complaint List; SEAS = Self-report Emotional Ability Scale; SEIS = Schutte Emotional Intelligence Scale; SELSA-S = Social Emotional Loneliness Scale for Adults-Short form; SHS = Subjective Happiness Scale; SMU-HQ = Southern Methodist University Health Questionnaire; STAI-T = State Trait Anxiety Inventory; SWLS = Satisfaction with Life Scale; TAS-20 = Toronto Alexithymia Scale; TEMT = Typical-Performance Emotional Management Test; ТЕХАП = Traits Personality Questionnaire; TIPI = Ten Item Personality Inventory; TMMS = Trait Meta-Mood Scale.

[a]Sample size and features pertain to the incremental validity part of each study. [b]Predictors are the covariates over which the TEIQue incrementally predicts the study criteria. [c]Entries in this column present only specific findings of interest. They are not intended as a summary of the original research articles, which interested readers are urged to consult. [d]This study presents several ANOVAs as data analysis procedure. [e] This study presents logistic regression as data analysis procedure.

Coding of Studies

Studies were coded for the following key features: reference information (title, authors, and publication year), sample composition, study design (cross-sectional, longitudinal, experimental), TEIQue form used (full vs. short), level of analysis (global vs. factor level of the TEIQue), baseline measures (personality taxonomies such as Big Five vs. isolated constructs), length of the measure used to operationalize higher-order personality dimensions (i.e., short-, medium-, and long-size scales: ≤ 10 items, 10–60 items, > 60 items, respectively), number of predictors included in each statistical model, statistical information used to derive an effect size, criterion variables and their domain. With respect to outcomes' domains, criteria were clustered into the four major domains of affect, behavior, cognition, and desires (the "ABCDs" of individual differences) and somatic health where applicable. To reach this goal, the theoretical framework of each criterion was taken into consideration. This procedure was aimed by the effort to integrate research findings.

The value of ΔR^2 for trait EI was not systematically reported throughout. Sixty-three analyses explicitly reported the ΔR^2 coefficients for trait EI, with values ranging from .02 ($p <$ .01) for alcohol abuse (Gardner & Qualter, 2010) to .33 ($p < .01$) for life satisfaction (Siegling et al., accepted), whereas in 42 cases statistics were converted to ΔR^2. To this end, where statistical information required to calculate trait EI's ΔR^2 was missing, study authors were contacted and asked to provide it. Ultimately only 7% of cases lacked of relevant information, which therefore was coded as missing.

Meta-Analytic Procedure

The following analyses were based on cutting-edge meta-analytical techniques. Both random-effects and mixed-effects models were examined. All computations were conducted in R (R Core Team, 2012). Dependence of effects was modelled through the method developed by Hedges, Tipton, and Johnson (2010) using the 'Robumeta' (Fisher & Tipton,

2014) and 'Metafor' packages (Viechtbauer, 2010). Meta-regression analyses were conducted to examine differences due to study characteristics. Weighted mean effects, standard errors, I^2, H and R^2_{Meta}, for moderator analysis (Aloe, Becker, & Pigott, 2010) are presented within each analysis. Publication bias was formally estimated via Egger's regression test and the funnel plot.

Effect sizes. Change in R^2 (ΔR^2), which reflects the proportion of criterion variance due to a predictor (global TEIQue score) or block of predictors (TEIQue's factor scores), was used as the effect size. The variance of each ΔR^2 was estimated using formula 19 from Alf and Graf (1999). If the article did not report directly change in R^2, where possible procedures developed in Aloe and Becker (2012) to estimate semi-partial correlations (r_{sp}) first, and, subsequently, the changes in R^2 (i.e., $\Delta R^2 = r_{sp}$), were used.

Results

A summary of study characteristics and findings is shown in Table 1. Overall, 14 times the TEIQue full form[2] was used and 10 the TEIQue–SF, reporting 76 and 38 analyses respectively. It can be seen that the majority of the analyses were run from data derived from cross-sectional studies (n = 104). The remaining analyses were performed on data from either experimental (n = 9) or longitudinal (n = 1; Uva et al., 2010) research designs. Seventy-three analyses focused on data from university students, 30 from the general population, and the remaining from specific populations (i.e., six from nurses, two from tennis players, two from clinical populations, one from managers and one from dementia family caregivers). Sample characteristics for one analysis were not reported (Mikolajczak, Luminet, et al., 2007).

One-hundred-nine analyses were run on data collected through self-report measures only. For the remaining analyses, self-report measures for predictors were used, while either

[2] In two studies, a previous edition of the TEIQue full form, comprising 144 items, was used (Petrides, Pita, et al., 2007; Petrides, Pérez-González, & Furnham, 2007).

physiological (n = 3; Mikolajczak, Roy, Luminet, Fillee, & de Timary, 2007; Laborde, Lautenbach, Allen, Herbert, & Achtzehn, 2014) or cognitive measures (n = 2; Mikolajczak, Roy, Verstrynge, & Luminet, 2009; Sanchez-Ruiz, Mavroveli, & Poullis, 2013) were collected for the chosen criteria. Overall, in the largest number of analyses higher-order personality dimensions were included as further predictors (n = 89) and variables pertaining the affective domain were employed as criteria (n = 62).

With the exceptions of a study where ANOVA was employed (Mikolajczak, Roy, et al., 2009), and another one where a logistic regression model was tested (Siegling, Nielsen, & Petrides, 2014), all analyses were performed through hierarchical regressions. Additionally, while 95 analyses focused on the global trait EI score, only 19 focused on the TEIQue's factor scores. With the exception of four analyses where the unique contribution of each factor was not reported (Freudenthaler et al., 2008), significant effects for either Well-Being (n = 10; Mikolajczak, Luminet, & Menil, 2006; Siegling et al., accepted; Swami et al., 2010) or Self-Control (n = 5; Mikolajczak et al., 2006; Mikolajczak, Luminet, et al., 2007; Mikolajczak, Roy, et al., 2009) were found.

Main analysis. The 18 studies available for meta-analysis comprised 24 independent samples and 105 effect sizes (ΔR^2), which are presented in a frequency histogram depicted by Figure 2. The value of trait EI's ΔR^2 varied from .00 to .33, with a median of .04, and slightly positively skewed distribution. Dependence of effects may occur, given that multiple variables were repeatedly measured on the same group of participants and that each study provides several effect size estimates which are not, therefore, statistically independent (Hedges et al., 2010). Hence, an analysis using Hedges and colleagues' (2010) robust standard errors to account for the dependence of effects was performed. The overall weighted average change in R^2 was .06 (SE = .0116), with a 95% CI from .03 to .08, under the random-effects model. There was a moderate degree of heterogeneity across studies (τ^2 = .0016, I^2 =

39.3%), which was expectable given their methodological diversity (Higgins, Thompson, Deeks, & Altman, 2003).

Moderator analysis. The following potential moderators were fitted separately: sample composition, study design (cross-sectional, longitudinal, experimental), form of the TEIQue used (full vs. short), level of analysis for trait EI (global vs. factor level of the TEIQue), predictors (personality only, other predictors, personality and other predictors), focus on higher-order personality dimensions only (Big Five vs. Giant Three), length of the measure used to assess higher-order personality dimensions (short-, medium-, long-size scales, ≤ 10 items, 10–60 items, > 60 items respectively), and number of predictors included in each statistical model. Given the limited number of studies per criterion, analyses were not conducted separately for each ABCD domain, which was instead modeled as a moderator. Performing meta-regression analyses allowed to examine differences due to study characteristics. Only the length of the measure used to assess higher-order personality dimensions explained significant variability among effect sizes, and therefore it is discussed below.

Length of higher-order personality questionnaires. This moderator comprised three categories (long, $k = 25$, medium, $k = 8$, and short, $k = 39$). The size of the change in R^2 under mixed-effects model relates significantly to the length of the questionnaire used to assess higher-order personality dimensions ($I^2 = 11.7\%$). Particularly, while studies using a short personality inventory reported the largest change in R^2 ($\Delta R^2 = .05$; $SE = .0274$, with a 95% *CI* from -.01 to .12), studies employing a long questionnaire reported the smallest change in R^2 ($\Delta R^2 = .01$; $SE = .0036$, with a 95% *CI* from .00 to .02), which was similar to that reported by studies using medium-size scales ($\Delta R^2 = .04$; $SE = .0114$, with a 95% *CI* from .01 to .07).

Publication bias. Results from both the Egger's regression test and the funnel plot (see Figure 3) indicated that there were statistically significant asymmetries (z = 4.78, p < .001). Therefore, outcomes should be interpreted with some caution.

Summary of Study 4a

These results attest that although the TEIQue has a multi-factorial structure, the majority of studies focusing on its incremental validity performed their analyses at the global-composite level. However, by including analyses conducted at the factor level in this review, the relative contributions of the four TEIQue factors in explaining incremental variance could also be examined. Findings revealed that the pooled effect size was relatively small, but of statistical and practical significance (ΔR^2= .06, *SE* = .0116; 95% CI: .03–.08). Yet, where the TEIQue factors were considered as individual predictors, Well-Being and Self-Control were generally the only incremental contributors.

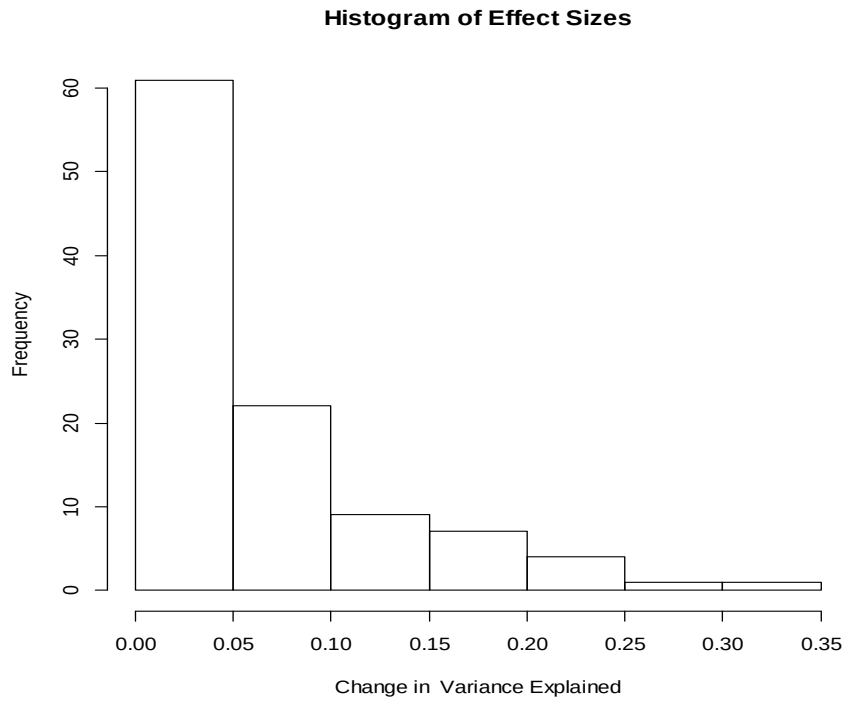

Figure 2.

Histogram showing changes in R^2 for the TEIQue in 105 regression models conducted across 18 studies.

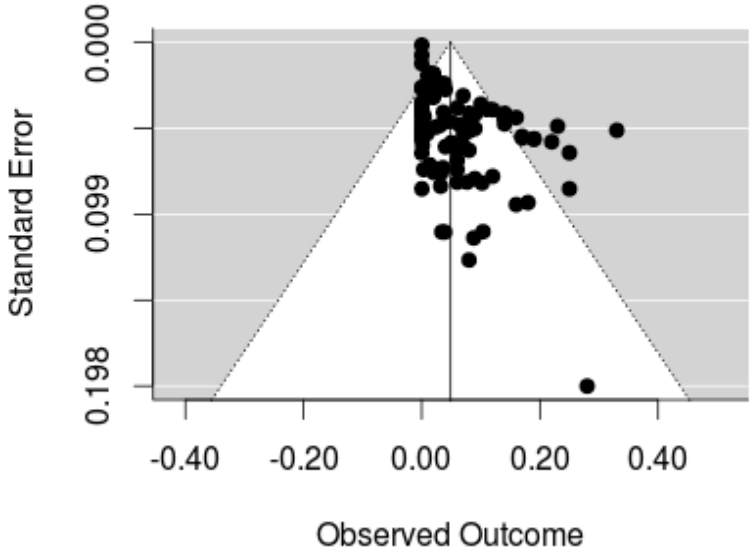

Figure 3.

Funnel plot of effect sizes, showing statistically significant asymmetries across studies.

Study 4b: New Empirical Study

Study 4b aims at providing new data on the incremental validity of both the higher (i.e., global composite) and lower (i.e., factor) levels of the full-length Italian TEIQue, over a series of theoretically relevant criteria, both adaptive and maladaptive in nature, some of which were not used in prior research (viz., hostility-irritability, contentment, relaxation, physical well-being and friendliness). In light of the evidence from Study 4a, the Big Five dimensions were assessed by means of a long inventory. Overall it was expected that:

H1: Trait EI will show positive significant correlations with higher order personality traits (i.e., Big Five), particularly with the dimension Emotional Stability.

H2: Trait EI will show negative significant association with symptoms of depression, anxiety, somatization and hostility-irritability, and positive association with contentment, relaxation, physical well-being and friendliness.

H3: Trait EI will show incremental validity at all construct levels after controlling for the effects of demographics, the Big Five dimensions, self-enhancement and emotion regulation strategies.

H4: The incremental validity of trait EI will be mainly due to the factors Well-Being and Self-Control.

Method

Participants

The sample used for subsequent analyses was the same of Study 2 and comprised 227 respondents. An a-priori examination of the adequacy of the sample size for linear multiple regressions was run through G*Power 3.1 (Faul et al., 2009). The results of the analysis showed that a sample of 89 and 129 participants would be appropriate to reach a medium effect-size and a satisfactory statistical power (0.95) for the analyses performed at the level of the global- and factor-scores of TEIQue respectively.

Measures

Trait EI. See Chapter 2 (p. 26) for a full description of the TEIQue (Petrides, 2009).

Big Five and self-enhancement. To assess the Big Five dimensions and social desirable tendencies, the Big Five Questionnaire-2 (BFQ-2; Caprara, et al., 2007) was used. A thorough description of the BFQ-2 is provided in Chapter 3 (p. 49). Reliability coefficients in the present sample were good (Cronbach's α = .81, .85, .91, .84, .84 and .62 for Energy/Extraversion, Agreeableness, Conscientiousness, Emotional Stability, Openness, and the Lie scale respectively).

Emotion regulation. The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003; Italian adaptation by Balzarotti, John, & Gross, 2010) is a measure designed to assess individual differences in the habitual use of two emotion regulation strategies: expressive suppression (4 items; α = .81) and cognitive reappraisal (6 items; α = .78). Sample items

include "*I control my emotions by not expressing them*", "*I keep my emotions to myself*", and "*When I want to feel more positive emotion, I change the way I'm thinking about the situation*". Participants are required to provide responses on a 7-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Psychological and somatic symptoms. Symptoms related to emotional and somatic well-being were assessed using the Symptom Questionnaire (SQ; Kellner, 1987; Italian adaptation by Fava et al., 1983). The SQ comprises 92-items with dichotomous response format (i.e., both yes/no and true/false) and provides scores on four scales of distress symptoms (depression, anxiety, somatization and hostility-irritability) as well as scores on four scales of well-being (contentment, relaxation, physical well-being and friendliness). Past research supports the reliability and validity of the SQ (e.g., Rafanelli et al., 2000). Reliabilities for the SQ were good (α values ranged from .71 for relaxation to .87 for hostility-irritability), with the exception of friendliness (α = .60).

Procedure

Approval for the present Study was obtained from the university ethics committee. The data collection was promoted through posters at the university of Bologna, Italy, and online advertisements in a popular social network. Questionnaires were completed via an online survey system by 102 participants, whereas the remaining 125 were provided with an envelope and instructed to return their completed questionnaires with no further identifying information. In both cases, participation was anonymous and on a voluntary basis.

Data analytic strategy

Pearson's correlation coefficient was used to explore bivariate associations among Study variables, whereas a series of Student's *t* test for independent samples were performed to investigate gender differences. A series of hierarchical multiple regression analyses were conducted to determine if scores on the TEIQue added significantly to the prediction of

psychological and somatic symptoms. Particularly, each model included demographics (Step 1), the Big Five and self-enhancement (Step 2), and emotion regulation strategies (Step 3) as predictors. The last step of each model comprised either the global or the four factor scores of the TEIQue (shown as Step 4a and Step 4b respectively). Adjusted multiple R^2 (i.e., R^2_{adj}) were used in comparisons in order to adjust for the number of degrees of freedom across regression models. All analyses were performed using PASW (SPSS version 19.0 for Windows).

Results

Bivariate Correlations

Given the number of variables being considered, Table 2 presents the intercorrelations between trait EI global- and factor-scores, with baseline predictors and criteria. Different patterns of correlations between the TEIQue scores and the study variables were observed. Particularly, results indicate that Well-Being, Self-Control and global trait EI had strong positive correlations with Emotional Stability (*ps* < .001). In addition, the factors Sociability and Emotionality showed strong positive associations with Energy/Extraversion ($p < .001$) and Agreeableness ($p < .01$), respectively. With the exception of a small number of non-significant results (e.g., in the case of the association between Sociability and both physical well-being and friendliness), at both the global- and the factor-scores level the TEIQue showed significant positive/negative correlations with adaptive/maladaptive outcomes.

Incremental Validity

Table 3 shows the results of multiple hierarchical regression models. At Step 1, age negatively predicted depression, somatization ($p < .05$) and hostility-irritability ($p < .01$), whereas gender predicted anxiety, somatization ($p < .05$) and relaxation ($p < .001$). At Step 2, the inclusion of the Big Five contributed significantly to the prediction of six out of eight criteria, namely, depression, anxiety, somatization, hostility-irritability, relaxation, and

physical well-being. In all these cases, Emotional Stability resulted significant negative predictor of maladaptive outcomes ($p < .001$), while it showed a positive contribution over physical well-being ($p < .05$). A significant positive contribution of Conscientiousness over anxiety ($p < .05$) was also observed. However, the effect was weaker compared to Emotional Stability. At Step 3, emotion regulation strategies provided a weak contribution for somatization and contentment ($p < .05$) only.

Table 2

Intercorrelations among Study Variables.

	TEI	Well-Being	Emotionality	Self-Control	Sociability
Big Five					
Energy	.37***	.30***	.15*	.18**	.45***
Agreeableness	.27***	.21**	.26**	.14*	.16*
Conscientiousness	.24***	.14*	.14*	.22***	.16*
Emotional Stability	.46***	.46***	.21**	.58***	.09
Openness	.31***	.25***	.23***	.24***	.20**
Self-enhancement	.37**	.34**	.18**	.44**	.13
Emotion regulation					
Reappraisal	.11	.14*	.06	.00	.11
Suppression	-.36***	-.27***	-.50***	-.05	-.26***
Criteria					
Depression	-.51***	-.59***	-.19**	-.45***	-.26***
Anxiety	-.28***	-.37***	-.03	-.37***	-.07
Somatic symptoms	-.34***	-.39***	-.16*	-.31***	-.17**
Hostility-irritability	-.30***	-.28***	-.18**	-.39***	-.05
Contentment	.26**	.32**	.17**	.04	.17*
Relaxation	.42**	.44**	.21**	.37**	.22**
Physical well-being	.19**	.23***	.08	.20**	.06
Friendliness	.19*	.14*	.19*	.13*	.09

Note. TEI = Trait Emotional Intelligence. *$p < .05$, **$p < .01$, ***$p < .001$

Analyses performed at the TEIQue's global level. In the first set of regression models, the global score of the TEIQue was entered as Step 4a (see Table 3). Global trait EI showed significant negative beta weights over maladaptive outcomes, viz., depression ($p < .001$), anxiety ($p < .01$), somatisation ($p < .001$), and hostility-irritability ($p < .05$). Trait EI

also showed positive-significant betas over three out of fours adaptive outcomes, namely, contentment ($p < .01$), relaxation ($p < .001$), and physical wellbeing ($p < .05$).

For reason of parsimony, Table 2 does not present changing in the beta weights of baseline significant predictors. However, after the inclusion of the global score of the TEIQue in the regression model, deflations in significant beta weights for Emotional Stability were observed. Specifically, with the exception of somatic symptoms, the beta-weights for Emotional Stability were attenuated depending on the criterion predicted.

Analyses performed at the TEIQue's factor level. Regressions were rerun for all criteria by entering the four TEIQue factors as Step 4b in place of the global score. Overall, the four factors showed significant incremental effects over the seven criteria after controlling for baseline predictors. Only when friendliness was concerned results were non-significant (p = n.s.). While no significant contribution emerged for both Sociability and Emotionality, Well-Being explained a substantial incremental portion of variance in depression n, anxiety, somatization, contentment, relaxation (for all variables $p < .001$), and somatic well-being ($p < .01$), whereas Self-Control in anxiety ($p < .05$) and hostility-irritability ($p < .01$). All incremental effects were in the expected direction (e.g., negative for anxiety and depression, positive for contentment and relaxation). See Table 3.

As was the case for Step 4a, deflations in significant beta weights for Emotional Stability were observed when the four-factor scores of the TEIQue were entered in the regression model (Step 4b). Again, with the exception of somatic symptoms, the extent of beta-weights deflations for Emotional Stability varied as a function of the criterion being predicted.

Table 3

Hierarchical Regression Analyses Testing the Incremental Validity of the Italian Translation of the TEIQue.

Criterion	Depression		Anxiety		Somatisation		Hostility-irritability	
Step 1	$F(2, 225) = 3.91^{*}$		$F(2, 225) = 3.44^{*}$		$F(2, 225) = 10.88^{***}$		$F(2, 225) = 3.99^{***}$	
Step 2	$F(8, 219) = 5.11^{***}$		$F(8, 219) = 5.68^{***}$		$F(8, 219) = 7.09^{***}$		$F(8, 219) = 5.26^{***}$	
Step 3	$F(10, 217) = 4.21^{***}$		$F(10, 217) = 4.94^{***}$		$F(10, 217) = 6.60^{***}$		$F(10, 217) = 4.74^{***}$	
Step 4a	$F(11, 216) = 9.15^{***}$		$F(11, 216) = 5.83^{***}$		$F(11, 216) = 7.89^{***}$		$F(11, 216) = 4.98^{***}$	
Step 4b	$F(14, 213) = 10.06^{***}$		$F(14, 213) = 6.19^{***}$		$F(14, 213) = 7.02^{***}$		$F(14, 213) = 4.55^{***}$	
Predictor	β	ΔR^2_{adj}	β	ΔR^2_{adj}	β	ΔR^2_{adj}	β	ΔR^2_{adj}
Step 1		$.04^{*}$		$.03^{*}$		$.09^{***}$		$.04^{*}$
Age	$-.15^{*}$		-.13		$-.16^{*}$		$-.19^{**}$	
Gender	.11		$.11^{*}$		$.25^{***}$		.01	
Step 2		$.13^{***}$		$.15^{***}$		$.13^{***}$		$.14^{***}$
Energy	-.03		.01		-.06		.06	
Agreeableness	.14		.07		.12		-.02	
Conscientiousness	-.02		$.20^{*}$		.10		.16	
Emotional Stability	$-.34^{***}$		$-.37^{***}$		$-.39^{***}$		$-.38^{***}$	
Openness	-.03		.01		.06		-.00	
Self-enhancement	-.09		-.09		.08		-.04	
Step 3		.01		.01		$.03^{*}$		.02
Reappraisal	-.01		.13		$-.12^{*}$		.11	
Suppression	.08		.00		$.10^{*}$		.07	
Step 4a		$.16^{***}$		$.05^{**}$		$.06^{***}$		$.02^{*}$
Global TEI	$-.53^{***}$		$-.28^{**}$		$-.31^{***}$		$-.21^{*}$	
Step 4b		$.25^{***}$		$.11^{***}$		$.09^{***}$		$.05^{**}$
Well-Being	$-.56^{***}$		$-.32^{***}$		$-.35^{***}$		-.06	
Self-Control	-.10		$-.20^{*}$		.01		$-.27^{**}$	
Emotionality	.01		.09		-.07		-.07	
Sociability	.00		.06		.02		.09	

Table 3 Continued

Criterion	Contentment		Relaxation		Physical well-being		Friendliness	
Step 1	$F(2, 225) = 1.67$		$F(2, 225) = 4.22^{*}$		$F(2, 225) = 2.58$		$F(2, 225) = 2.03$	
Step 2	$F(8, 219) = 1.58$		$F(8, 219) = 5.41^{***}$		$F(8, 219) = 2.54^{*}$		$F(8, 219) = 1.65$	
Step 3	$F(10, 217) = 2.24^{*}$		$F(10, 217) = 4.61^{***}$		$F(10, 217) = 2.25^{*}$		$F(10, 217) = 1.40$	
Step 4a	$F(11, 216) = 2.79^{**}$		$F(11, 216) = 6.52^{***}$		$F(11, 216) = 2.48^{**}$		$F(11, 216) = 1.61$	
Step 4b	$F(14, 213) = 7.87^{**}$		$F(14, 213) = 5.26^{***}$		$F(14, 213) = 2.32^{**}$		$F(14, 213) = 1.56$	
Predictor	β	ΔR^2_{adj}	β	ΔR^2_{adj}	β	ΔR^2_{adj}	β	ΔR^2_{adj}
Step 1		.01		$.04^{*}$		.02		.02
Age	-.08		.11		.03		.11	
Gender	.08		$-.16^{*}$		-.15		.10	
Step 2		.05		$.14^{***}$		$.07^{*}$		.04
Energy	.15		.09		-.00		-.07	
Agreeableness	-.00		-.07		-.16		.07	
Conscientiousness	-.08		-.09		-.09		-.06	
Emotional Stability	.14		$.39^{***}$		$.21^{*}$		.12	
Openness	.02		.01		.16		.00	
Self-enhancement	.02		.01		.02		.13	
Step 3		$.04^{*}$		.01		.01		.00
Reappraisal	$.17^{*}$		.11		-.09		.05	
Suppression	$-.17^{*}$		-.04		-.02		.04	
Step 4a		$.03^{**}$		$.08^{***}$		$.02^{*}$		.02
TEI	$.24^{**}$		$.37^{***}$		$.18^{*}$		.17	
Step 4b		$.07^{**}$		$.09^{***}$		.04		.04
Well-Being	$.35^{***}$		$.27^{***}$		$.23^{*}$		-.02	
Self-Control	-.12		.08		.05		-.03	
Emotionality	.05		.08		.08		.16	
Sociability	-.02		.03		-.13		.13	

Note. As the predictors entered at Steps 1, 2 and 3 were the same for each model, results for Steps 1, 2 and 3 are presented only once. At Step 4, the global score of the TEIQue (Step 4a) was replaced with the four factors (Step 4b). TEI = Trait Emotional Intelligence. 0 = male, 1 = female.

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

Discussion

The underlying multidimensionality of a complex individual differences construct such as trait EI requires continuous efforts and thorough, long-term, examinations (Strauss & Smith, 2009). In line with this principle, the current Study attempted to systematically investigate the incremental predictive utility of the higher and lower-order dimensions of the TEIQue through a meta-analysis and new data. Overall, the evidence provided by Study 4a and Study 4b suggests that trait EI can be considered a valuable explanatory and incremental predictor of a number of different psychological factors, over and above higher-order personality dimensions (i.e., the Big Five or the Giant Three) and specific individual-difference variables (e.g., resilience, emotion regulation strategies).

Accordingly with previous suggestions (e.g., Petrides, Pita, et al., 2007; Pérez-González & Sanchez-Ruiz, 2014), findings presented herewith attest once more that, as far as the TEIQue is concerned, one portion of trait EI overlaps with higher-order personality dimensions, whereas another portion is unique and responsible for the construct's consistent incremental prediction of theoretically-relevant criteria. Yet, current results alleviate initial concerns over the redundancy of self-reported EI with other emotion-related psychological attributes such as emotion regulation strategies (Schlegel et al., 2013). These findings reinforce the notion that trait EI is closely related to personality constructs. The role of trait EI in the prediction of relevant psychological outcomes such as anxiety, satisfaction with life and symptoms of depression, highlights the value of the construct and reflects its unique contribution.

Findings of Study 4a

Twenty-four articles addressing the incremental validity of the TEIQue with respect to a wide range of criteria were systematically reviewed. As attested by the results of meta-analytic computations performed over 18 studies, controlling for the influence of other

predictors, such as other trait EI scales (Gardner & Qualter, 2010), the Big Five (e.g., Petrides, Pita et al., 2007; Singh & Woods, 2008), and mood (e.g., Uva et al., 2010), did not nullify the TEIQue's associations with the criteria. Even though the moderator analysis did not show significant differences, the pattern of significant results was not consistent across psychological domains. Indeed, as shown in Table 1, the TEIQue significantly predicted 94% (i.e., 43 out of 47) of the criteria within the domain of affect and all criteria within the domain of cognition (it is worth mentioning that some cognitive criteria, like life satisfaction, were also of an emotion-laden nature), while significance dropped to 42% for behavioral criteria, like physical components of aggression.

Notwithstanding the multi-factorial structure of the TEIQue, most of the reviewed studies performed their analyses at the global-composite level. At the factor level, results of the reviewed studies show that trait EI's contribution appears to be mostly due to facets associated with the intrapersonal factors of the TEIQue, viz., Well-Being and Self-Control, which tended to be the only incremental predictors (Mikolajczak et al., 2006; Mikolajczak, Luminet, et al., 2007; Mikolajczak, Roy, et al., 2009; Siegling, Vesely, et al., 2014; Swami et al., 2010). This finding is consistent with emerging evidence suggesting that some trait EI facets, most of which fall under the Emotionality and Sociability factors, compromise the construct's predictive power at the global-composite level (Siegling, Petrides, et al., 2014; Siegling, Vesely, & Saklofske, 2013).

Of particular relevance is the result pertaining the Big Five: more than 80% of the 74 analyses focusing on higher-order personality dimensions found a significant incremental contribution for trait EI. As attested by moderator analysis, overall, the amount of significant results was slightly higher if either brief- or moderately long questionnaires were used to assess the Big Five, compared to long-inventories (i.e., 84% and 75% of analyses found a significant contribution for the TEIQue, respectively). However, the difference was small

enough to suggest that the length of the questionnaires assessing the Big Five did not affect substantially the pattern of findings.

Study 4a also indicates that little interest has been directed towards cognitive abilities as baseline predictor, given that only two analyses controlled for their effects (i.e., IQ; Sanchez-Ruiz et al., 2013; Siegling et al., 2014). Nevertheless, it is worth saying that trait EI is hypothesized to be a personality construct and for this reason is thought to be unrelated to cognitive abilities, as demonstrated by several investigations (e.g., Ferguson & Austin, 2010; Mikolajczak, Luminet, et al., 2007). This is perhaps the reason why thus far the efforts of researchers revolved around other baseline constructs, such as personality alike variables, rather than IQ.

Findings of Study 4b

In accordance with the existing literature (e.g., Freudenthaler et al., 2008; Petrides, Pita, et al., 2007), the Italian TEIQue showed theoretically congruent correlations with the Big Five dimensions, with strongest associations found with the dimensions of Emotional Stability. The substantial association with Emotional Stability is in line with the conceptualization of trait EI as encompassing the emotion-related aspects of personality (Petrides et al., 2007). Findings were consistent at both the global and the factor levels.

Study 4b reveals that, with the exception of friendliness, the Italian translation of TEIQue consistently showed incremental predictive utility over construct-relevant criteria beyond the Big Five dimensions and other baseline predictors (e.g., self-enhancement and emotion regulation strategies), thus adding to the meta-analytic results from Study 4a. Findings were consistent at all construct levels, and were reinforced by the deflation in the contribution of Emotional Stability in predicting criterion, represented by changes in R^2_{adj} coefficients. This implies that the TEIQue scores cover more functionally the portion of the variance accounted for by this predictor. Overall, these results are in line with the expectation

for trait EI to contribute substantially to the variance in affect-related criteria, thus putting to the test once again those claims against the predictive utility of the construct beyond already existing personality constructs (e.g., Harms & Credé, 2010; Schlegel et al., 2013).

Last, findings from the present study show that only Well-Being and Self-Control accounted for significant additional variance in the chosen criteria, despite the low reliability of Self-Control. Such evidence compliments findings from Study 4a showing that both Emotionality and Sociability generally fail to demonstrate unique predictive utility.

Limitations

An important limitation of Study 4a was the exclusion of unpublished material and grey literature. Additionally, the generalization of findings of Study 4a's meta-analysis should be restricted to the adult form of the TEIQue. However, the extant literature provides preliminary evidence on the incremental validity of trait EI as assessed with the TEIQue in samples of children (e.g., Mavroveli & Sanchez-Ruiz, 2011; Russo et al., 2012) and adolescents (Davis & Humphrey, 2012b). Another problem pertains the presence of publication bias. Publication bias occurs because statistically significant results are more likely to be published than non-significant results.

Findings from Study 4b were limited as all variables were operationalized by means of self-report measures. Additionally, a further potential limitation of Study 4b's findings is the over-representation of female respondents. Although previous research indicates that women and men tend to show differences on trait EI's subdimensions (see Study 2), to date there is no evidence to suggest the existence of differences in the association between trait EI and relevant outcome variables as a function of gender. Nevertheless, considering that findings from Study 4b meaningfully integrate those emerging from the meta-analysis of Study 4a, and given that Study 4b examined the incremental validity of a self-report measure for trait EI,

having the sample reflect the population in terms of gender does not seem a crucial threat to the generalizability of Study 4b's findings.

Implications

Although the present findings attest the practical equivalence of the Italian and the other adaptations of the full-length TEIQue, as well as the English-original (Petrides, 2009), in their associations with different criterion variables and predictors, future investigations should aim to provide a clearer insight on the utility of trait EI sub-dimensions. Particularly, the unequal contribution of the interpersonal components of trait EI (i.e., Emotionality and Sociability) raised a number of concerns as to whether their facets represent valid elements of trait EI's construct domain (Siegling, Saklofske, Vesely, & Nordstokke, 2012; Siegling et al., 2013). However, their lack of significance while regressed over theoretically relevant outcomes may stem from differences in domains of application, rather than to their actual non-predictive value. Emotionality and Sociability comprise facets such as emotion perception in self and others and fulfilling personal relationships, which aim to represent interpersonally-oriented emotional experience, therefore their contribution may be primarily relevant to domains with a higher social-value compared to those included in the present investigation, which instead were more relevant to internalizing symptoms and somatic health.

CHAPTER 5

General Discussion

Over the past two decades the idea of Emotional Intelligence captivated the attention of both the media and the academia. The appeal towards this psychological attribute is reflected in the increasing number of investigations focusing on EI's potential applications in a wide array of domains, from occupational, to clinical and developmental psychology. Various aspects of EI have been indeed empirically linked to real-life outcomes (e.g., Martins et al., 2010; Joseph et al., 2014; Perera & DiGiacomo, 2013; Schutte et al., 2007), in clinical as well as non-clinical populations, having also different ages and cultural backgrounds. Such a growing body of evidence on EI's practical implications went to the detriment of construct and instruments validations, which have been for long largely ignored (Stough et al., 2009). Such a neglect lead to a certain degree of confusion within the field.

The introduction of a formal conceptual as well as psychometrical distinction between the two main subareas of EI research, viz., trait EI and ability EI, has certainly brought some structure into the literature (Petrides & Furnham, 2000, 2001). While ability EI is conceptualized as a form of intelligence for reasoning about emotion, which ought to be measured via maximum-performance tests (Mayer et al., 2008), trait EI is conceived as an umbrella construct for those personality traits pertaining to emotions; for such reason, it should be operationalized through typical-performance measures (e.g., Petrides, Pita, et al., 2007). Particularly, the added value of trait EI pertains the fact that it offers a systematic framework to reconceptualize EI models traditionally operationalized through self-report questionnaires, which is currently the most commonly used measurement method in the EI literature (Petrides, 2011; Petrides & Furnham, 2000, 2001). Furthermore, the recognition of the subjective core of human emotional experience, coupled with the often observed difficulties in the operationalization of emotional skills as cognitive abilities (e.g., Brody,

2004; Fiori et al., 2014; Keele & Bell, 2008; Maul, 2012; Rossen, Kranzler, & Algina, 2008), justify the exclusive focus on the construct of trait EI for the purposes of the present dissertation.

By definition, trait EI is a compound trait that integrates the affective aspects of personality and which is located at the lower levels of personality hierarchies (Petrides, Pita, et al., 2007). Therefore, trait EI is conceptually distinct from cognitive ability and does not encompass emotion-related skills or competencies. Although, there are still substantial discrepancies about which facets are subsumed under trait EI's framework, as attested by the poor convergence amongst scores derived from different measures can be detected (e.g., Austin, et al., 2004; Brackett & Mayer, 2003; Gardner & Qualter, 2010), for the four studies discussed in the previous chapters a solid instrument, namely the TEIQue (Petrides, 2009), which provides a relatively broad representation of the construct, was chosen.

Several open issues about trait EI and its measurement still need considerable attention from researchers and practitioners. Particularly, despite the outburst of research in applied settings, it has been repeatedly claimed that for trait EI, as well as for EI more generally, to be considered an important psychological attribute, it must show substantial relationships with real-world outcomes over and above those accounted for by theoretically-related and well-established constructs, such as personality (e.g., Antonakis, 2004a, 2004b; Conte, 2005; Harms & Credé, 2010; Schlegel et al., 2013; Schulte et al., 2004; Van Rooym et al., 2005). Additionally, a narrowing of perspective to the Italian context reveals that in many settings (e.g., schools, hospitals) there is a widespread use of interventions aimed at targeting individual's affectivity and promoting their emotion-related competencies, makes it imperative to improve our study of potential tools for the assessment, evaluation and monitoring of such programs. An in-depth examination of an instrument which is not only a valid and psychometrically sound representations of emotional self-perceptions (e.g.,

Freudenthaler et al., 2008; Jolić-Marjanović & Altaras-Dimitrijević, 2014; Petrides, 2009), but also free of charge, like the TEIQue, can have potential useful implications for researchers and practitioners. Yet, given EI's potential for clinical impact, it is necessary to assess whether its operationalizations are valid predictors of real-life outcomes, in order to make advancements in both research and clinical work.

In light of these considerations, the central aim of the present dissertation was to provide a meaningful contribution to the literature on EI by attempting to answer several unresolved questions pertaining trait EI's construct and its measurement, and which were outlined in Chapter 1. Hence, four studies targeting both adolescents and adults were developed to reach the following specific objectives: 1) exploring the structure of one of the construct's most commonly used and comprehensive operationalizations, viz., the TEIQue, in its versions for adolescents and adults; 2) systematically investigating the relatively broad trait EI framework subsumed to the TEIQue; 3) observing whether a consistent pattern of findings emerged across samples. The subsequent subsection provides a summary these studies and several considerations on their main results pertaining trait EI.

Summary of Main Findings

Given the lack of a validated version of the TEIQue for adolescents and adults, Chapter 2 presented two studies investigating the internal structure of the Italian translation of the TEIQue forms assessing trait EI in adults and adolescents. Additionally, both studies scrutinized internal consistencies and gender differences at the facets, factor, and global level of the measures. To this purpose two groups of participants comprising 354 adolescents and 227 volunteers have been recruited respectively. The results of Studies 1 and 2 speak primarily to the psychometric validity of the adult and adolescent Italian translations of the TEIQue, as they analogously provide evidence for the hierarchical four-factor structure of the questionnaire in their respective target populations. While on the one hand these results are

amongst the first on the full-adolescent TEIQue (the only exception can be found in Mavroveli & Siu, 2012), they add to the already existing body of studies confirming the internal structure of the adult version of the questionnaire (e.g., Freudenthaler et al., 2008; Jolić-Marjanović & Altaras-Dimitrijević, 2014; Mikolajczak, Luminet, et al., 2007; Petrides, 2009). Therefore, in line with the first purpose of the present thesis, the contribution of Study 1 and Study 2 lies in their investigation and support of the psychometric robustness of the Italian TEIQue, thus providing further corroboration of the cross-cultural stability of the facet, factor, and global scale structure of trait EI. However, in both cases the low reliabilities found for some factors and facets, suggest that some additional refinement at the item-level is needed.

Chapter 3 revolved around the construct of trait EI during adolescence. Particularly, Study 3 had a twofold purpose: 1) investigating the construct of trait EI as predictor of internalizing symptoms and academic performance, and 2) testing the incremental validity of the TEIQue at the global- and factor-scores level. To this end, a subsample of 200 adolescents from Study 1 was selected. Findings from this Study provided mixed evidence on the predictive utility of trait EI, with their variation being related to the criterion under consideration. Specifically, after controlling for demographics, general cognitive ability, personality dimensions and self-enhancement, an association between higher trait EI and a decrease in internalizing symptoms could be observed, whereas the construct did not play a role in scholastic performance. Such results reflect trait EI's theoretical nature, as a major postulation related to the construct is that it should be more strongly related to psychological outcomes characterized by dispositional emotionality, like those evaluated for the purposes of this dissertation, rather than to variables pertaining more closely the domain of cognition, such as academic achievement (Garnder & Qualter, 2010; Petrides, Pérez-González, et al., 2007). All in all, it seems that trait EI acts over psychological well-being during adolescence,

analogously to self-perceptions of academic ability for academic performance (e.g., Ireson, Hallam, & Plewis, 2001), and to the concept of physical self (Fox & Corbin, 1989) for physical exercise (e.g., van der Horst, Paw, Twisk, & van Mechelen, 2007). However, results of the analysis performed at the factor score of the TEIQue–AFF show that among the four trait EI sub-dimensions only the factor Well-Being explained a portion of significant variance in internalizing symptoms.

Chapter 4 presents two studies having the main objectives of 1) providing an overall summary of the literature on the incremental utility of the TEIQue for adults through a meta-analysis (Study 4a), and 2) adding new evidence on this issue (Study 4b). The pooled results from both studies showed that the TEIQue consistently explains incremental variance in criteria pertaining to different areas of functioning. This result remained consistent after controlling for a number of meaningful moderators, including the form of the TEIQue used, the focus on higher-order personality dimensions versus other individual-difference constructs as baseline predictors (Study 4a), and over different criteria (Study 4a and Study 4b). In fact, although the value of the meta-analysis' effect size was small (i.e., $\Delta R^2 = .06$), and those resulting from the new data ranged from medium to poor (i.e., $.16 \leq \Delta R^2 \leq .02$; Cohen, 1988), these findings can be thought to be of practical significance. According to Hunter and Schmidt (1990), variables that account for small percentages of variance often have very important effects on the chosen outcome, hence the interpretation of the magnitude of ΔR^2 should be rendered carefully, as it may lead to an underestimation of the overall significance (i.e., practical and theoretical) of a relationship between variables. Additionally, it is worth to note that in hierarchical regression models within the social and behavioral sciences, when a pool of baseline variables is entered before the last step, such as in Studies 3 and 4b (i.e., nine and 10 predictors respectively), small increments to the change in R^2 values do not necessarily

indicate a lack of meaningful contribution to the prediction of the outcome, particularly when there is considerable conceptual overlap among them (Hunsley & Meyer, 2003).

All in all, the present findings suggest that the incremental validity of trait EI may be comparable to or somewhat better than that of both non-verbal cognitive ability (Study 3), and personality constructs such as the Big Five (Study 3, 4a, 4b). The current studies also generally suggest that, depending on the criterion variable being considered, the construct may explain a small to large amount of additional variance over and above that explained by personality and cognitive ability. However, in line with the literature, the results presented in the previous chapters consistently stressed the unique role of Well-Being, thus raising some concerns of criterion contamination (Zeidner et al., 2012). Before discussing the overall theoretical and practical implications of these findings, a number of relevant limitations of the current studies has to be considered.

Limitations and Future Directions

One main limitation of the current thesis is that both predictors, including trait EI, and criteria of the four studies presented herein were based on self-reported data collected through cross-sectional designs, thus preventing causal interpretations of the described associations, and possibly resulting in common-source variance (e.g., through mood states; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The overreliance on self-reported data could indeed be misleading for various reasons. For example, despite the efforts to reduce the likelihood of socially desirable responses, such as by preserving participants' anonymity, and controlling for self-enhancement, as in the case of Studies 3 and 4b, it may be that self-report measures keep on being susceptible to deceptive or inaccurate responses to create favorable impressions (Barrick & Mount, 1996). Hence, although a wide array of psychological variables (e.g., life satisfaction, happiness) are effectively and validly assessed through self-report questionnaires, the use of multi-trait multi-method formats, and data triangulation, would be desirable in

order to extensively examine the relationship between trait EI and meaningful outcomes. In fact, another avenue for future research with the TEIQue relates to the use of a multidimensional approach to the study and application of trait EI. This possibility has been already suggested by recent research performed with other trait EI measures (i.e., Bar-On's EQ-i; Keefer, Parker, & Wood, 2012; Parker, Keefer, & Wood, 2011), giving promising results. Furthermore, it should be acknowledged that the sample size for Study 2 was relatively small, particularly for testing a CFA model. According to Cronbach, Gleser, Nanda, and Rajaratnam (1972) such issue may have lead, on the one hand, to a deflation of the statistical power of the analysis, and, on the other, to an inflation of the estimation error.

Lastly, it is important to note that the four studies presented herein examined the evidence of trait EI's validity using only the scores derived from the TEIQue. Although the TEIQue instruments provide a broad and systematically developed representation of trait EI, the TEIQue measures reflect only one potential operationalization of EI as a personality dimension. As such the conclusion drawn from the present research may not be generalized to the overall field of trait EI. In order to better understand the predictive potential of trait EI future studies are required to further corroborate findings on the utility of the TEIQue over other outcome variables, different populations and by concurrently comparing results among different trait EI scales. For example, as partly attested by Study 4a, a paucity of research exists on the relationship between trait EI and objectively assessed outcomes such as diagnoses of physical/emotional/behavioral disorders, and school suspensions, which future research is urged to consider.

Taking into account the aforementioned limitations, the findings of the present dissertation have a number of implications for both measurement and practice, which will be discussed in the following subsection by specifically addressing the questions which inspired this research.

Implications

Is the TEIQue a valid and reliable tool to assess trait EI? This question has been addressed throughout this work by means of different perspectives of investigation (e.g., robustness of the internal structure and incremental validity). First, from a psychometric perspective, the results presented in the four Studies of the current thesis further solidify a growing body of evidence supporting the invariability of the internal structure, the discriminant, convergent, as well as the incremental validity of the TEIQue. Most importantly, Studies 1 and 3 are the first to additionally and systematically demonstrate these aspects of construct validity for the full adolescent form of the TEIQue.

Nonetheless, at this point, it is worth emphasizing that results of these studies suggest that trait EI may explain a significant and nontrivial amount of unique variance over several outcomes relevant to emotional functioning, in samples of both adults and adolescents. Such an umbrella construct of the emotion-related personality dimensions allows easier prediction of domain-coherent criteria as well as straightforward and relatively comprehensive explanation of their variance, compared to other individual differences predictors such as the Big Five personality factors. In light of the above evidence, as far as the TEIQue is concerned, the construct of trait EI emerge as a valuable explanatory and incremental predictor of affect-laden criteria across several psychological domains. At the same time, the prevalent and almost uniquely significant contribution of the factor Well-Being raised a number of concerns as to whether their facets represent valid elements of trait EI's construct domain. For instance, this result may provide evidence of an overlap between the content of the trait EI scale content and the criterion (Zeidner et al., 2012).

These reflections lead to inevitably asking *To what extent do the conceptual and operational definition of trait EI overlap.* The answer to this question is complex. The model subsumed the TEIQue comprises an heterogeneous pool of affect-related components such as

happiness, empathy and impulsiveness (e.g., Petrides & Furnham, 2001). However, the examination of the sub-dimensions of the TEIQue has shown that not all of them are relevant predictors, and that actually two of the four factors (viz., Sociability and Emotionality) have not been particularly successful in predicting construct-relevant criteria. Subsequently, the use of factors might be less suitable for the purpose of representing the global construct.

Notwithstanding the evidence of a practical equivalence between the Italian and the other adaptations of the full-length TEIQue, as well as the English-original (Petrides, 2009), in their associations with different criterion variables and predictors, future investigations should aim to provide a clearer insight on the utility of trait EI sub-dimensions. Particularly, the unequal contribution of the interpersonal components of trait EI raised a number of concerns as to whether their facets represent valid elements of trait EI's construct domain (Siegling, Saklofske, Vesely, & Nordstokke, 2012; Siegling et al., 2013), so much so that their exclusion from the construct's sampling domain has been suggested (e.g., Siegling et al., 2013). However, given the facets they represent, Sociability and Emotionality reflect the actual definition of EI (i.e., "self-perceptions of emotional disposition") more strongly than Self-Control and Well-Being, and their potential exclusion may turn trait EI into a substitute of already existing constructs (e.g., psychological well-being).

Is it really useful follow the *psychometric evidence* to the detriment of *theory and conceptual validity*? The lack of significance of Emotionality and Sociability while regressed over theoretically relevant outcomes may, for instance, stem from differences in domains of application, rather than to their actual non-predictive value. Their contribution may be primarily relevant to domains with a higher social-value compared to those included in the present investigation, which instead were more relevant to internalizing symptoms, as well as to those explored thus far by the extant literature. In addition, both factors comprise facets such as emotion perception in self and others and fulfilling personal relationships, which aim

to represent interpersonally-oriented emotional experience, which are particularly relevant to a construct such as trait EI. That said, a construct's sub-dimensions comprise specific variance unrelated to the construct, hence, they do not provide a representation of the construct as accurate as the one which can be derived from all items (i.e., composite score).

Is trait EI a useful construct to account for indicators of psychological health? Particularly in the field of EI, given the large number of questionnaires having different content domain, a careful reflection on the construct's implications cannot disregard the operational tool being used. As far as the TEIQue is concerned, as in the case of the current research, it can be maintained that trait EI is implicated in a number of outcomes related to emotional functioning, including symptoms of depression, somatic complaints and hostility, above and beyond the Big Five personality dimensions, general cognitive ability. Results of Studies 3, 4a, 4b do not substantiate the numerous criticisms pertaining the lack of utility for trait EI (e.g., Harms & Credé, 2010; Schlegel et al., 2013; Schulte et al., 2004; Van Rooym et al., 2005), and safely support the claim for the construct's utility. Hence, from a practical perspective, coupled with the good psychometric properties of the questionnaire, findings of the present study may suggest the use of the Italian TEIQue to assess trait EI in applied contexts. For such reason, the use of the TEIQue can be suggested to assess self-perceived emotional competencies as it may, for instance, give indications of the degree of adolescents' vulnerability to psychological maladjustment to the school context. Yet, this avenue becomes particularly useful in the case of the evaluation of programs designed to promote social and emotional effectiveness, given the emphasis placed by the society upon the implementation of such psychological interventions particularly in those settings, such as schools, which are relevant for socio-emotional development, and hospitals, which are the primary contexts for promoting psychological well-being. Along this line, given the evidence discussed herein and suggesting that trait EI may be a valuable variable to be considered during a crucial phase of

development such as adolescence, it would be important to understand how individual differences in such disposition act in the path from emotional difficulties to the development of psychopathology.

Are the results consistent across age groups (i.e., adolescents and adults)? Although conclusions cannot be drawn for all domains considered in the present dissertation, given the differences in predictors, outcomes and their operationalizations, it can be safely maintained that findings were consistent across the two age-groups. Nevertheless, there could be qualitative differences between the adolescent and adult sampling domains of the construct (see Petrides, Sangareau, et al., 2006), which would render any comparison of these two groups difficult to interpret (Petrides, Furnham, & Martin, 2004).

Concluding Remarks

Emotional Intelligence represents an attribute of contemporary interest for the scientific psychology community. Although much has been done, there is still a lack of agreement upon EI's boundaries and constituent elements, as it appears from the diversity of EI conceptualizations and operational vehicles. The representation of this construct keeps being a challenging issue to researchers of the field, as the findings of the present dissertation attest. Additional investigations on trait EI can certainly lead to advances in theory and practice. On the one hand, working on improving the accuracy of trait EI operationalization can provide psychologists with a clearer framework for its description and assessment. On the other, making progress in the understanding of trait EI's role on individuals' adjustment may have a number of implications for the allocation of time and resources to the development and implementation of structured interventions designed to mitigate the adverse effects of affective personality deficits. Yet, elucidating the contribution of trait EI over more objectively assessed criteria, including students' academic achievement, may inform our

understanding of the extent to which emotion-related personality traits play a part in achieving important real-life outcomes (e.g., pertaining the domain of education).

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