



# The impact of Emotional Intelligence on academic achievement: A longitudinal study in Portuguese secondary school<sup>☆</sup>

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## ABSTRACT

This study examines the predictive validity of Emotional Intelligence (EI), assessed by a self-report and a performance ability-based measure, over students' academic achievement in Portuguese secondary school. Within a 3-wave longitudinal design, 380 students ( $M_{\text{age}} = 15.4$ ;  $SD = .71$ ) completed both *Emotional Skills and Competence Questionnaire* (42 items) and *Vocabulary of Emotions Test* (35 items). Students' GPA, Portuguese and Mathematics grades were collected at the end of each academic level. Path analysis results showed that although both types of EI can predict students' academic achievement, they exert a higher influence in the prediction of 10th grade students' achievement. Moreover, the performance measure exhibited higher predictive power over the self-report one. Multi-group analyses indicated that some paths in the GPA model differ by gender while those in the Mathematics model differ by type of school. These findings suggested the importance of fostering students' EI in the academic context as a strategy of enhancing academic success.

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## 1. Introduction

Previous research on the academic success field has mainly focused on cognitive factors, indicating the predictive role of cognitive intelligence on students' academic performance (Colom & Flores-Mendoza, 2007; Farsides & Woodfield, 2003; Neisser et al., 1996). However, when the cognitive abilities proved to be accountable for less variability on the academic success than expected (Mayer & Salovey, 1997), researchers started to acknowledge a broader array of potential predictors (McLaughlin, Brozovsky, & McLaughlin, 1998). Despite the study of the influence of factors such as socioeconomic status, peer relationships and institution's quality (e.g., Bjarnason, 2000; Newcomb et al., 2002), another new area has gained interest on the field of academic achievement: Emotional Intelligence (EI). This increasing interest sets ground on the emergent body of literature which found strong association between EI and academic achievement in several educational settings (e.g., Elias, Bruene-Butler, Blum, & Schuyler, 1997; Goleman, 1995; Pasi, 1997). However, since they were based on very initial data these statements became overrated (Matthews, Roberts, & Zeidner, 2003; Zeidner, Roberts, & Matthews, 2002). In fact, this query was particularly associated with a wider debate surrounding EI assessment and the use of reliable measures (Zeidner, Matthews, & Roberts, 2001).

Nonetheless, recent literature has renewed the claims that EI has impact on students' academic achievement and on its prediction (Parker, Creque, et al., 2004; Parker, Summerfeldt, Hogan, & Majeski, 2004). Therefore, this study, assuming the importance of the secondary school achievement on students' forthcoming academic life, intends to offer an exploration of the predictive validity of EI on secondary students' academic achievement.

### 1.1. Emotional Intelligence: concept and assessment

Popularized in early 90s, EI, considered as a source of greater well-being and happiness, focused on enhancing the positive human characteristics, experiences and outcomes (Gable & Haidt, 2005), integrated the emerging positive psychologist movements of the date. In fact, several studies confirmed the clear correlation between EI and positive psychology by exploring the overlap of numerous factors (e.g. self-regard and self-acceptance based on self-awareness, the capacity for positive social interactions based on social-awareness, realistic problem solving and decision making and self-determination and optimism; Bar-On, 2010). These factors are known to have an impact on optimal physical and psychological health, successful performance and achievement, intelligent decision making, creativity, self-actualization and others (Bar-On, 2010).

Emotional Intelligence can be described as a construct within the broad framework of human cognitive abilities (Mayer, Caruso, & Salovey, 2000; Mayer & Salovey, 1993). EI was first conceptualized by Salovey and Mayer (1990) as "the ability to monitor one's own and others emotions, to discriminate among them and to use the information to guide

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one's thinking and actions" (p. 189) and is generally considered as an actual ability that comprises an interrelated set of emotional–cognitive skills (Mayer & Salovey, 1997; Mayer, Salovey, & Caruso, 2004). Another perspective, trait EI, defined EI as a constellation of emotion-related self-perceptions at the lower levels of personality hierarchies (Petrides, Furnham, & Mavroveli, 2007).

The two major perspectives – ability and trait EI – have defined the research path that EI has been crossing since the recognition of its importance in several areas of influence. While the discussion about the better way to conceptualize EI is still present, the search for an agreement regarding EI valid assessment is on the current agenda. Nonetheless, research has been expanding the understanding on measures' psychometric critical problems (self-report and performance). However, some authors claim that the type of measure used to assess the construct of EI is ultimately defining the EI model that is being studied (Matthews, Roberts, & Zeidner, 2004; Petrides & Furnham, 2000): performance measures will likely be more valid if EI is theorized as an ability, once they elicit responses that can be evaluated against objective, predetermined scoring criteria (Ciarrochi, Chan, Caputi, & Roberts, 2001) as any other measure of intelligence; while self-report measures may be more suitable when EI is conceptualized as a set of nonability traits or attributes (Ciarrochi et al., 2001; Mayer, 2001), since they ask individuals to report their own interpretation of their level of EI (Ciarrochi et al., 2001; Schutte et al., 1998), tapping, for some authors, aspects of personality or other attributes. Nonetheless, it is important to acknowledge that EI if conceptualized as ability is no rare times measured by self-report measures (e.g. *Trait Meta-Mood Scale* (TMMS), *The Wong and Law Emotional Intelligence Scale* (WLEIS), *Emotional Skills and Competence Questionnaire* (ESCQ)).

Irrespective of the debate about which type of measures best assesses EI (self-report vs. performance), the literature has evidenced the weak or absent correlation between both EI's types of measures (e.g., Barchard & Hakstian, 2004; Brackett & Mayer, 2003; Davies, Stankov, & Roberts, 1998; Lopes, Salovey, & Straus, 2003). In fact, convergent validity studies with widely used EI self-report and performance measures have reported weak correlations (Brackett & Mayer, 2003). Even when covered by the same EI theoretical model, results revealed that some factors were not related (Lopes et al., 2003). Consistent with the general intelligence field (Furnham & Rawles, 1999; Paulhus, Lysy, & Yik, 1998), these results may put in evidence the fact that the different types of measures don't assess the same EI's attributes (Sternberg, 1988).

EI considered as an ability is intrinsically related to the intelligence domain. In fact, EI comprises both crystallized intelligence aspects, mainly verbal, that require emotion knowledge stored over time and fluid intelligence components that use reasoning over emotions and include, mainly, nonverbal aspects (Côté, 2010).

The relation of EI to other forms of intelligence within EI's validation criterion has been explored in the literature. In their first study, Mayer, Caruso, and Salovey (1999) claimed that MEIS measures were not only sufficiently differentiated from verbal intelligence to provide unique variance but also sufficiently related to indicate that concepts underlying the MEIS constitutes an intelligence. Later on, Mayer, Roberts, and Barsade (2008) argue that EI is parallel to verbal, perceptual-organizational, and broad-visualization intelligence (p. 510), but found that overall MSCEIT/MEIS is more closely related to verbal intelligence ( $r = .36$ ) which comprises "the ability to reason about words and the use of acquired verbal knowledge to promote such reasoning" (p. 511), than other forms of intelligence ( $.10 \leq r \leq .20$ ). Moreover, a recent meta-analytic study has confirmed the correlation between overall MSCEIT/MEIS and verbal intelligence ( $r = .26$ ), however smaller than Mayer et al. (2008)'s study (Kong, 2014).

Although the unique variance of EI needs to be continuously analyzed, studies have pointed out the inherent relation that EI establishes with other forms of intelligence and the sufficient different relation between them to assure in fact different concepts.

Bearing in mind that relations involving EI differ significantly depending on how EI is measured (Mayer et al., 2008), in this study, we will use and compare two methods of measurement (self-report and performance) within the EI ability model.

### 1.2. Emotional Intelligence and academic achievement

The multifactorial phenomenon of students' academic success has been extensively studied over the last decades. Although much of the early research focused on the cognitive factors, a good amount of unexplained variance on students' academic achievement remained unknown. Within the attempt to explore the importance of other factors on students' academic achievement, studies relating EI and academic achievement emerged (Barchard, 2003; Newsome, Day, & Catano, 2000; O'Connor & Little, 2003; Parker, Creque, et al., 2004; Petrides, Frederickson, & Furnham, 2004; Schutte et al., 1998).

The literature has shown that EI supports both cognitive and social development of children (see Denham, 2007, for review), which constitutes an advantage in several contexts, in particular, in the educational settings. In fact, emotional knowledge is related with students' better academic adjustment and achievement, positive social behaviors, less distress and better results on tests and evaluations (see Greenberg et al., 2003, for review). Furthermore, students with higher emotional competence define greater academic goals and reflect better levels of self-discipline, motivation, stress regulation, work organization, learn more and have higher grades (Duckworth & Seligman, 2005; Elliot & Dweck, 2005).

Research done in the recent years has investigated how emotional abilities might contribute to students' academic achievement and adaptation to school (see e.g., Goetz, Frenzel, Pekrun, & Hall, 2005; Lopes & Salovey, 2004; Saarni, 1999; Salovey & Sluyter, 1997).

In fact, school work and intellectual development involve the abilities to use and regulate emotions in several ways. For instance, the mastery of these skills facilitates student's thinking and concentration, the control of impulsive behavior, better cope with external pressures and the conversion of negative emotions into positive ones. The fact that students can regulate one's and others' emotions allow them to develop their intrinsic motivation to achieve better results (Baumeister, Heatherton, & Tice, 1994; Rode et al., 2008).

Moreover, emotional abilities can be the key in school social interaction: students' positive expression of emotions tends to receive adaptive feedback and responses by others, while the expression of negative emotional dispositions will have the opposite effect (Argyle & Lu, 1990). Thus, stronger levels of EI should predict academic grades through the ability to cope with stressors such as assessment and evaluations, the dynamics of group collaboration, or the social and emotional demands of academic life (MacCann, Fogarty, Zeidner, & Roberts, 2011). Moreover, a recent study exploring the possible mediating role of coping on the relationship between EI and students' academic success, confirmed the predictive validity of EI, revealing the direct and indirect positive effects that EI has on students' scholastic achievement (MacCann et al., 2011).

Although there is a clear evidence of the assets of EI on students' academic success and well-being, recently several studies were conducted to explore what is the role that EI plays on the prediction of student's academic achievement (e.g. Gil-Olarte, Martin, & Brackett, 2006; Lyons & Schneider, 2005; Mavroveli & Sanchez-Ruiz, 2011; Mestre, Guil, Lopes, Salovey, & Gil-Olarte, 2006; O'Connor & Little, 2003; Parker, Creque, et al., 2004; Parker, Summerfeldt, et al., 2004; Petrides et al., 2004; Rode et al., 2007; Song et al., 2010). Far from consistent, the research that explored the link between EI and academic achievement has displayed different results. In fact, while some studies tend to show limited predictive power of EI over students' academic achievement (e.g. Brackett & Mayer, 2003; Brackett, Mayer, & Warner, 2004; O'Connor & Little, 2003; Rode et al., 2007; Van Rooy & Viswesvaran, 2004), others confirm the importance of EI in the academic context, as it provides a

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