

Chapter 3

Emotional Intelligence as Personality: Measurement and Role of Trait Emotional Intelligence in Educational Contexts



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Abstract Trait emotional intelligence (trait EI or trait emotional self-efficacy) is formally defined as a constellation of emotional perceptions assessed through questionnaires and rating scales (Petrides et al. *Br J Psychol* 98:273–289, 2007). The construct describes our perceptions of our emotional world (e.g., how good we believe we are in terms of understanding, managing, and utilizing our own and other people’s emotions). Although it has been empirically demonstrated that these perceptions affect virtually every area of our life, the present chapter focuses exclusively on their role in education. We begin with a brief overview of trait EI theory and measures that have been salient in education research, with particular emphasis on scales developed for children and adolescents. Subsequently, we summarize the effects of trait EI on academic performance and related variables across primary, secondary, and tertiary education. The review of the evidence indicates that research-based applications of trait EI theory in educational settings can yield concrete and lasting advantages for both individuals and schools.

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Trait emotional intelligence (trait EI) describes our perceptions of our emotional world: what our emotional dispositions are and how good we believe we are in terms of perceiving, understanding, managing, and utilizing our own and other people's emotions. The roots of trait EI lie in the long-standing study of emotions within personality psychology (e.g., Revelle & Scherer, 2009). The construct, which has also been labeled as "trait emotional self-efficacy," is formally defined as a constellation of emotional perceptions assessed via questionnaires and rating scales (Petrides, Pita, & Kokkinaki, 2007).

In this chapter, we provide a summary of the role of trait EI in primary, secondary, and tertiary educational settings. Due to lack of space, we do not consider the related areas of career and vocational choice and guidance, wherein trait EI certainly has a role to play (for a review, see Chap. 13 by Di Fabio & Saklofske, this volume). For example, we note in passing that there are reliable differences in the trait EI profiles of students in different university departments (e.g., arts students score higher on the emotionality factor of trait EI than students in technical disciplines; Sanchez-Ruiz, Pérez-González, & Petrides, 2010) and that trait EI has been linked to career-related decision-making (Di Fabio & Saklofske, 2014) and career adaptability (Coetzee & Harry, 2014).

The chapter is divided into three major parts. The first part provides a brief overview of trait EI theory. The second part presents fairly detailed descriptions of the main trait EI measures used in child development and education-related research, while the third part examines the effects of the construct on school behavior and, especially, on academic achievement, followed by a brief note on trait EI interventions in educational contexts.

Trait EI Theory

Trait EI theory was introduced by Petrides (2001) and proposed, among several other fundamental ideas, the distinction between trait and ability EI, where the former mainly concerns emotional perceptions assessed via questionnaires and rating scales (Petrides et al., 2007) and the latter concerns emotion-related cognitive abilities that ought, in theory, to be amenable to IQ-type testing (Mayer & Salovey, 1997).

Unlike the construct of ability EI that strives to capture an aspect of human intelligence that is presumed to be universally adaptive, trait EI theory does not assume that there is one "correct" or "best" way to be; rather, certain trait EI profiles will be advantageous in some contexts, but not in others (Petrides, 2010). For example, when concentrating on an independent study project, being emotionally and socially reserved may be more conducive to succeeding on the project than being expressive and sociable. By the same token, trait EI theory recognizes that people's emotional experiences are both subjective and socially constructed and what may be an adaptive emotional response for one person, or in one cultural group, may be ineffectual

Table 3.1 The sampling domain of trait emotional intelligence in adults and adolescents

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

^aThese two facets feed directly into the global trait emotional intelligence score without going through any factor

for another (for a discussion of the role of culture, see Chap. 5 by Huynh, Oakes, & Grossmann, this volume).

Sampling Domain

Positioned within the realm of personality, the sampling domain of trait EI consists of lower-level personality facets and surface traits that are typically assessed on questionnaires of EI and cognate constructs (e.g., empathy, assertiveness, and adaptability). These facets are organized under four higher-order trait EI factors of emotionality, sociability, self-control, and well-being (see Table 3.1).

Because of the increasing complexity and differentiation of self-perceptions with age (Marsh & Ayotte, 2003), different trait EI sampling domains have been established for children and adults. These are presented in Tables 3.1 and 3.2, respectively. The adolescent sampling domain, which falls in-between, has been aligned

Table 3.2 The sampling domain of trait emotional intelligence in children

Facets	Brief description	Example items
<i>Adaptability</i>	Children's perceptions of how well they adapt to new situations and people	"I find it hard to get used to a new school year"
<i>Affective disposition</i>	Children's perceptions of the frequency and intensity with which they experience emotions	"I'm a very happy kid"
<i>Emotion expression</i>	Children's perceptions of how effectively they can express their emotions	"I always find the words to show how I feel"
<i>Emotion perception</i>	Children's perceptions of how accurately they identify their own and others' emotions	"It's easy for me to understand how I feel"
<i>Emotion regulation</i>	Children's perceptions of how well they can control their emotions	"I can control my anger"
<i>Low impulsivity</i>	Children's perceptions of how effectively they can control themselves	"I don't like waiting to get what I want"
<i>Peer relations</i>	Children's perceptions of the quality of their relationships with their classmates	"I listen to other children's problems"
<i>Self-esteem</i>	Children's perceptions of their self-worth	"I feel great about myself"
<i>Self-motivation</i>	Children's perceptions of their drive and motivation	"I always try to become better at school"

with the adult domain. As shown in these tables, the trait EI domain comprises 15 facets in adults, but only 9 in children. This key difference is also reflected in the factor structures of the trait EI construct in the two age groups, with four factors in adults (Petrides, 2009), but only two in children (Russo et al., 2012). Adolescent data, on the other hand, broadly follow the structure of adult data.

Relations Vis-à-Vis Basic Personality

Factor-analytic investigations of trait EI in relation to the Big Five and Giant Three personality taxonomies have shown that trait EI can be isolated as a coherent factor that is distinguishable from but nevertheless related to basic personality dimensions, particularly neuroticism (negatively) and extraversion (Pérez-González & Sanchez-Ruiz, 2014; Petrides et al., 2007; Petrides & Furnham, 2001).

Although theoretically meaningful, the empirical overlap of trait EI with the higher-order personality traits has raised legitimate concerns about its redundancy as a unique predictor of those criteria that are known to be associated with the Big Five (Harms & Credé, 2010). To this end, a recent meta-analysis of 114 incremental validity analyses of trait EI reported a statistically and practically significant overall effect size of 0.06, concluding that trait EI "consistently explains incremental variance in criteria pertaining to different areas of functioning, beyond higher order personality dimensions and other emotion-related variables" (Andrei, Siegling, Aloe, Baldaro, & Petrides, 2016, p. 261).

A separate, but related, line of research has examined the relationships between trait EI and the general factor of personality (e.g., Van der Linden, Tsousis, & Petrides, 2012). This uncovered a very high level of overlap between the two constructs, to the extent that it can be argued that trait EI is the integrating dimension of human adult personality (Van der Linden et al., 2016).

Trait EI Measurement in Children and Adolescents

A detailed overview and evaluation of the most oft-used measures in EI research can be found in Siegling, Saklofske, and Petrides (2015). In the present section, we focus specifically on four trait EI measures that have been widely used in research and practice with children and adolescents: the Assessing Emotions Scale (Schutte, Malouff, & Bhullar, 2009), the youth version of the Emotional Quotient Inventory (Wood, Parker, & Keefer, 2009), and the adolescent and child forms of the Trait Emotional Intelligence Questionnaire (Petrides, 2009). Despite the apparent overlap in content and format, these measures are based on quite different models and vary in terms of the facets used to operationalize trait EI. All four, however, share the characteristics of a superordinate trait EI factor and a self-report response format, although observer (e.g., parent, teacher, and peers) rating scales are also available in some cases.

The four measures will be reviewed in turn, featuring descriptions, norms, and basic reliability and validity evidence. A summary of their key features can be found in Table 3.3.

Assessing Emotions Scale (AES)

Description As one of the earliest non-commercial EI questionnaires available, the AES (Schutte et al., 1998) is one of the most widely used scales in EI research. Although it was developed for adults, it has also been used to assess trait EI in adolescents (Ciarrochi, Chan, & Bajgar, 2001). In terms of its content domain, the scale is based on Salovey and Mayer's (1990) four-branch ability EI model, comprising four ability domains: perceiving emotions, understanding emotions, managing emotions, and using emotions to facilitate thought (for full description of the four branches, see Chap. 2 by Fiori & Vesely-Maillefer, this volume). However, as its authors have noted (Schutte et al., 2009), the AES is more appropriately conceptualized as a measure of trait EI due to its self-report format. It is intended to measure EI as a superordinate construct, although different models comprising three or four first-order factors have been proposed (Austin, Saklofske, Huang, & McKenney, 2004; Austin, Saklofske, & Egan (2005); Ciarrochi et al., 2001; Gignac, Palmer, Manocha, & Stough, 2005; Ko & Siu, 2013; Petrides & Furnham, 2000; Saklofske, Austin, & Minski, 2003). The four factors have been labelled as perception of

Table 3.3 Assessment properties of trait EI measures for children and adolescents

Measure	Age range	No. of items	Facets or factors	Assessment time	Observer form available	Reading level
Assessing Emotions Scale (AES; Schutte et al., 1998)	Unspecified	33	Perception of emotions, managing own emotions, managing others' emotions (social skills), utilization of emotions	5 mins	–	Grade 5
Emotional Quotient Inventory – Youth Version (EQ-i:YV; Bar-On & Parker, 2000)	7–18	60 (30 for short form)	Intrapersonal, interpersonal, stress management, adaptability Ancillary scales: General mood, positive impression, inconsistency index	25 to 30 mins (10 to 15 mins for short form)	✓	Grade 4
Trait Emotional Intelligence Questionnaire – Adolescent Form (TEIQue–AF; Petrides, 2009)	11–17	153 (30 for short form)	Fifteen facets and four factors: Well-being, self-control, emotionality, Sociability	25 mins (10 mins for short form)	✓	Grade 4
Trait Emotional Intelligence Questionnaire – Child Form (TEIQue–CF; Mavroveli et al., 2008)	8–12	75 (36 for short form)	Adaptability, affective disposition, emotion expression, emotion perception, emotion regulation, low impulsivity, peer relations, self-esteem, Self-motivation	25 mins (10 to 15 mins for short form)	✓	Grade 3

emotion (ten items), managing own emotions (nine items), managing others' emotions or social skills (nine items), and utilization of emotion (six items; Schutte et al., 2009).

The AES consists of 33 items of low reading level (fifth grade), making it appropriate for use with adolescents. Average completion time is 5 minutes (Schutte et al., 2009). Items are responded to on a 5-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Norms In a sample of 131 Australian adolescents (73 males) aged 13 to 15 years ($M = 13.8$, $SD = 0.74$), mean scale scores were 3.65 ($SD = 0.42$) for global trait EI, 3.57 ($SD = 0.58$) for perceiving emotions, 3.63 ($SD = 0.42$) for managing others' emotions, 3.71 ($SD = 0.52$) for managing own emotions, and 3.69 ($SD = 0.66$) for utilizing emotions (Ciarrochi et al., 2001). Adolescent data from a Canadian sample (Charbonneau & Nicol, 2002) yielded a mean trait EI score of 3.77 ($SD = 0.44$), and from a Malaysian sample (Liau, Liau, Teoh, & Liau, 2003), a mean score of 4.00 ($SD = 0.34$). A study of Japanese adolescents and youth again showed very similar mean scores and standard deviations for both the global trait EI score and the four factors (Fukuda et al., 2011).

Reliability Satisfactory internal reliabilities have been observed for global trait EI ($\alpha = 0.84$) and the perception subscale ($\alpha = 0.76$) in Australian adolescents, with lower alphas for the remaining subscales, ranging from 0.55 for utilizing emotions to 0.66 for managing others' emotions (Ciarrochi et al., 2001). Internal reliabilities have also been satisfactory at the global level in Malaysian ($\alpha = 0.76$; Liau et al., 2003) and Canadian ($\alpha = 0.84$; Charbonneau & Nicol, 2002) adolescents, as well as in Japanese youth ($\alpha = 0.89$; Fukuda et al. 2011). An adaptation for Chinese adolescents yielded an alpha of 0.67 for the total AES score and a range from 0.60 (regulation of emotion) to 0.83 (appraisal of emotion) for the four factors (Ko & Siu, 2013). The test-retest reliability of the English AES has yet to be investigated in adolescents. However, over a 4-week period, test-retest correlations for the Chinese version ranged from 0.75 to 0.84 (Ko & Siu, 2013).

Validity The AES scores correlate positively with the ability to identify emotional expressions, level of social support, satisfaction with social support received, and mood management behavior, even after controlling for the closely related constructs of self-esteem and trait anxiety (Ciarrochi et al., 2001). A recent study showed a negative association between the AES scores and attitudes toward cigarette smoking (Abdollahi, Yaacob, Talib, & Ismail, 2015). Employing a Japanese sample, Fukuda et al. (2011) replicated the four-factor structure of the AES and reported that the global score correlated at 0.75 with the Wong and Law (2002) Emotional Intelligence Scale. The AES scores have been shown to account for variance in alexithymia, depression, and life satisfaction, over and above the Big Five, in adolescents and youth (e.g. Austin et al., 2005; Saklofske Austin, & Minski, 2003).

Availability The AES is a public-domain measure and can be found in Schutte et al. (1998). In addition, the AES has been adapted into different languages, such as Hebrew (Carmeli, 2003), Polish (Ogińska-Bulik, 2005), Swedish (Sjoberg, 2001), and Turkish (Yurtsever, 2003).

Emotional Quotient Inventory: Youth Version (EQ-I:YV)

Description The EQ-i:YV (Bar-On & Parker, 2000) is an age-appropriate adaptation of the adult Emotional Quotient Inventory (EQ-i; Bar-On, 1997) for use with children and adolescents 7–18 years. It should be noted that Bar-On (2006) is explicit in his claim that his EI model does not measure personality traits but rather “*competencies, skills, and facilitators*” (p. 14; italics in the original). Thus, Bar-On’s instrument (EQ-i) is interpreted as a measure of trait EI only from the perspective of trait EI theory (e.g., Keefer, Holden, & Parker, 2013), which provides a valid conceptual framework for all EI questionnaires alike.

Like the adult EQ-i form, the EQ-i:YV measures four broad EI domains outlined in Bar-On’s (2006) model: (1) intrapersonal, which assesses perceived ability to label, express, and communicate one’s own emotions; (2) interpersonal, which measures perceived ability to understand, respect, and empathize with the feelings of others; (3) stress management, which measures perceived emotional reactivity and ability to downregulate upsetting emotions; and (4) adaptability, which assesses perceived ability to appraise, problem solve, and persevere in challenging situations. In addition to the four EI scales, the EQ-i:YV contains three ancillary scales that are not included in the global EI score: general mood, a measure of positive emotionality and well-being; positive impression, an index of socially desirable responding; and inconsistency, an index of aberrant responding. The latter two are validity indices that may be used to determine the accuracy of self-reports.

The EQ-i:YV comprises 60 items rated on a 4-point scale, with responses ranging from 1 (*very seldom true of me*) to 4 (*very often true of me*). It can be completed in 25–30 minutes and has a Grade 4 reading level (Wood et al., 2009). A short 30-item form (EQ-i:YV-S) that omits the general mood scale and inconsistency index is also available; it has completion time of 10–15 minutes. Parent and teacher forms (EQ-i:YV-O) are also available and have shown promising results in the assessment of trait EI in children from the perspective of significant others (Wood et al., 2009). These forms consist of 38 items, rated by observers on a 4-point scale.

Norms The EQ-i:YV norms are based on a sample of over 9000 children and adolescents from North America, aged 7 to 18, with a mean age of 11.6 years ($SD = 3.1$) (Bar-On & Parker, 2000). The EQ-i:YV technical manual provides gender- and age-specific scoring norms for four different age groups (7–9, 10–12, 13–15, and 16–18 years of age). Using these norms, raw scores can be converted into standard T scores with a mean of 100 and a standard deviation of 15, to facilitate interpretation and comparison of individual results.

Reliability The internal consistency reliabilities for the long and short forms of the EQ-i:YV range from 0.65 to 0.90 based on the large North American normative sample (Bar-On & Parker, 2000). Alpha coefficients are lower (0.65–0.80) for younger children (age 7–9) but become progressively higher in every subsequent age group, reaching excellent levels (0.83–0.90) for older adolescents (age 16–18).

Test-retest reliability over a 3-week period suggested high temporal stability, with coefficients ranging from 0.84 for the interpersonal subscale to 0.89 for global trait EI. In a follow-up study, similar results were reported, ranging from 0.77 for general mood to 0.89 for global trait EI (Wood et al., 2009).

Validity The EQ-i:YV measurement structure has been supported in several studies, including Aboriginal and non-Aboriginal children and youth in Canada (Parker et al., 2005), while other studies have supported the EQ-i:YV-S measurement structure in countries outside of North America, such as Lebanon (El Hassan & El Sader, 2005) and Hungary, albeit not for all of its items (Kun et al., 2012). Parker, Creque et al. (2004) presented criterion validity data showing that global trait EI and three subscales (adaptability, interpersonal, and stress management) were higher in academically successful high school students. Similarly, Brouzos, Misailidi, and Hadjimatheou (2014) found a positive relationship between the EQ-i:YV scores and academic achievement and teacher-rated adaptive functioning, but only in 11- to 13-year-olds (and not in 8- to 10-year-olds). A longitudinal study showed that the EQ-i:YV scores measured in Grade 7 predicted academic success in Grade 11 (Qualter, Gardner, Pope, Hutchinson, & Whiteley, 2012).

Parker, Taylor, Eastabrook, Schell, and Wood (2008) showed that the EQ-i:YV is a strong predictor of addiction behaviors, like gambling, internet use, and video game playing in adolescence. In adolescent girls, the intrapersonal and interpersonal scales were negatively related to sexual risk behaviors, like number of male sex partners in the past 6 months (Lando-King et al., 2015). Combined self-ratings and observer (parent and teacher) ratings of 169 gifted students (Grades 4–8) revealed low-to-moderate self-other correlations and moderate inter-rater (parent-teacher) correlations (Schwean, Saklofske, Parker, & Kloosterman, 2006).

Availability The EQ-i instruments are published and sold commercially by Multi-Health Systems.

Trait Emotional Intelligence Questionnaire–Adolescent Form (TEIQue–AF)

The TEIQue instruments (Petrides, 2009) have been developed more recently on the basis of trait EI theory (Petrides et al., 2007; Petrides, 2010) and thus provide direct operationalizations of it, which is crucial for meaningful interpretation of data. The adult TEIQue form and its adolescent (TEIQue–AF) and child (TEIQue–CF) derivatives provide comprehensive coverage of their respective trait EI sampling domains (see Tables 3.1 and 3.2).

Description The TEIQue–AF (Petrides, 2009) is suitable for adolescents aged 13–17 years. It is based on the same sampling domain as the adult form and yields scores on the four broad trait EI factors of well-being, self-control, emotionality,

and sociability (see Table 3.1). The full-length TEIQue–AF consists of 153 items and has a completion time of approximately 30 minutes. A 30-item short form (TEIQue–ASF) can be completed in 10 minutes and has been used successfully for children as young as 11 years (Petrides, Sangareau, Furnham, & Frederickson, 2006). It is intended to assess global trait EI but can also yield usable factor, albeit not facet, scores. Both full-length and short-form TEIQue–AF use a 7-point Likert-type response scale, ranging from 1 (*Disagree completely*) to 7 (*Agree completely*). Peer ratings can be obtained for the full-length and short-form TEIQue–AF through the relevant TEIQue–360° versions (Petrides, 2009).

Norms In a large sample of adolescents ($N = 1842$; age range, 14–16 years; Petrides, 2009), TEIQue–AF descriptive statistics were global trait EI ($M = 4.53$, $SD = 0.58$), emotionality ($M = 4.71$, $SD = 0.67$), self-control ($M = 4.01$, $SD = 0.75$), sociability ($M = 4.65$, $SD = 0.73$), and well-being ($M = 4.89$, $SD = 0.96$). Very similar values were observed in a sample of 351 Italian adolescents (163 males; mean age = 15.3 years; $SD = 1.80$; age range, 14–18 years): global trait EI ($M = 4.57$, $SD = 0.51$), emotionality ($M = 4.72$, $SD = 0.69$), self-control ($M = 4.06$, $SD = 0.68$), sociability ($M = 4.65$, $SD = 0.67$), and well-being ($M = 5.00$, $SD = 0.89$) (Andrei, Mancini, Trombini, Baldaro, & Russo, 2014).

Reliability In adolescents, Cronbach's alphas for global trait EI have been reported at 0.83 (Mikolajczak, Petrides, & Hurry, 2009) and 0.89 (Petrides, 2009). At the factor level, alpha coefficients were 0.74 for emotionality, 0.76 for self-control, 0.80 for sociability, and 0.85 for well-being (Petrides, 2009). In an Italian sample, reliability coefficients were 0.85 for global trait EI, 0.82 for well-being, 0.63 for self-control, 0.74 for emotionality, and 0.67 for sociability. In the same sample, alphas for eight facets were low-to-moderate (0.50–0.67; Andrei et al., 2014).

Validity In line with trait EI theory, TEIQue–AF scores are orthogonal to cognitive ability and significantly related to higher-order personality dimensions (Andrei et al., 2014). The TEIQue–ASF global score has been shown to correlate positively with adaptive and negatively with maladaptive coping strategies (Mavroveli, Petrides, Rieffe, & Bakker, 2007).

Multiple studies have examined the measure's incremental validity vis-à-vis various criteria, such as disruptive behavior and depression, after controlling for demographics, personality, and cognitive ability (Davis & Humphrey, 2012); aspects of psychopathology, after controlling for gender, another trait EI measure, and ability EI (Williams, Daley, Burnside, & Hammond-Rowley, 2010); socioemotional variables, after controlling for their baseline levels and cognitive ability (Frederickson, Petrides, & Simmonds, 2012); somatic complaints, after controlling for depression (Mavroveli et al., 2007); teacher-rated academic achievement, after controlling for cognitive ability, personality, and self-concept (Ferrando et al., 2011); emotional maladjustment, after controlling for gender, cognitive ability, and personality (Andrei et al., 2014); socioemotional variables, after controlling for

coping strategies and demographics (Siegling, Vesely, Saklofske, Frederickson, & Petrides, 2017; Study 1); and academic achievement, after controlling for cognitive ability and gender (Siegling, Vesely, et al., 2017; Study 2).

Availability All TEIQue instruments are available, free of charge, and in multiple languages for research purposes via www.psychometriclab.com.

Trait Emotional Intelligence Questionnaire – Child Form (TEIQue–CF)

Description The main aim of the TEIQue–CF (Mavroveli, Petrides, Shove, & Whitehead, 2008) is to assess the emotion-related facets of child personality. Rather than a simple adaptation of the adult form, this variant is based on a sampling domain that has been specifically developed for children aged between 8 and 12 years. Thus, the TEIQue–CF assesses nine distinct facets in the children’s sampling domain presented in Table 3.2 (Mavroveli et al., 2008). The measure comprises 75 items, responded to on a 5-point scale, ranging from 1 (*Disagree completely*) to 5 (*Agree completely*). Completion time is approximately 25 minutes. A short form (TEIQue–CSF) with 36 items and completion time of 10–15 minutes is also available.

Norms In a sample of children with a mean age of 9.12 years ($SD = 1.27$), boys ($n = 274$) had a global trait EI score of 3.55 ($SD = 0.43$), which was significantly lower than that of girls ($M = 0.65$, $SD = 0.45$; $n = 286$; Mavroveli & Sánchez-Ruiz, 2011).

Reliability Cronbach’s alpha was 0.82 for the TEIQue–CF global score and ranged from 0.58 for adaptability to 0.76 for affective disposition at the level of the nine facets (Mavroveli et al., 2008). In a sample of preadolescents ($N = 139$, mean age: 11.23 years), Cronbach’s alpha was at 0.76 (Mavroveli et al., 2008). At the facet level, alphas ranged from 0.57 for adaptability and emotion perception to 0.76 for affective disposition (Mavroveli & Sanchez-Ruiz, 2011). Test-retest reliability was examined over a 3-month period in a mixed-gender sample; the attenuated and disattenuated coefficients were 0.79 and 1.00, respectively (Mavroveli et al., 2008).

Validity In line with trait EI theory, global TEIQue–CF scores are unrelated to cognitive ability while correlating moderately with all personality dimensions (extraversion, emotional stability, agreeableness, openness, and conscientiousness), as well as with social acceptance (positively) and social rejection (negatively; Andrei, Mancini, Mazzoni, Russo, & Baldaro, 2015). They also correlate weakly with verbal ability and literacy ($r = 0.15$ and 0.10 ; Andrei et al., 2015; Mavroveli et al., 2008) and moderately with teacher-rated behavioral and social problems ($r = -0.34$; Mavroveli & Sanchez-Ruiz, 2011). Moreover, the TEIQue–CF scores

differentiated between pupils with a school record of unauthorized absences or exclusions and controls and predicted teacher-rated positive ($r = 0.24$) and negative ($r = -0.34$) behavior (Mavroveli et al., 2008).

Availability All TEIQue instruments are available, free of charge, and in multiple languages for research purposes via www.psychometriclab.com.

Role of Trait EI in Primary and Secondary Education

Trait EI and Adjustment Outcomes

School adaptation, especially in the early years of education, can be challenging, as children draw on a range of resources to adjust and thrive in their school environment. Trait EI has been linked to greater overall well-being, characterized by fewer depressive symptoms and somatic complaints in adolescents (Davis & Humphrey, 2012; Mavroveli et al., 2007; Siegling, Vesely, et al., 2017, Study 1). Trait EI has also been positively linked to adaptive school behaviors, such as increased nominations from peers and teachers for positive social attributes, like leadership and kindness (Mavroveli et al., 2008; Mavroveli, Petrides, Sangareau, & Furnham, 2009), and negatively linked to maladaptive behaviors, like aggression and delinquency (Santesso, Dana, Schmidt, & Segalowitz, 2006). In a study by Andrei et al. (2015), trait EI correlated positively with peer acceptance and negatively with peer rejection in children aged 8–10 years. Similarly, Mavroveli et al. (2009; see also Mavroveli & Sanchez Ruiz, 2011) reported that children high in trait EI received more nominations from their peers for being kind and having leadership qualities and fewer nominations for bullying behavior.

Research on trait EI and peer bullying and victimization has been particularly active in recent years. Kokkinos and Kipritsi (2012) replicated earlier reports of negative correlations between total trait EI score and experiences of bullying and victimization in a sample of Greek children. Other studies have focused on understanding the connections between specific dimensions of trait EI and different types of bullying behaviors, using samples of children and adolescents from Australia, Italy, and the USA (Baroncelli & Ciucci, 2014; Gower et al., 2014; Lomas, Stough, Hansen, & Downey, 2012; Polan, Sieving, & McMorris, 2013; Schokman et al., 2014). Of the various trait EI factors, emotion management/regulation emerged as the single most consistent predictor of bullying involvement across these studies, with both bullies and victims reporting low self-perceptions in this trait EI domain. This finding was consistent regardless of the type of bullying examined (e.g., physical, relational, and cyberbullying).

A recent review of studies on trait EI and aggression similarly concluded that there was strong evidence that children, adolescents, and adults high in trait EI engage in less aggressive behavior of all types (García-Sancho, Salguero, & Fernández-Berrocal, 2014). Accordingly, many anti-bullying programs are now

integrated within a broader school-wide social and emotional learning (SEL) framework, recognizing the benefits of SEL not only for improved peer relationships but also for a host of other developmental and academic outcomes (see Chap. 9, Espelage, King, & Colbert, this volume).

Lastly, an important link has been discovered between trait EI and school absenteeism (Mavroveli et al., 2008; see also Petrides, Frederickson, & Furnham, 2004), showing that children high in trait EI have fewer unauthorized absences and are less likely to have been expelled from school than their low trait EI peers. This effect suggests a positive influence on school adaptation and engagement in childhood (Mavroveli et al., 2007; Mavroveli et al., 2009).

Trait EI and Academic Achievement

Academic achievement has been traditionally linked to cognitive intelligence (Brody, 2000; Gottfredson, 2003; Laidra, Pullmann, & Allik, 2007); however, there has also been research interest in the potential role of non-cognitive variables, including personality and social constructs (Furnham, Chamorro-Premuzic, & McDougall, 2002; Petrides, Chamorro-Premuzic, Frederickson, & Furnham, 2005; Poropat, 2009).

To date, the results across child and adolescent samples suggest the presence of a moderate positive effect of trait EI on academic performance (Perera & DiGiacomo, 2013). A direct relationship between trait EI and scholastic achievement has been reported in a number of studies involving primary-aged children and adolescents, as can be seen in Table 3.4 (Di Fabio & Palazzeschi, 2009; Downey, Mountstephen, Lloyd, Hansen, & Stough, 2008; Ferrando et al., 2011; Mancini et al., 2017; Mavroveli et al., 2008; Parker, Creque, et al., 2004; Siegling, Vesely, et al., 2017, Study 2). These studies showed a direct positive association between trait EI and academic achievement using objective grade point average (GPA) or subject-specific marks.

Gender-specific effects have been reported in some studies (Andrei et al., 2015; Costa & Faria, 2015; Mavroveli & Sanchez-Ruiz, 2011); however, the findings have not consistently favored one gender or the other. Rather, they tend to be subject- or grade-specific (see Table 3.4). With regard to age effects, younger children seem to benefit more from high trait EI scores than their older counterparts, although there is significant variation in this set of findings, too (e.g., Costa & Faria, 2015; Petrides et al., 2004; see Table 3.4). In these studies, however, one should consider the influence of verbal ability, which could be biasing the results obtained in primary education, because language-skilled pupils may be selecting more socially desirable responses than their less skilled counterparts (Mavroveli & Sanchez-Ruiz, 2011).

Cognitive ability has been proposed as a moderator of the relationship between trait EI and academic performance (Mavroveli & Sanchez-Ruiz, 2011; Petrides et al., 2004). Specifically, Petrides et al. (2004) posited that such effects as trait EI might have on academic performance are likely to assume prominence when the

demands of a situation tend to outweigh a pupil's intellectual resources. This is because, in contrast to their high IQ counterparts, low IQ pupils are more likely to be forced to draw on resources other than their cognitive ability in order to cope with the demands of their courses and examinations.

Agnoli et al. (2012) showed a direct effect of trait EI on math and language performance and a significant interaction between cognitive ability and trait EI, with high trait EI scores benefiting children with low and medium cognitive ability in language performance only. Qualter et al. (2012) contributed to this line of research with a longitudinal investigation of personality, cognitive ability, and trait EI, which demonstrated direct effects of trait EI in math, English language, English literature, and science, in boys only. In girls, the intrapersonal, interpersonal, and adaptability trait EI dimensions were related to math, English Language, and English literature grades, respectively.

Structural equation models with personality and cognitive ability variables have also revealed a significant predictive effect of trait EI on school grades, but only in boys. In their study, Andrei et al. (2015) reported that the effects of trait EI on academic achievement (math and language) did not persist in the presence of nonverbal IQ (see also Qualter et al., 2012). In contrast, Di Fabio and Palazzeschi (2009) observed incremental effects of trait EI on GPA over and above fluid intelligence and the Giant Three personality dimensions.

Despite fairly intensive research over the past 15 years, the mechanisms underlying the relationship between trait EI and academic performance in childhood and adolescence are generally unknown (see Table 3.4). This is, at least partially, attributable to psychometric difficulties (e.g., the use of substandard measures and poorly operationalized criteria), the dearth of well-controlled longitudinal studies, and the unsystematic application of trait EI theory to the design, implementation, and interpretation of research studies in the field.

Role of Trait EI in Higher Education

Trait EI and Adjustment Outcomes

Trait EI is linked to a wide range of mental and physical health variables in adults, like anxiety, depression, hospitalization rates, and legal drug use (Martins et al., 2010; Mikolajczak, Avalosse, et al., 2015). In the context of higher education, trait EI is negatively associated with perceived stress (e.g., Forushani & Besharat, 2011), anxiety and depressive symptomatology (Extremera & Berrocal, 2006), and addiction-related problems (for a review, see Kun & Demetrovics, 2010) and positively associated with peer liking (Song et al., 2010), perceived social support, and general psychological adjustment (Perera & DiGiacomo, 2015). Given that adjustment difficulties are one of the most common predictors of university attrition, it is not surprising that students who enter university with higher trait EI scores are less likely than their low-scoring peers to drop out early (Parker, Hogan, Eastabrook,

Table 3.4 Summary of studies on trait EI and academic achievement in children and adolescents

Citation	Measure of trait emotional intelligence	Academic achievement measure	Sample	Results
Siegling, Vesely, Saklofske, Frederickson, & Petrides (2017)	TEIQue-ASF	National Curriculum level in English, math, and science	$N = 357-491$, Age = 11-13 years; UK	Trait EI predicted academic achievement in English, math, and science over and beyond cognitive ability and gender
Andrei, Mancini, Mazzoni, Russo, & Baldaro (2015)	TEIQue-CF	Mean score in language literacy and math	$N_1 = 376$, $M_{(age)} = 9.39$ years $N_2 = 202$, $M_{(age)} = 12.05$ years; Italy	Trait EI related to both math and literacy scores ($r = 0.30^{***}$ and $r = 0.29^{***}$, respectively). However, it did not show incremental effects after controlling for the Big Five, IQ, and gender
Costa, & Faria (2015)	Emotional Skills and Competence Questionnaire (ESCC)	Math, Portuguese grades, and GPA	$N = 380$, $M_{(age)} = 15.4$ years; Portugal	Path analysis showed that trait EI predicted math in 10th grade students and GPA (in boys only)
Agnoli, Mancini, Pozzoli, Baldaro, Russo, & Surcinelli (2012)	TEIQue-CF	Language and math grades	$N = 352$ (188 females), $M_{(age)} = 9.35$ years; Italy	Trait EI positively correlated with math and language performance ($r = 0.13^*$ & $r = 0.18^{**}$, respectively). Low and medium IQ children with high trait EI exhibited better language performance ($b = 0.66$, $SE = 0.11$, $t = 5.99^{***}$; $b = 0.37$, $SE = 0.11$, $t = 3.36^{**}$, respectively)
Qualter, Gardner, Pope, Hutchinson, & Whiteley (2012)	EQ:i:YV	GCSE in English language, English literature, math, and science	$N = 413$ (214 females); year 11; UK	The adaptability, stress management, and interpersonal subscales predicted academic performance on math, English language, English literature, and science. Structural equation modeling showed that trait EI predicted GSCE performance in boys only

(continued)

Table 3.4 (continued)

Citation	Measure of trait emotional intelligence	Academic achievement measure	Sample	Results
Ferrando et al. (2011)	TEIQue-ASF	Head-teacher-rated general academic performance	$N = 290$ (136 females), $M_{(age)} = 11.53$ years; Spain	Trait EI showed incremental validity over IQ, personality, and self-concept ($\beta = 0.20$, $t = 2.10^*$) in predicting general academic performance
Yazici, Seyis, & Altun (2011)	Emotional Intelligence Scale (Ergin, 2000)	Average score	$N = 407$ (171 females), $M_{(age)} = 11.16$ years; Turkey	Only the emotional awareness ($\beta = 0.18^{**}$) subscale predicted academic achievement
Mavroveli et al. (2009)	TEIQue-CF	End-of-year teacher assessment scores in math and English	$N = 140$ (63 females), $M_{(age)} = 9.26$ years; UK	Correlations between trait EI and English and math scores were significant in the total sample ($r = 0.24^{**}$ and $r = 0.25^{**}$, respectively) but did not persist after controlling for age and nonverbal IQ
Di Fabio & Palazzeschi (2009)	EQ-i: Short form	GPA	$N = 124$ (90 female), $M_{(age)} = 17.49$ years; Italy	Trait EI demonstrated incremental validity for predicting GPA over both fluid intelligence and the Giant Three (extraversion, neuroticism, and psychoticism). Results held for global scores ($\beta = 0.23^*$, $\Delta R^2 = 0.05^*$) and jointly for the factor scores ($\Delta R^2 = 0.06^*$)
Mavroveli et al. (2008)	TEIQue-CF	Key stage 2 SAT scores in English, math, science, NFER reading, and spelling scores	$N = 139$ (69 girls), $M_{(age)} = 11.23$ years; UK	Trait EI scores correlated positively with spelling scores ($r = 0.28^{**}$) only. Gender-specific analyses revealed that trait EI was unrelated to English, science, and reading scores but was moderately related to math ($r = 0.29^*$) and spelling scores ($r = 0.38^{**}$), in boys only. With the exception of spelling (total sample: $r = 0.25^*$; boys: $r = 0.29^*$), these correlations lost their significance when controlling for verbal intelligence

<p>Downey, Mountstephen, Lloyd, Hansen, & Stough (2008)</p>	<p>Adolescent Swinburne University Emotional Intelligence Test (SUEIT-A)</p>	<p>GPA and 8 subject grades</p>	<p>$N = 209$ (123 females), $M_{(age)} = 13.8$ years, range = 12–17 years; Australia</p>	<p>Global trait EI correlated with GPA ($r = 0.15^*$) and grades in geography ($r = 0.27^{**}$) and science ($r = 0.14^*$). Emotion management and control subscale correlated with GPA ($r = 0.14^*$) and grades in math ($r = 0.24^{**}$) and science ($r = 0.19^*$). Understanding emotions subscale correlated with grades in art ($r = 0.34^{**}$), geography ($r = 0.28^{**}$), and science ($r = 0.18^*$). Low-achieving students (GPA 20th percentile or lower) scored lower on global trait EI, emotion management and control, and understanding emotions subscales than average-achieving students (GPA between 20th and 80th percentile) or high-achieving students (GPA 80th percentile or higher)</p>
<p>Petrides, Frederickson, & Furnham (2004)</p>	<p>TEIQue</p>	<p>Key stage 3 assessment (KS3) results</p>	<p>$N = 650$ (48% female), $M_{(age)} = 16.5$ years; UK</p>	<p>Trait EI moderated the relationship between cognitive ability and academic achievement Trait EI moderated the effect of IQ on English and overall GCSE performance High trait EI was associated with better academic achievement across a range of low IQ scores, but the relationship reversed at IQ scores of about +1 SD</p>

(continued)

Table 3.4 (continued)

Citation	Measure of trait emotional intelligence	Academic achievement measure	Sample	Results
Parker, Creque, Barnhart, Harris, Majeski, Wood, Bond, & Hogan (2004)	EQ-i:YV	GPA	<i>N</i> = 667 (363 females), Age = 14–18 years; USA	Trait EI correlated with academic achievement ($r = 0.33^*$). High-achieving students (GPA 80th percentile or higher) scored higher on the interpersonal, adaptability, and stress management subscales than average-achieving students (GPA between 20th and 80th percentile), who, in turn, scored higher than low-achieving students (GPA 20th percentile or lower)

Note. GPA = grade point average. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; ? = Relevant information was not available. Research papers with incomplete reporting were omitted.

Oke, & Wood, 2006; Qualter, Whiteley, Morley, & Dudiak, 2009) and more likely to complete their studies and graduate with a degree (Keefer, Parker, & Wood, 2012; Parker, Saklofske, & Keefer, 2016).

Trait EI and Academic Achievement

In tertiary education, a meta-analysis of the impact of non-cognitive factors on academic performance revealed moderate correlations with GPA (Richardson, Abraham, & Bond, 2012). Specifically with respect to trait EI, our review of the recent literature (from 2010 to date) shows a rather inconsistent pattern of associations, similar to that found in earlier reviews (Mavroveli & Sanchez-Ruiz, 2011). Out of the 13 studies presented in Table 3.5, three reported nonsignificant results, while the rest reported weak-to-moderate correlations, which is in line with other studies and meta-analyses (e.g., Parker, Summerfeldt, et al., 2004; Perera & DiGiacomo, 2013). Even though the effects may not be strong, our review indicates that trait EI does predict unique variance in academic performance in higher education over and above gender (Pope, Roper & Qualter, 2012), cognitive abilities (Song et al., 2010), and the Big Five personality traits (Sanchez-Ruiz, Mavroveli, & Poullis, 2013).

Various trait EI facets and factors have shown significant correlations with academic performance. Overall, adaptability (Fallahzadeh, 2011; Parker, Summerfeldt et al., 2004; Pope et al., 2012; Saklofske et al., 2012), stress management (Fallahzadeh, 2011; O'Connor & Little, 2003; Parker, Summerfeldt, et al., 2004), and empathy (Pope et al., 2012) have been salient predictors among the 15 facets, while well-being has been a salient predictor among the 4 factors (Shipley, Jackson, & Segrest, 2010). In any case, more extensive research is needed at the facet and factor levels in order to increase our confidence and understanding of trait EI's role in academic achievement.

Differences across academic subjects A few studies have uncovered differences in the trait EI profiles of students from different academic domains. For example, Pérez and Castejón (2005) found that students enrolled in education-related majors scored higher in global trait EI than those enrolled in technical studies. Similarly, Sanchez-Ruiz et al. (2010) reported higher scores on the emotionality factor of trait EI among arts and social sciences students than among technical studies students. More recently, psychology students scored higher on trait EI than computer science, electrical engineering, and business and management students (Sanchez-Ruiz, Mavroveli, & Poullis, 2013).

In addition, trait EI and its factors seem to have differential impact on academic performance across different academic subjects, which likely contributes to the inconsistencies in the literature. A number of studies have investigated the link between trait EI and academic performance in specific subjects. Overall, the link seems to be more reliable in health-related professions, such as nursing or the medi-

Table 3.5 Summary of studies on trait EI and academic achievement in postsecondary settings

Citation	Measure of emotional intelligence	Academic achievement measure	Sample	Results
Perera & DiGiacomo (2015)	TEIQue–short form	Semester-end GPA	$N = 470$ freshmen students; 61.7% female; $M_{(age)} = 17.77$; Australia	The relationship between trait EI and academic performance was mediated by engagement coping and academic adjustment
Fernandez, Salamonsen, & Griffiths (2012)	TEIQue–short form	GPA	$N = 81$ nursing students; 80% female; $M_{(age)} = 29$; Australia	Trait EI was a significant predictor of academic achievement ($b = 0.25$, $p < 0.05$; $F(2, 78) = 5.26$, $p < 0.01$; Adj. $R^2 = 0.12$)
Sanchez-Ruiz, Mavrouveli & Poullis (2013)	TEIQue–short form	GPA	$N = 323$ undergraduates (113 female); $M_{(age)} = 23$; Cyprus	Trait EI correlated with academic performance ($r = 0.35^{***}$) Trait EI significantly predicted academic performance over and above cognitive ability and traditional personality dimensions The Big Five personality traits were added to the equation ($b = 0.24^{***}$; $F(7, 302) = 7.3^{***}$, Adj $r^2 = 0.13$). At this stage, the model explained significantly more variance in the outcome measure than at step 2; $\Delta F(7, 296) = 9.43$, $\Delta R^2 = 0.03^{***}$
Saklofske, Austin, Mastoras, Beaton & Osborne (2012)	EQ-i	End-of-year GPA	$N = 238$ undergraduates (185 female); $M_{(age)} = 20.03$; Scotland	Significant correlation between academic performance and the adaptability subscale ($r = 0.17^*$)
Fallahzadeh (2011)	EQ-i: Short form	GPA	$N = 223$ Medical science students; 153 female; $M_{(age\ males)} = 22.73$; $M_{(age\ females)} = 23.02$; Iran	Low-to-moderate correlations were found between academic performance and trait EI ($r = 0.14^*$) and in particular the stress management ($r = 0.15^*$) and adaptability ($r = 0.16^*$) subscales

<p>Pope, Roper, & Qualter (2012)</p>	<p>Emotional Competence Inventory Version 2 (ECI-U II)</p>	<p>Average percentage mark (APM)</p>	<p>$N = 135$ undergraduates; 97 female; $M_{(age)} = ?$; UK</p>	<p>Global trait EI did not significantly predict academic performance, but when the individual subscales were entered together in the regression equation, they explained 15% of the variance after controlling for gender; $F(6, 90) = 3.60^{**}$. None of them were individually significant predictors of performance Specific trait EI subscales were associated with academic performance, including adaptability ($r = 0.31^{**}$) and empathy ($r = 0.25^*$)</p>
<p>Olatoye, Akintunde & Yakasai (2010)</p>	<p>Wong and Law Emotional Intelligence Scale (WLEIS)</p>	<p>Cumulative GPA</p>	<p>$N = 235$ business students; 122 female; $M_{(age)} = 23$; Nigeria</p>	<p>Nonsignificant correlations between trait EI and academic performance</p>
<p>Suliman (2010)</p>	<p>EQ-i</p>	<p>GPA</p>	<p>$N = 98$ nursing students; all female; Saudi Arabia</p>	<p>Nonsignificant correlations between trait EI and academic performance</p>
<p>Shiple, Jackson, & Segrest (2010)</p>	<p>TEIQue-short form</p>	<p>GPA</p>	<p>$N = 193$ business students; 48% female; $M_{(age)} = 19-29$. Country = ?</p>	<p>Nonsignificant correlations between trait EI and academic performance Students in midrange GPA scored significantly higher on the trait EI Well-being factor than those in low- and high-range GPA; $F(2, 191) = 4.23^*$</p>
<p>Song, Huang, Peng, Law, Wong, & Chen (2010)</p>	<p>Wong and Law Emotional Intelligence Scale (WLEIS)</p>	<p>S1: GPA S2: Course grades</p>	<p>S1: $N = 222$; 47% female; $M_{(age)} = 21.30$; China. S2: $N = 124$; 60.5% female; $M_{(age)} = ?$; China</p>	<p>S1: Academic achievement correlated with trait EI ($r = 0.22^{**}$). Trait EI showed incremental validity over general mental abilities in predicting academic performance ($\beta = 0.17$, $\Delta R^2 = 0.03^{**}$). S2: Trait EI showed incremental validity in predicting course grade after controlling for general mental abilities and several other variables ($\beta = 0.24$, $\Delta R^2 = 0.03^*$)</p>

(continued)

Table 3.5 (continued)

Citation	Measure of emotional intelligence	Academic achievement measure	Sample	Results
Parker, Summerfeldt, Hogan, & Majeski (2004)	EQ-i: Short form	End-of-first-year GPA	$N = 372$ first-year university students; 294 female; $M_{(age)} = 19.34$; Canada	First-year GPA correlated with total trait EI ($r = 0.20^*$) and the intrapersonal ($r = 0.27^*$), stress management ($r = 0.32^*$), and adaptability ($r = 0.37^*$) subscales Successful students (first-year GPA of 80% or higher) scored higher on total trait EI and the intrapersonal, adaptability, and stress management subscales compared to unsuccessful students (first-year GPA < 60%). These subscales were better predictors of first-year university GPA than high school grades
O'Connor & Little (2003)	EQ-i	GPA	$N = 90$; 37 female; Age = 18–32; USA	Global trait EI ($r = 0.23^*$) and the intrapersonal ($r = 0.22^*$) and stress management ($r = 0.29^{**}$) subscales correlated with academic achievement
Newsome, Day, & Catano (2000)	EQ-i	GPA	$N = 180$ university students; 118 female; $M_{(age)} = 21$; USA	No significant relationships were found between trait EI and GPA

Note. GPA = grade point average; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; ? = Not reported

cal sciences (Austin, Evans, Goldwater, & Potter, 2005; Fallahzadeh, 2011; Fernandez et al., 2012) than in business-related majors (Olatoye, Akintunde, & Yakasai, 2010; Shipley et al., 2010). However, methodological challenges, such as the use of poorly operationalized criteria, mean that further systematic research is needed in order to elucidate fully the mechanisms through which trait EI impacts on academic performance across specific educational domains.

Mediating pathways Research must also start taking into account possible indirect routes through which trait EI may be exerting influence on academic performance. For example, trait EI has been shown to predict important factors for a successful teaching and learning experience, such as critical thinking and collaborative learning (Fernandez, Salamonson, & Griffiths, 2012), cognitive and affective engagement (Maguire, Egan, Hyland, & Maguire, 2017), and creative skills (Sanchez-Ruiz, Hernández-Torrano, Pérez-González, Batey, & Petrides, 2011). Past work has also shown that emotional self-efficacy enhances academic self-efficacy, which, in turn, improves academic performance (Adeyemo, 2007; Hen & Goroshit, 2014).

In a recent study, Perera and DiGiacomo (2015) tested several pathways through which trait EI may indirectly affect academic achievement. In the first pathway, trait EI impacted academic achievement through greater perceived social support, which increased students' positive affect and, in turn, academic performance. In the second pathway, trait EI influenced academic performance through adaptive coping strategies, namely, active coping, positive reinterpretation, and planning, which also increased academic engagement. Indeed, many authors have argued that the reason trait EI is linked to academic outcomes is because it facilitates the adaptive coping and emotion regulation necessary to face academic stress and achieve academic goals (e.g., Por, Barribal, Fitzpatrick, & Roberts, 2011; Saklofske, Austin, Mastoras, Beaton, & Osborne, 2012). An up-to-date review and discussion of the coping hypothesis is provided in Chapter 4 by Zeidner and Matthews (this volume).

Summary

In summary, the reviewed research indicates that trait EI is reliably linked to better university adjustment, engagement, and retention outcomes, but its association with academic performance in higher education is less clear-cut. Exploring trait EI factors and facets, in addition to the global score, can be valuable in elucidating the role of the construct in academic performance, since, according to the present review, trait EI factors may have differential weights in the prediction of performance and could even cancel each other out. Students in different academic majors have distinct trait EI profiles, and their precise relationship with academic performance may vary across academic subjects and majors. Indirect trait EI effects through other

variables (e.g., learning processes, coping strategies) should also be systematically investigated. For a more extended review of the findings, limitations, and promises of EI research in postsecondary settings, the reader is referred to Chapter 16 by Parker, Taylor, Keefer, and Summerfeldt (this volume).

Reflections on the Relationship Between Trait EI and Academic Performance

While findings for trait EI and adjustment variables are consistent across all educational levels, the literature on the relationship between trait EI and academic performance has yet to reach a consensus (see Tables 3.3 and 3.4; Mavroveli & Sanchez-Ruiz, 2011). There is no doubt that trait EI is implicated in academic performance (e.g., Perera & DiGiacomo, 2013; Petrides et al., 2004); however, the variations across study designs and model operationalizations confound the underlying relationships and produce heterogeneity in results.

Level of Study

Trait EI seems to be a more consistent direct predictor in primary and secondary education than in tertiary education (Perera & DiGiacomo, 2013). This could be due to the collaborative nature of education at the primary level, which requires constant social interactions, in contrast to high school and university, where independent learning gradually becomes more common (e.g., Poropat, 2011). Another possible factor is the restriction of range in cognitive ability due to the admission requirements at universities. Hence, it may be useful to explore the incremental validity of trait EI over and above cognitive ability in order to understand fully its role at different educational stages.

In postsecondary settings, Saklofske et al. (2012) suggested that trait EI might play a differential role by year of study, being more important in the first year of university (e.g., Parker, Summerfeldt, et al., 2004), when students are faced with adjustment and acclimatization challenges. In other words, year of study could be a potential confounding variable in designs with students at different points in their university career. Thus, future studies may wish explicitly to model year of academic study, ideally in the context of longitudinal designs, which would be as welcome in this area as they are in psychology (Collins, 2006) and education (White & Arzi, 2005), more generally.

Indices of Academic Achievement

The specific indicator of academic achievement used in a study (e.g., subject-specific grade or cumulative GPA/semester GPA) can determine the direction and strength of associations with trait EI. At university level, the use of GPA as the unique indicator of academic achievement can be problematic (see Sanchez-Ruiz, El Khoury, Saade, & Shrikadian, [under review](#)). First, GPA is subject to a number of distortions, from grade inflation (e.g., Johnson, 2003) and non-invariance across institutions (Didier, Kreiter, Bury, & Solow, 2006) to confounding influences that can affect performance, like exam anxiety (Karatas, Alci, & Aydin, 2013).

In addition, some tertiary and pre-tertiary educational institutions focus on teaching to test, preparing students for particular assessments and thus limiting their learning experience (Atkinson & Geiser, 2009). In primary school, where there is an absence of rigid performance criteria and teachers are mainly monitoring learning milestones, grading can be more subjective and crude. This starts to change in secondary education with the introduction of a more grade-centered educational system, which, however, is still considered a fallible index of true academic competence (Guskey, 2015). In sum, research should avoid equating GPA with learning, which involves more than final grades, and should be complemented by supplementary approaches, such as formative assessment (Sanchez-Ruiz et al., [under review](#)).

Trait EI Interventions in Educational Settings

It is possible that the optimization of pupils' perceptions of their emotional and social functioning will result in better educational outcomes. Indeed, there has been a growing interest in behavioral interventions aimed at improving child and adolescent trait EI scores, with some evidence pointing to generalized benefits ensuing from improved socioemotional perceptions, such as increased frequency of prosocial behaviors. For example, McIlvain, Miller, Lawhead, Barbosa-Leiker, and Anderson (2015) applied an 8-week yoga-based intervention to a clinical sample of adolescents. This yielded increases in trait EI scores accompanied by improvements in desirable behaviors as rated by staff (e.g., increases in the adolescents' ability to self-regulate). Ruttledge and Petrides (2012) administered a cognitive behavior group intervention to a small number of adolescents exhibiting disruptive behaviors. The intervention, which included six hourly sessions, was successful in reducing teacher-rated disruptive behavior and improving self-perceptions, including trait EI. Trait EI interventions have also been successfully implemented in sports applications (see Chap. 11 by Laborde, Mosley, Ackermann, Mrsic, & Dosseville, this volume).

In terms of systemic prevention efforts, school-based SEL programs, which integrate explicit teaching and practice of social and emotional skills into the school curriculum, have been found to improve students' social-emotional competencies

and related self-perceptions, along with a host of behavioral and academic outcomes (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). The SEL approach is discussed in detail in several other chapters of this book (see Chap. 9 by Espelage et al., this volume; Chap. 7 by Hoffmann, Ivcevic, & Brackett, this volume; Chap. 8 by Humphrey, this volume; Chap. 12 by Elias, Nayman, & Duffell, this volume).

There is robust empirical evidence suggesting that trait EI can be developed in university students (Vesely, Saklofske, & Leschied, 2013; Vesely, Saklofske, & Nordstokke, 2014; see also Chap. 15 by Boyatzis & Cavanagh, this volume; Chap. 14 by Vesely-Maillefer & Saklofske, this volume) and in adults (see Mikolajczak & Pena-Sarrionandia, 2015), with effects that are relatively long-lasting (Kotsou, Nelis, Grégoire, & Mikolajczak, 2011). Specifically, Mikolajczak and her colleagues demonstrated that a well-designed intervention leads to an average increase of 12% in trait EI scores, after a few weeks of training. These effects remained evident for at least a year and were accompanied by improvements in participants' physical and psychological well-being.

Conclusion

We conclude that trait EI has important implications for academic behavior and achievement, although its effects vary across studies. The nature of these effects should not be studied in isolation, but with reference to both verbal and nonverbal cognitive ability, as well as other factors that have been consistently linked to achievement, such as gender, socioeconomic status, and parental education and involvement (Brody, 2000).

While a number of studies have attempted to control for the aforementioned confounding variables, most do not, and there is now a pressing need to disentangle these knotty associations. It is, therefore, recommended that future studies employ longitudinal multivariate designs, using theoretically and empirically robust measurement tools and large sample sizes, allowing for both group-level and subject-specific analyses. In parallel, theoretical focus should expand from the current cognitive- and grade-centered approach to a broader strategy that fosters the development of socioemotional skills and positive self-perceptions among students and teachers alike. Irrespective of how future research develops, the effects of trait EI on scholastic achievement and general school behavior and adaptation, whether direct or indirect, merit careful consideration by those involved in educational policy, planning, and delivery.

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