The impact of Emotional Intelligence on Academic Achievement: A longitudinal study in Portuguese secondary school

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_{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 Mathematic grades were collected in 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 in the Mathematic 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.

Keywords: Emotional Intelligence; Academic achievement; Secondary school; Path analysis; Multi-group moderation analysis.

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 set 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 90's, 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 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 crystalized 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 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 et al. (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 ≤ r ≥ .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 differently 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, Roberts, & Barsade, 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 et al., 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 facilitate 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, reveling the direct and indirect positive effect 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 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 unique predicted power over academic achievement, even after controlling personality traits and general mental abilities (e.g. Gil-Olarte et al., 2006; Lyons & Schneider, 2005; Mestre et al., 2006; Song et al., 2010).

The less consistent evidence found in the literature may be not only due to the way students' academic achievement is captured but also to the differences in sample's features (e.g. gender, age, level of education; Agnoli et al., 2012). Moreover, the use of different types of EI's conceptualization and measures in the available literature could contribute to the divergence of results found. In fact, as previously mentioned, within the EI conceptualization, the trait model refers to a personality trait rather than actual cognitive ability. With that been said, the literature has shown that it is not highly associated with psychometric intelligence (yet not excluding an indirect interaction; Petrides et al., 2004). The ability model, considered as a kind of intelligence (Mayer & Salovey, 1993) will more likely be associated with the academic achievement (Song et al., 2010).

Until now, several studies have compared different EI approaches in students' academic achievement prediction (e.g. Agnoli et al., 2012; O'Connor & Little, 2003; Qualter, Gardner, Pope, Hutchinson, & Whiteley, 2012). However, there is little evidence on how different EI types of measures (self-report vs. performance), within the ability model, influence the scholastic achievement (Mestre et al., 2006). In this line, the present study intents to expand the understanding on whether or not two types of EI measures differ on students' school achievement prediction. Moreover, assuming the general assets of EI on students' academic achievement, and bearing in mind the stronger association of the EI's ability model with the academic achievement, it is expected that the explored models in this study will confirm a positive impact of EI over students' academic achievement.

1.3. Predictors of Academic Achievement

While the overall focus of the current research is to determine whether EI can predict academic performance, recent literature has started to explore the effect of different sociodemographic and academic variables in EI prediction. For instance, within the academic achievement prediction studies, gender proved to be an important variable. The fact that girls tend to succeed better on school evaluations than boys, although both genders perform similarly on cognitive tasks (e.g. Deary, Strand, Smith, & Fernandes, 2007; Mestre et al., 2006), may indicate differences on the way both genders react to evaluations or assessments. Also, if girls tend to have better levels of EI than boys (e.g., Costa, Faria, & Takšić, 2011; Goldenberg, Matheson, & Mantler, 2006), perhaps girls use and manage EI abilities in a more adapted manner on performance situations. In fact, few studies addressing the moderating role of gender on students' EI prediction have achieved consensual results in the recent literature

(see e.g., Arteche, Chamorro-Premuzic, Furnham, & Crump, 2008; Austin, Evans, Goldwater, & Potter, 2005). One of the limitations of the existing research is the use of aggregated or global indices of both EI and achievement results (Perera & DiGiacomo, 2013), which may mask the influence of EI over students' performance. For instance, if we considered the reported specific gender advantage of girls in the emotion perception (Petrides, 2009), the fact that authors assess the EI construct at a global level may conceal the benefits that this particular EI skill can provide for girls in the academic context (Perera & DiGiacomo, 2013).

In addition, age and academic level seem to have an impact on the relationship established between EI and academic achievement. In fact, some literature had shown that as age increases the relationship between EI and students' achievement becomes weaker. Also associated with these results, research revealed that the association between EI and students' academic achievement diminishes with the progression of the academic level (see Perera & DiGiacomo, 2013, for review). These results perhaps are associated with the fact that with the evolution of the learning process students become more autonomous and interact less frequently with teachers and peers (Poropat, 2011). Moreover, the lower effect of age and academic level may be due to the fact that the educational progression of students' depends on their achievement in ulterior academic levels, which can produce a more selective cognitive context in secondary school (Hunter, Schmidt, & Le, 2006). However, studies focusing on other effects of the academic variables on EI prediction are still scarce. In particular, research involving the type of school[1] students attend to and possible differences in what concerns to their development of social emotional skills is lacking.

There is a popularly held notion that private schools outperform public schools in student's overall achievement. Nonetheless, research in this area have alerted to the fact that the statistically significant differences between the two type of schools favoring private institutions remain small after controlling achievement gains (Witte, 1992) or school environment (Cherchye, Witte, Ooghe, & Nicaise 2010), or in some cases private and public school students perform equally on achievement tests (Center on Education Policy, 2007). Moreover, recent literature have point out that public students' intelligence mean scores were higher than the private ones, even when the private institutions offer a higher number of extracourses (Hein, Tan, Aljughaiman, & Grigorenko, 2014). In this line, this study intents to explore the less known impact that EI, as a promoter of scholastic achievement may have in students attending private and public schools. In particular, it is expected that similarly to more recent results in

the field, students attending private and public institutions did not differ in the effect that EI has in their academic achievement.

In light of these considerations, the present study aims to expand the understanding about whether EI is important to secondary school students' academic success. This research provides new information since it examines (1) the predictive validity of two EI ability-based types of measures, self-report and performance (2) within a 3-wave longitudinal design in secondary school, and explores (3) the moderator effect of specific sociodemographic and academic variables on EI's prediction of students' academic achievement.

2. Method

2.1. Participants

A total of 380 Portuguese secondary school students (58.5% of the initial students sample in 10th grade – N=650 – and 76.8% of the students sample in 11th grade – N=499)) were followed throughout the 3 years of secondary school (10th to 12th grade)[2]. Participants were aged from 14 to 17 (M=15.4; SD=.71) at the 10th grade and the major part of the sample were girls (54.2%) and students attending public schools (60.5%).

2.2. Measures

2.2.1. Ability EI's measures.

2.2.1.1. Emotional Skills and Competence Questionnaire (ESCQ) is a 42-item self-report EI measure that comprises 3 subscales: Perceive and Understand Emotion (PUE; 14 items - "*I am able to tell the difference if my friend is sad or disappointed*"), Express and Label Emotion (EE; 14 items - "*I can easily name most of my feelings*"), and Manage and Regulate Emotion (MRE; 14 items – "*I can maintain a good mood, even when the people around me are in a bad mood*"). Originally developed in the Croatian cultural context by Takšić, Mohorić and Duran (2009), this measure is based on Mayer and Salovey's (1997) theoretical framework of EI model and has been adapted and validated to several cultural contexts (Faria et al., 2006; Takšić et al., 2009). In fact, ESCQ has repeatedly shown good psychometric properties across different studies, particularly, confirming the three-factor structure underlying ESCQ dimensions, revealing good reliability (between .72 and .92),

positive correlations between the dimensions (between .49 and .54) (Faria et al., 2006; Takšić et al., 2009) and presenting absolute and relative appropriated fit indices (NNFI=.93; CFI=.94; RMR=.04; RMSEA=.04; Stocker & Faria, 2012).

2.2.1.2. Vocabulary of Emotions Test (VET) is an EI performance measure developed by Takšić, Herambašić and Velemir (2003) in the Croatian academic context with secondary school students. Based on the third branch of EI's ability model, VET assesses the ability to Understand Emotion. VET has the same format of any other classic vocabulary test and it comprises 35 items, which correspond to emotional saturated target-words. The subject has to choose one adjective (from 6 available) which has the closest meaning to the target word (emotion). For instance, considering the target word "touching" the subject has to choose the adjective with the closest meaning of the target word from the following: "gentle"; "moving"; "proud"; "sensitive"; "bashful"; "ruthless". This test has a correct answer, based on a solution from a Croatian dictionary. The original version of VET evidenced good psychometric properties: moderate correlations with other Intelligence tests (California Tests of Mental Maturity – Vocabulary Test – r=.67, p=.00 and Logical Thinking – r=.33, p=.00), and EI tests (Analysis of Emotions Test – r=.46, p=.00), and explains 44% of specific variance over and above classic intelligence tests. Moreover, results have shown that VET has proper reliability (α =.90) (Takšić & Mohorić, 2008). VET Portuguese adaptation (Costa, Faria, & Takšic, 2011) has claimed good psychometrics properties: appropriate VET's item difficulty (M = .55; SD = .22), satisfactory internal consistency (.71) and differential validity (presenting both gender and cultural differences - Portuguese students scored higher on VET than the Croatian ones and significant gender effects were found in the total sample, benefiting the girls).

2.2.2. Students' Academic Achievement.

End-of-year students' grades were obtained from schools evaluations for the three consecutive years of secondary school (10th, 11th and 12th grade). The student's final mark (from 0 to 20) of Portuguese and Mathematic subjects

were collected from school evaluations in the last period of each year and the Grade Point Average (GPA) (from 0 to 20), was calculated based in the average of all the student's grades from all the classes they attend in each year.

2.3. Procedure

The purpose of the study was presented to the schools and their head teacher. After schools manifested their wish to be included in the study as well as their formal acceptance, informed consents were obtained from students' parents for their personal assurance. The ESCQ and VET were administered in each classroom, with the presence of the researcher and the students' teacher, in the beginning of the second period of each academic year. All participants filled out the questionnaires individually in their classrooms, after brief group instructions on the answer formats. The purpose of the study as well as the confidence and anonymity guaranties were explained to the participants. Administration lasted on average 25 minutes. The student's final grades in all the domains were collected from the schools, in the end of the last period of each academic year.

2.4. Data analysis

Path analysis was used to explore the prediction of EI variables in students' academic achievement throughout the 3 years of secondary school. In order to simplify the analyses of EI's models prediction, the self-report measure of EI was explored as a global score. The structural model was tested in AMOS 21.0 program using maximum likelihood estimation. The following indices were used to evaluate the goodness of fit of the model (Hu & Bentler, 1999): Chi-square statistics, root-mean-square error of approximation (RMSEA) of .06 or less, comparative fit index (CFI) and the Tucker-Lewis Index (TLI, or Non-Normed Fit Index: NNFI): best if above .95.

In order to examine the gender and type of school moderation in the multiple regression model, multi-group moderation analysis were computed: the first model, which allows the structural paths to vary across groups, was compared with the second model, which constrains the structural paths across groups to be equal. Chi-square differences between the two models indicated if the models differ across groups. In order to reduce the possibility of Error Type I, only if the level of significance confirmed the differences between the two models it would be taken the following step: the analysis of the critical ratios of differences (CRD), which explores if there was significant differences between the parameter estimates across groups. CRD is

calculated by dividing the difference between two estimates by an estimate of the standard error of the difference (Arbuckle, 2007).

3. Results

Descriptive statistics and intercorrelations for all variables included in the models are presented in Table 1. All variables were significantly correlated in the predicted directions. Results reflected a strong and significant association of all the variables with their forthcoming levels throughout the secondary school (above .55). In general, ESCQ and VET variables proved to be unrelated with the exception (although weak) of ESCQ10th grade and VET 10th and 12th grade. While ESCQ levels displayed non-significant or weak correlations, VET revealed significant and moderate associations with students' grades. Students' mathematics grades were not associated with any other grades.

Table 1. *Descriptive statistics and zero-order correlations for all measures.*

Measure	M(SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.ESCQ 10th	195.15 (18.52)	1														
2.ESCQ 11th	196.97 (18.72)	.64**	1													
3.ESCQ 12th	195.11 (19.90)	.55**	.62**	1												
4.VET 10th	23.07 (4.30)	.11*	.02	.09	1											
5.VET 11th	24.46 (4.08)	.06	.04	.06	.60**	1										
6.VET 12th	24.92 (3.76)	.14**	.06	.06	.56**	.63**	1									
7.GPA 10th	14.99 (2.41)	.19**	.14**	.16**	.33**	.27**	.25**	1								
8.GPA 11th	15.23 (2.58)	.17**	.16**	.17**	.35**	.30**	.31**	.89**	1							
9.GPA 12th	16.29 (2.43)	.10**	.15**	.15**	.27**	.23**	.21**	.77**	.86**	1						
10.Port. 10th	14.26 (2.88)	.10	.10	.11*	.31**	.31**	.29**	.51**	.48**	.48**	1					
11.Port. 11th	14.31 (3.04)	.13*	.12*	.13*	.36**	.33**	.36**	.49**	.53**	.50**	.85**	1				
12.Port.12th	15.17 (2.82)	.10	.11*	.15**	.37**	.35**	.34**	.46**	.52**	.58**	.78**	.83**	1			
13.Math's 10th	14.65 (3.19)	.15*	.12	.05	.26**	.19**	.22**	-0.3	-.06	-.05	.03	.01	-0.5	1		
14.Math's 11th	14.48	.18**	.15*	.13*	.30**	.22**	.23**	-.07	-.10	-.09	-.02	-.05	-.09	.86**	1	

	(3.81)															
15.Math's 12th	14.98	.11	.13	.16*	.27**	.23**	.17**	.05	.00	-.01	.00	-0.3	-.03	.70**	.86**	1
	(3.65)															

3.1. Path Analysis

It was hypothesized that each EI variable would predict students' academic achievement throughout the three years of secondary school. Moreover, as an exploratory possibility, it was also conceptualized that the students' grade would also have an impact on students' level of EI variables on the forthcoming years. In order to examine the interrelationships among the EI variables and students' academic achievement, three path analysis models were conducted using AMOS 21.0, a structural equation modeling program: student's GPA, Portuguese language and Mathematics grade model.

3.1.1. A path analysis model of students' GPA

Multiple regression analyses tested the predicted relationships between the EI and students' GPA in the three years of secondary school. The first path model revealed satisfactory fit indices (CFI = .99, NFI = .99, GFI = .99, RMSEA = .03) and an insignificant chi-square test (X^2 (17, N=380) = 27.70, p = .16). However, according to the recommended practice for the identification of an acceptable Confirmatory Factor Analysis (CFA) model (Kline, 2010), the inspection of the parameter estimates and the examination of the modification indices were performed and the analysis of the parameters estimates revealed that not all the paths were significant, which leads to their exclusion in a second model tested. The path model shown in Fig. 1 had an excellent fit to the data (CFI = .99, NFI = .99, GFI = .98, RMSEA = .03) and also an insignificant chi-square test (X^2 (22, N=380) = 28.64, p = .16). The model exhibited only the significant paths ($p<.05$) and the standardized coefficient displayed represented the contribution of each variable (error terms were omitted to simplify the Figure). Both EI components (ESCQ and VET) made a significant, unique contribution to students' GPA in 10th grade (Fig. 1), but only VET had an impact, although weaker, in students' 11th and 12th grade GPA. Moreover, students' GPA in 11th grade had an impact on their level of VET on the upcoming year.
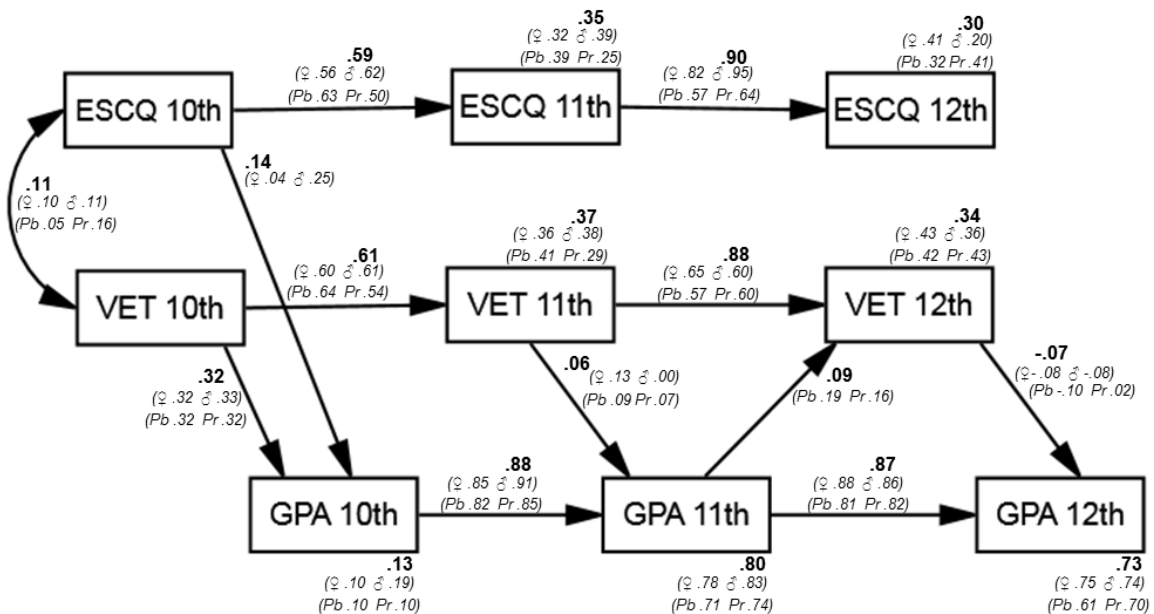
Figure 1. Path model depicting relationships between the EI variables and students' GPA throughout the secondary school. Note. Path coefficients represented are standardized and significant (p<.05). ESCQ - Emotional Skills and Competence Questionnaire; VET- Vocabulary of Emotions Test; GPA - Grade Point Average; 10th – 10th grade; 11th – 11th grade; 12th – 12th grade; ♀ - girls; ♂- boys; *Pb.*- Public school; *Pr.-* Private School.

3.1.2. A path analysis model of students' Portuguese language grade

In order to explore the relationship established between the EI and students' Portuguese grade throughout the secondary school, multiple regression analyses were conducted. Although the first path model tested revealed satisfactory fit indices (CFI = .99, NFI = .98, GFI = .98, RMSEA = .05, X^2 (17, N=378) = 29.06, *p* =.02), the review of the parameter estimates and the inspection of the modification indices revealed the need for model's improvement. The second model tested excluded the non-significant paths in the previous model. As shown in Fig. 2, the second path model provided a good fit to the data (CFI = .99, NFI = .98, GFI = .98, RMSEA = .05, X^2 (23, N=378) = 40.85, *p* = .01). The model showed that only the EI variable VET had a significant impact over students' Portuguese grade in 10th and 11th grade. Moreover, students' VET level in 11th grade is influenced by their Portuguese grade in 10th grade.
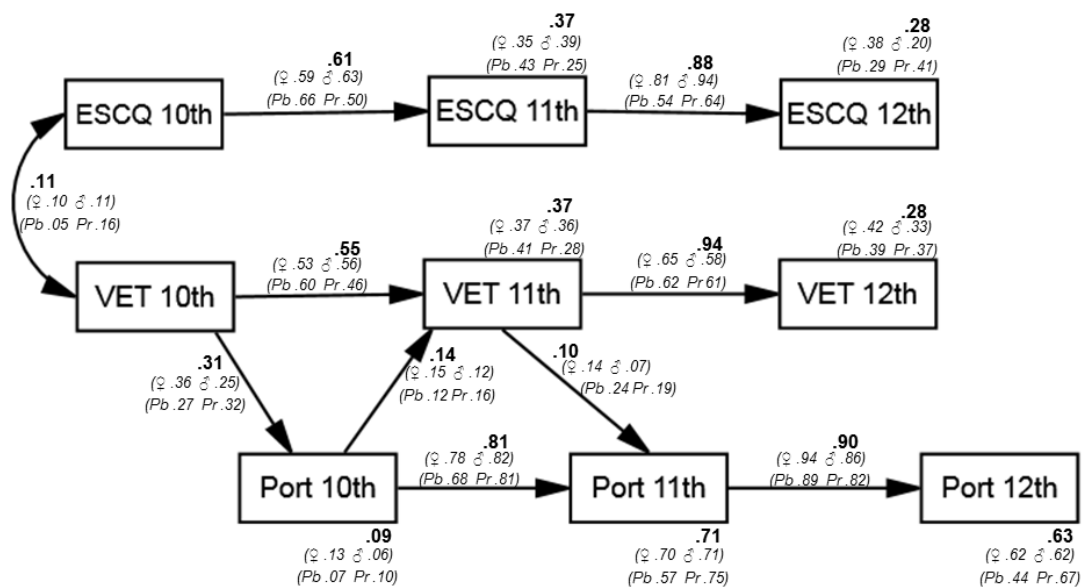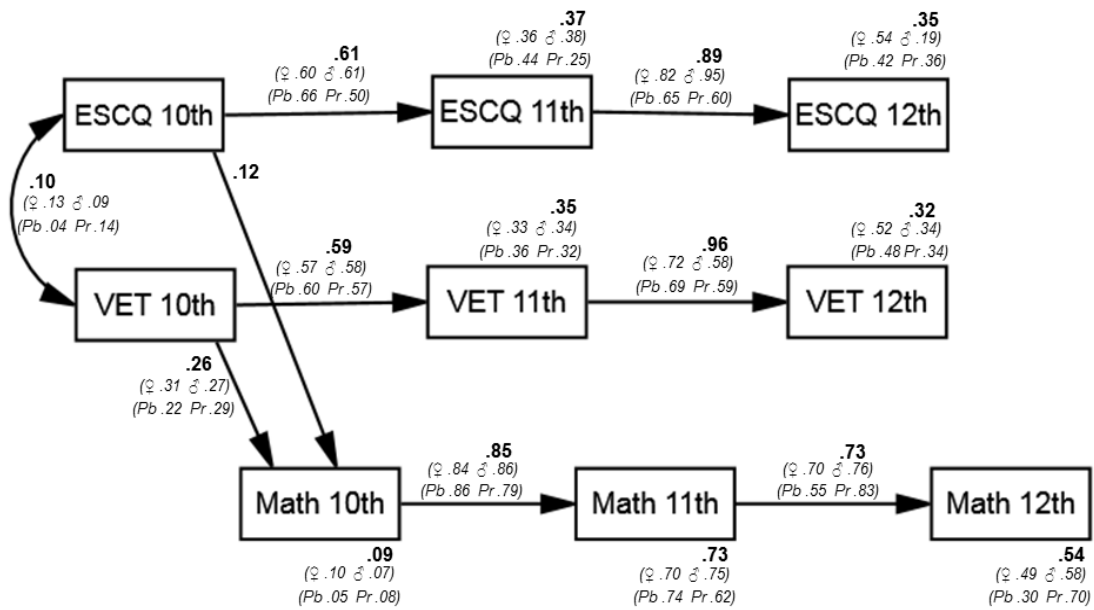
Figure 2. Path model depicting relationships between the EI variables and students' Portuguese grade throughout the secondary school. Note. Path coefficients represented are standardized and significant (p<.05). ESCQ - Emotional Skills and Competence Questionnaire; VET- Vocabulary of Emotions Test; Port – Portuguese Grade; 10th – 10th grade; 11th – 11th grade; 12th – 12th grade; ♀ - girls; ♂- boys; *Pb.-* Public school; *Pr.-* Private School.

3.1.3. A path analysis model of students' Mathematics grade

Path analyses were conducted to test the conceptualized relationships between the EI variables and students' mathematics grade during the secondary school. The first path model, including all paths between the EI variables and students' mathematics grade, disclosed satisfactory fit indices (CFI = .98, NFI = .98, GFI = .99, RMSEA = .03) and an insignificant chi-square test (X^2 (17, N=260) = 21.27, *p* = .22), but a second model, with the exclusion of the non-significant paths between the variables was tested and presented satisfactory fit indices (CFI = .99, NFI = .97, GFI = .97, RMSEA = .03) and an insignificant chi-square test (X^2 (25, N=260) = 30.58, *p* = .20). The model showed that both EI components, ESCQ and VET, in 10th grade predicted students' end-of-year mathematics grade in 10th grade.

Figure.3. Path model depicting relationships between the EI variables and students' Mathematic grade throughout the secondary school. Note. Path coefficients represented are standardized and significant (p<.05). ESCQ - Emotional Skills and Competence Questionnaire; VET- Vocabulary of Emotions Test; Math – Mathematic Grade; 10th – 10th grade; 11th – 11th grade; 12th – 12th grade; ♀ - girls; ♂- boys; *Pb.-* Public school; *Pr.-* Private School.

3.2. Group differences

Multi-group moderation analyses were used to identify whether the model and the path coefficients differ significantly between groups.

3.2.1. Model of students' GPA.

3.2.1.1. Gender differences.

The model of students' GPA previously defined (Fig.1) was tested for both gender groups and displayed appropriate fit indices (CFI = .99, NFI = .96, GFI = .96, RMSEA = .04, X^2 (46, N=206) = 75.26, *p* = .04). However, the inspection of model's scalar estimates revealed the non-significant prediction of students' GPA in 11th over VET 12th grade for both genders. Therefore, a model without this path was adjusted and achieved satisfactory fit to the data (CFI = .98, NFI = .96, GFI = .95, RMSEA = .05, X^2 (48, N=206) = 86.84, *p* = .00). Multi-group moderation was conducted in order to examine differences between gender groups. The significant chi-square differences between the unconstrained and the constrained model, ΔX^2 (10,

N=206) = 24.22, p=.07, suggested that the final model was found different by gender. After the analysis of CRD, the structural paths from ESCQ 10th to students' GPA 10th grade (CRD=-2.20, p<.05) and from VET 11th to students' GPA 11th (CRD=-2.95, p<.00) were identified to be significantly different across genders. In fact, while it was proven that ESCQ in 10th grade had a low but significant influence over boys' GPA in 10th grade (β=.03, p<.00), similar influence was not found for girl's achievement (p=.58), indicating that the levels of EI measured by the self-report measure did not contribute to the explanation of their overall achievement in the 10th grade. Also, although the level of VET in 11th grade had positive impact on girls GPA in 11th (β=.09, p<.001), this path of influence was not representative in boy's model (p=.99), representing the absence of influence of the EI, assessed by the performance measure, in boy's achievement in 11th grade.

The impact of early years students' GPA over the forthcoming GPA was also found significantly different between boys and girls (GPA 10th to GPA11^{th} (CRD=-2.02, p<.05) and GPA 11th to GPA 12th (CRD=2.13, p<.05)). In fact, while the influence of students' GPA in 10th grade over students' GPA in 11th grade was greater for boys (β=.98, p<.001) than girls (β =.89, p<.001), the impact of students' GPA from 11th to 12th grade was greater for girls (β=.87, p<.001) than boys (β=.77, p<.001), indicating that boys who had better levels of GPA in 10th grade would more likely have better GPA in 11th grade than girls, and girls who had better levels of GPA in 11th grade would more likely have better GPA in 12th grades than boys.

3.2.1.2. Type of school differences.

Regarding type school differences, the model for students' GPA was tested for both public and private school groups with appropriate fit indices (CFI = .97, NFI = .94, GFI = .95, RMSEA = .05, X^2 (48, N=229) = 99.42, p = .00). Still a partial model that did not contemplate a non-significant influence of ESCQ 10th grade over students' GPA in 10th grade was retested and displayed good fit to the data (CFI = .97, NFI = .94, GFI = .95, RMSEA = .05, (X^2 (50, N=229) = 101.97, p = .00). The multi-group moderation result in no significant differences among the two school types (ΔX^2 (10, N=229) =16.06, p= .10).

3.2.2. Model of students' Portuguese language grade

3.2.2.1. Gender differences

The model of students' Portuguese language (Fig. 2) established through the two gender groups presented a good fit to the data (CFI = .98, NFI = .95, GFI = .96, RMSEA = .05, X^2 (46, N=203) = 82.02, p = .00). The non-significant chi-square difference between the two models (ΔX^2 (9, N=203) = 15.05, p= .09), resultant of the multi-group moderation analysis indicated that there were no differences in the model concerning gender.

3.2.2.2. Type of school differences

The model of students' Portuguese language (Fig. 2) was retested for the type of school groups and displayed appropriate fit indices (CFI = .96, NFI = .93, GFI = .96, RMSEA = .06, X^2 (46, N=227) = 111.83, p = .00). The multi-group type of school moderation result in no significant differences (ΔX^2 (9, N=227) = 10.05, p= .35) revealing that the model did not differ between public and private schools either.

3.2.3. Model of students' Mathematics grade

3.2.3.1. Gender differences

Although the previously defined model of students' mathematics grade (Fig. 3) revealed good fit indices (CFI = .97, NFI = .93, GFI = .94, RMSEA = .05, X^2 (52, N=119) = 82.84, p = .00), when tested through the gender groups, the existence of a non-significant structural path between ESCQ 10th grade over students' mathematics grade in 10th grade for both genders, led to a model's improvement (excluding ESCQ 10th grade prediction over student's mathematics grade in 10th grade) and an appropriate fit to the data (CFI = .97, NFI = .93, GFI = .93, RMSEA = .05, X^2 (54, N=119) = 86.70, p = .00). The non-significant chi-square differences between the unconstrained and the constrained model, ΔX^2 (7, N=119) = 7.35, p=.39, indicated that the final model was not found difference by gender.

3.2.3.2. Type of school differences

The model was adjusted for both public and private school groups with appropriate fit indices (Fig 3.) (CFI = .97, NFI = .92, GFI = .93, RMSEA = .05,

X^2 (54, N=136) = 85.80, p = .00). However, the existence of a non-significant path for both groups (ESCQ 10th grade prediction over students' mathematics grade in 10th grade) led to its exclusion on a second model examination that provided good fit to the data (CFI = .97, NFI = .92, GFI = .93, RMSEA = .05, X^2 (56, N=136) = 89.19, p = .00). The multi-group type of school moderation resulted in significant differences among the students' mathematic grade model for the two types of school (ΔX^2 (7, N=136) = 25.18, p= .00). Concerning the analysis of the CRD, the path from students' mathematics grade in 11th grade to students' mathematics grade in 12th grade was identified as significantly different for private and public schools (CRD=-4.37, p<.00). The path coefficient for private schools (β=.80 p<.001) was greater than the coefficient for public schools (β=.46, p<.00), indicating that the students' from private schools who have better mathematics grades in 11th grade are more likely to have a better mathematics grade in 12th grade than students' from public schools.

4. Discussion

The present study contributed to the clarification of EI's predictive validity on students' scholastic achievement, by exploring, in particular, the impact of both performance and self-report measures of EI throughout the Portuguese secondary school. Results showed that EI can predict academic achievement which supports previous findings (e.g. Gil-Olarte, Martin, & Brackett, 2006; Lyons & Schneider, 2005; Mavroveli & Sanchez-Ruiz, 2011; Mestre, et al., 2006; O'Connor & Little, 2003; Parker et al., 2004; Petrides et al., 2004; Rode et al., 2007; Song et al., 2010).

In fact, although there was a positive and significant impact of EI over students' scholastic achievement, this weak to moderate effect tend to confirm the limited predictive power of EI in the academic context (O'Connor & Little, 2003; Rode et al., 2007). According to some studies EI is not highly predictive of students' performance (Brackett & Mayer, 2003; Brackett, Mayer, & Warner, 2004; O'Connor & Little, 2003) due to the fact that the academic context, differently from other settings (e.g. organizational), tends to request less diverse or more limited demands of their students, restraining the predictive power of EI in this particular context (Van Rooy & Viswesvaran, 2004).

Since both self-report and performance measures addressing EI in this study are included within the ability model which is more associated to the scholastic achievement (Song et al., 2010), it was theorized that they should independently and

uniquely be accountable for the explanation of students' academic performance. In fact, results revealed that both ESCQ and VET were able to predict students' scholastic achievement. Nonetheless, the performance EI measure revealed globally higher predictive power, proving to have almost twice the impact of the self-report measure over students' academic achievement. The fact that the performance measure requires cognitive skills to reason over a task (O'Connor & Little, 2003) may evoke similar cognitive abilities to the ones used by students to address school learning tasks. The congruence of the cognitive skills required by the performance measure can legitimize the stronger predictive power of this measure over the academic achievement.

Moreover, results revealed that not only the EI variables were able to predict students' achievement, but also the student's level of scholastic achievement could have an impact on their EI's level on the forthcoming years. The fact that VET could be influenced by student's ulterior GPA and Portuguese grade is based on their association to the required academic cognitive skills.

Overall, the fact that EI variables revealed a higher predictive power over students' GPA, than over Portuguese and Mathematics grades, can point out that GPA is a more representative indicator of student's achievement, as it takes into account the performance of the pupil across several fields. Following the higher predictive power over student's GPA, VET also attained a higher predictive power over student's Portuguese grade. As previously referred, VET assesses the emotional comprehension through athwart the exploration of the vocabulary of emotion. Since the assessment of VET's level is based on the verbal and linguistic dimensions the explanation for both the association and prediction of the Portuguese language stands out for itself. Unexpectedly, the self-report measure ESCQ revealed not to be a significant element in the Portuguese language grade prediction. This fact may be due to students' beliefs that their emotional competence didn't contributed to achieve better grades in this subject. Portuguese language, being their native language, can be faced by students as a transversal and continuous dominium in their education that they don't consider as demanding as other subjects. For instance, Mathematics in school settings is no rare times associated with anxiety (Ashcraft, 2002), which interferes with students' performance. Also, students' GPA it is one of the most important college selection indicators and students have to deal with the pressure of achieving the best grades possible in order to fulfill their professional ambitions. In this line, both mathematics grades and GPA might be considered by students as more demanding and require not only their actual cognitive abilities but also their perceptions of competence to manage that.

The academic level was found to exert a statistically significant influence in the prediction of students' achievement by the EI variables. In fact, the EI levels in 10th grade were more predictive of students' academic achievement than EI levels in 11th or 12th grade. In particular, the self-report measure only predicted students' performance in 10th grade. Likewise, age, associated to students' academic level progression, would also have a less important impact from the 11th grade to the end of secondary schooling. These results confirmed previous studies that indicated that the association between EI and students' academic achievement diminishes with the progression of the academic level (Perera & DiGiacomo, 2013). Nonetheless, these results may highlight the particular importance of 10th grade as a year of transition to secondary school, where students recognize the importance (according to their ESCQ results) and make use of their socio-emotional skills as socially adaptive response. However, this initial adaptation effect is likely to diminish as the process of learning tend to be, over time, more autonomous, self-directed and centered in students' personal aims. Also, the lower influences of age and academic level may also be attributed to the artifact effects of range restrictions at higher levels of schooling. Since students' progression to secondary levels depends directly on their prior achievement in cognitive assessments may lead to a less diverse array of cognitive variety in this setting (Hunter, Schmidt, & Le, 2006).

The gender exerted a moderate effect in the prediction of EI over student's overall achievement. The fact that the self-report measure of EI in 10th grade has proven to have a significant influence over boys' GPA in 10th grade, and none on girls', perhaps may indicate that the boy's perceptions of their emotional abilities could have an impact in their overall achievement. Working as a promoter of students' performance, their level of efficacy in emotional matters, besides their actual level of EI could also determine boys overall achievement. Moreover, while the level of VET in 11th grade had a positive impact only for girls' GPA in that year, could indicate that EI, in particular the understanding of emotion, although with a weaker prediction in 11th grade, was a more stable factor for girls' overall achievement during the secondary schooling.

In addition, the results demonstrated that while EI level seems to have a more determined impact over the forthcoming EI level, in the first two years of schooling for boys, the same effect is higher for girls on the last two years, which can reveal the higher stability of the emotional factors for boys in the initial period of secondary school and for girls in the final one. Furthermore, the fact that it was considered the global level of EI's self-report measure, may perhaps have conditioned these results, since possible gender differences at lower levels of EI were not explored.

Another finding of the study is that, in general, students from private and public schools do not differ in the prediction of EI over their scholastic achievement, indicating that EI had similar patterns of influence on students' academic performance attending both types of schools. In fact, these results are consistent with the recent literature which states that there are no substantial differences in the academic achievement between students from different types of school (Cherchye, et al., 2010) and highlight that the emotional aspects that can affect students' achievement work similarly in both contexts.

Although no differences were found related to the EI's prediction, considering mathematics grade, students from private schools that have a good grade in 11th grade were more likely to have a better mathematics grade in the upcoming year. This fact could indicate that students from private schools are more stable in terms of their performance in this academic subject, which could be explained by a more intensive work on this area or by the resources that private schools provide for their students both in and out of the classroom.

This study represents a significant step towards the clarification and understanding of the contribution of EI's influence in students' scholastic performance during secondary school, nonetheless, some limitations should be addressed. The fact that in this study the measure of performance used assessed the understanding of emotion, and did not cover all the EI dimensions, could have narrowed the presumable importance of EI influence on scholastic performance. Also, the ESCQ results were explored as a global score in order to simplify the models which could also be accountable for masking gender or school type moderate effects in EI prediction. Moreover, secondary school is by nature a students' selective context since it is more attainable by students with better grades, and this circumstance may have limited the cognitive diversity of this sample.

Future studies should extend this work, particularly examining the EI's prediction of students' academic achievement in earlier educational stages, where the less cognitive restriction of the sample could lead to higher predictive power of EI in the academic context. Moreover, the fact that secondary school achievement, due to its importance to further professional ambitions, could represent a source of pressure for students and that some academic subjects such as Mathematics can be associated with higher levels of anxiety (Ashcraft, 2002), stress the need of upcoming studies to integrate anxiety measures within the assessment of EI's predictive validity on secondary school context. Also, in order to confirm the present findings, future research should continue to explore the moderating effect of gender on EI's impact

over students' scholastic achievement and also deepen the understanding of the influence that other sociodemographic and academic variables might have on this prediction.

In spite of these limitations, the present study represents a precursory effort to explore the utility of the ability EI theoretical approach, using and comparing the self-report and performance methods, in the prediction of students achievement and to enhance the acknowledge of the influence of the EI in the academic settings.

5. References

Agnoli, S., Mancini, G., Pozzoli, T., Baldaro, B., Russo, P. M., & Surcinelli, P. (2012). The interaction between emotional intelligence and cognitive ability in predicting scholastic performance in school-aged children. *Personality and Individual Differences, 53,* 660-665.

Arbuckle, J. L. (2007). AMOS 17.0 update to the AMOS user's guide. Chicago, IL: Smallwaters.

Argyle, M., & Lu, L. (1990). Happiness and social skills. *Personality and Individual Differences, 11,* 1255-1261.

Arteche, A., Chamorro-Premuzic, T., Furnham, A., & Crump, J. (2008). The relationship of trait EI with personality, IQ and sex in a UK sample of employees. *International Journal of Selection and Assessment, 16,* 422–427.

Ashcraft, M. H. (2002). Math anxiety: Personal, educational, and cognitive consequences. *Current Directions in Psychological Science, 11*, 181–185.

Austin, E. J., Evans, P., Goldwater, R., & Potter, V. (2005). A preliminary study of emotional intelligence, empathy and exam performance in first year medical students. *Personality and Individual Differences, 39,* 1395–1405.

Barchard, K. A. (2003). Does emotional intelligence assist in the prediction of academic success? *Educational and Psychological Measurement, 63,* 840-858.

Barchard, K. A., & Hakstian, A. R. (2004). The nature and measurement of emotional intelligence abilities: Basic dimensions and their relationships with other cognitive ability and personality variables. *Educational and Psychological Measurement, 64,* 437-462.

Bar-On, R. (2010). Emotional Intelligence: an integral part of positive psychology. *South African Journal of Psychology*, *40(1)*, 54-62.

Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1994). *Losing control: How and why people fail at self-regulation.* San Diego, CA: Academic Press.

Bjarnason, T. (2000). Grooming for success? The impact of adolescent society on early intergenerational social mobility. *Journal of Family and Economic Issues, 21,* 319-342.

Brackett, M. A., & Mayer, J. D. (2003). Convergent, discriminant and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin, 29,* 1147-1158. doi: 10.1177/0146167203254596

Brackett, M. A., Mayer, J. D., & Warner, R. M. (2004). Emotional intelligence and its relation to everyday behavior. *Personality and Individual Differences, 36,* 1387–1402. doi:10.1016/S0191-8869(03)00236-8

Cherchye, L., Witte, K. D., Ooghe, E., & Nicaise, I. (2010). Efficiency and equity in private and public education: a nonparametric comparison*. European Journal of Operational Research, 202* (2), 563-573.

Ciarrochi, J., Chan, A., Caputi, P., & Roberts, R. (2001). Measuring emotional intelligence. In J. Ciarrochi, J. P. Forgas, & J. D. Mayer (Eds.), *Emotional intelligence in everyday life: A scientific inquiry* (pp. 25-45). Philadelphia: Taylor & Francis.

Colom, R., & Flores-Mendoza, C. E. (2007). Intelligence predicts scholastic achievement irrespective of SES factors: Evidence from Brazil. *Intelligence, 35,* 243-251. http://dx.doi.org/10.1016/j.intell.2006.07.008.

Costa, A., Faria, L., & Takšic, V. (2011). Vocabulary of Emotions Test (VET): A cross-cultural validation in Portuguese and Croatian contexts. *Psychological Topics, 21*(3), 413-424.

Côté, S. (2010). Taking the ''intelligence'' in emotional intelligence seriously. *Industrial and Organizational Psychology, 3*, 127–130.

Davies, M., Stankov, L., & Roberts, R.D. (1998). Emotional intelligence: In search of an elusive construct. *Journal of Personality and Social Psychology*, *75*, 989-1015. doi:10.1037/0022-3514.75.4.989

Deary, I. J., Strand, S., Smith, P., & Fernandes, C. (2007). Intelligence and educational achievement. *Intelligence, 35,* 13-21.

Denham, S. A. (2007). Dealing with feelings: How children negotiate the worlds of emotions and social relationships. *Cognitions, Brain, Behavior, 11,* 1-48.

Duckworth, A. L., & Seligman, M. E. P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents*. Psychological Science, 16*(12), 939-944.

Center on Education Policy (CEP) (2007). *Are private high schools better academically than public high schools?* Retrieved from http://www.edline.com/uploads/pdf/PrivateSchoolsReport.pdf

Elias, M. J., Bruene-Butler, L., Blum, L., & Schuyler, T. (1997). How to launch a social and emotional learning program. *Educational Leadership, 54,* 15-19.

Elliot, A. J., & Dweck, C. S. (2005). Competence and motivation: Competence as the core of achievement motivation. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 3-12). New York: The Guilford Press.

Faria, L., Lima Santos, N., Takšić, V., Räty, H., Molander, B., Holmström, S. et al. (2006). Cross-cultural validation of the Emotional Skills and Competence Questionnaire (ESCQ). *Psicologia, 2,* 95-127.

Farsides, T., & Woodfield, R. (2003). Individual differences and undergraduate academic success: The roles of personality, intelligence, and application. *Personality and Individual Differences, 34,* 1225-1243.

Furnham, A., & Rawles, R. (1999). Correlations between self-estimated and psychometrically measured IQ. *Journal of Social Psychology, 139*, 405-410.

Gable, S. L., & Haidt, J. (2005). What (and why) is positive psychology? *Review of General Psychology, 9*(2), 103-110.

Gil-Olarte Marquez, P. G., Martin, R. P., & Brackett, M. A. (2006). Relating emotional intelligence to social competence and academic achievement in high school students. *Psicothema, 18,* 118-123.

Goetz, T., Frenzel, C. A., Pekrun, R., & Hall, N. (2005). Emotional intelligence in the context of learning and achievement. In R. Schulze & R. D. Roberts (Eds.), *Emotional intelligence: An international handbook* (pp. 233–253). Cambridge, MA: Hogrefe & Huber.

Goldenberg, I., Matheson, K., & Mantler, J. (2006). The assessment of emotional intelligence: A comparison of performance-based and self-report methodologies. *Journal of Personality Assessment, 86,* 33-45.

Goleman, D. (1995). *Emotional intelligence.* New York: Bantam Books.

Greenberg, M. T., Weissberg, R. P., O'Brien, M.U., Zins, J.E., Fredericks, L., Resnik, H., & Elias, M.J. (2003). Enhancing school-based prevention and youth development through coordinated social and emotional learning. *American Psychologist, 58,* 466-474.

Hein, S., Tan, M., Aljughaiman, A., & Grigorenko, E. L. (2014, August 11). Gender differences and school influences with respect to three indicators of general intelligence: Evidence from Saudi Arabia. *Journal of Educational Psychology.* Advance online publication. http://dx.doi.org/10.1037/a0037519

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structure Equation Modeling, 6*, 1-55.

Hunter, J. E., Schmidt, F. L., & Le, H. (2006). Implications of direct and indirect range restriction for meta-analysis methods and findings. *Journal of Applied Psychology, 91,* 594–612.

Kong, D. T. (2014). Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT/MEIS) and overall, verbal, and nonverbal intelligence: Meta-analytic evidence and critical contingencies. *Personality and Individual Differences, 66*, 171-175.

Lopes, P. N., & Salovey, P. (2004). Toward a broader education. In H.J. Walberg, M.C. Wang, R.J.E. Zins & P. Weissberg (eds.): *Building school success on social and emotional learning* (pp. 79-93). New York: Teachers College Press.

Lopes, P. N., Salovey, P., & Straus, R. (2003). Emotional intelligence, personality, and the perceived quality of social relationships. *Personality and Individual Differences, 35,* 641-658.

Lyons, J. B., & Schneider, T. R. (2005). The influence of emotional intelligence on performance. *Personality and Individual Differences, 39,* 693-703.

Kline, R. B. (2010). *Principles and practice of structural equation modeling* (3rd ed.). New York, NY: Guilford.

MacCann, C., Fogarty, G., Zeidner, M., & Roberts, R. (2011). Coping mediates the relationship between emotional intelligence (EI) and academic achievement. *Contemporary Educational Psychology, 36*(1), 60-70.

Matthews, G., Roberts, R. D., & Zeidner, M. (2003). Development of emotional intelligence: A skeptical - but not dismissive - perspective. *Human Development, 46,* 109-114.

Matthews, G., Roberts, R. D., & Zeidner, M. (2004). Seven myths about emotional intelligence. *Psychological Inquiry, 15,* 179-196.

Mavroveli, S., & Sanchez-Ruiz, M. J. (2011). Trait emotional intelligence influences on academic achievement and school behavior. *British Journal of Educational Psychology, 81,* 112-134.

Mayer, J. D. (2001). A field guide to emotional intelligence. In J. Ciarrochi, J. P. Forgas, & J. D. Mayer (Eds.), *Emotional intelligence in everyday life* (pp. 3-24). Philadelphia: Taylor & Francis.

Mayer, J. D., Caruso, D., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence, 27*, 267–298.

Mayer, J. D., Caruso, D. R., & Salovey, P. (2000). Emotional intelligence meets traditional standards for an intelligence. *Intelligence, 27,* 267-298.

Mayer, J. D., Roberts, R. D., & Barsade, S. G. (2008). *Human abilities: Emotional intelligence. Annual Review of Psychology, 59,* 507–536.

Mayer, J. D., & Salovey, P. (1993). The intelligence of emotional intelligence. *Intelligence, 17,* 443-450.

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

Mayer, J. D., Salovey, P., & Caruso, D. (2004). Emotional intelligence: Theory, findings, and implications. *Psychological Inquiry, 15,* 197-215.

McLaughlin, G. W., Brozovsky, P. V., & McLaughlin, J. S. (1998). Changing perspectives on student retention: A role for institutional research. *Research in Higher Education, 39,* 1–17.

Mestre, J. M., Guil, R., Lopes, P. N., Salovey, P., & Gil-Olarte, P. (2006). Emotional intelligence and social and academic adaptation to school. *Psicothema, 18,* 112-117.

Neisser, U., Boodoo, G., Bouchard, T. J., Boykin, A. W., Brody, N., Cesi, S. J., et al. (1996). Intelligence: Knowns and unknowns. *American Psychologist, 51,* 77-101.

Newcomb, M. D., Abbott, R. D., Catalano, R. F., Hawkins, J. D., Battin-Pearson, S., & Hill, K. (2002). Mediational and deviance theories of late high school failure: Process roles of structural strains, academic competence, and general versus specific problem behavior. *Journal of Counseling Psychology, 49,* 172-186.

Newsome, S., Day, A. L., & Catano, V. M. (2000). Assessing the predictive validity of emotional intelligence. *Personality and Individual Differences, 29*(6), 1005-1016.

O'Connor, R. M. Jr., & Little, I. S. (2003). Revisiting the predictive validity of emotional intelligence: Self-report versus ability-based measures. *Personality and Individual Differences, 35*, 1893-1902.doi:10.1016/S0191-8869(03)00038-2

Pasi, R. J. (1997). Success in high school and beyond. *Educational Leadership, 54,* 40-42.

Parker, J. D. A., Creque, S., Barnhart, D. L., Harris, J. I., Majeski, S. A., Wood, L. M., et al. (2004). Academic achievement in high school: Does emotional intelligence matter? *Personality and Individual Differences, 37,* 1321-1330.

Parker, J. D. A., Summerfeldt, L. J., Hogan, M. J., & Majeski, S. A. (2004). Emotional intelligence and academic success: Examining the transition from high school to university. *Personality and Individual Differences, 36,* 163-173. http://dx.doi.org/10.1016/S0191-8869(03)00076-X.

Paulhus, D. L., Lysy, D. C., & Yik, M. S. M. (1998). Self-report measures of intelligence: Are they useful as proxy IQ tests? *Journal of Personality, 66,* 525-554. doi: 10.1111/1467-6494.00023

Perera, H., & DiGiacomo, M. (2013). The relationship of trait emotional intelligence with academic performance: A meta-analytic review. *Learning and Individual Differences, 28,* 20-33.

Petrides, K. V. (2009). *Technical manual for the Trait Emotional Intelligence Questionnaires (TEIQue)* (1st edition, 4th printing) London: London Psychometric Laboratory.

Petrides, K. V., Frederickson, N., & Furnham, A. (2004). The role of trait emotional intelligence in academic performance and deviant behavior at school. *Personality and Individual Differences, 36,* 277-293. http://dx.doi.org/10.1016/S0191-8869(03)00084-9.

Petrides, K. V., & Furnham, A. (2000). On the dimensional structure of emotional intelligence. *Personality and Individual Differences, 29,* 313-320.

Petrides, K. V., Furnham, A., & Mavroveli, S. (2007). Trait emotional intelligence: Moving forward in the field of EI. In G. Matthews, M. Zeidner, & R. Roberts (Eds.), *Emotional intelligence: Knowns and unknowns (Series in Affective Science).* Oxford: Oxford University Press.

Poropat, A. E. (2011). The Eysenckian personality factors and their correlations with academic performance. *The British Journal of Educational Psychology, 81,* 41-58.

Qualter, P., Gardner, K. J., Pope, D. J., Hutchinson, J. M., & Whiteley, H. E. (2012). Ability emotional intelligence, trait emotional intelligence, and academic success in British secondary schools: A 5-year longitudinal study. *Learning and Individual Differences, 22*(1). pp. 83-91.

Rode, J. C., Mooney, C. H., Arthaud-Day, M. L., Near, J. P., Baldwin, T. T., Rubin, R. S., & Bommer, W.H. (2007). Emotional intelligence and individual performance: Evidence of direct and moderated effects. *Journal of Organizational Behavior, 28,* 399-421.

Rode, J. C., Mooney, C. H., Arthaud-day, M. L., Near, J. P., Rubin, R. S., Baldwin, T. T., & Boomer, W. H. (2008). An examination of the structural, discriminant, nomological, and incremental predictive validity of the MSCEIT© V2.0. *Intelligence, 36,* 350-366.

Saarni, C. (1999). *The development of emotional competence.* New York: The Guilford Press.

Salovey P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality, 9,* 185-211.

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

Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., et al. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25,* 167-177.

Song, L. J., Huang, G., Peng, K. Z., Law, K. S., Wong, C., & Chen, Z. (2010). The differential effect of general mental ability and emotional intelligence on academic performance and social interactions. *Intelligence, 38,* 137-143.

Sternberg, R. J. (1988). *The triarchic mind: A new theory of human intelligence*. New York: Cambridge University Press.

Stocker, J., & Faria, L. (2012). Competência percebida no Ensino Secundário: do conceito à avaliação através de um questionário compósito. [Competence in Secondary School: from conceptualization to assessment through a composite questionnaire]. *Psicologia, 21*(2), 113-140.

Takšic, V., Herambasic, D., & Velemir, B. (2003). *Verbal Emotional Test* (VET 35). Rijeka: Authors' edition.

Takšic, V., & Mohoric, T. (2008, july). *Vocabulary of Emotion Test (VET): Ability measure of emotional intelligence.* Paper presented at the *XXIX International Congress of Psychology*, Berlin/Germany.

Takšić, V., Mohorić, T., & Duran, M. (2009). Emotional Skills and Competence Questionnaire (ESCQ) as a self-report measure of emotional intelligence. *Horizons of Psychology, 18*, 7-21.

Van Rooy, D. L., & Viswesvaran, C. (2004). Emotional Intelligence: A meta-analytic investigation of predictive validity and nomological net. *Journal of Vocational Behavior, 65*, 71-95.

Witte, J.F. (1992). Private school versus public school achievement: Are there findings that should affect the educational choice debate? *Economics of Education Review, 11*(4), 371–394.

Zeidner, M., Matthews, G., & Roberts, R. D. (2001). Slow down, you move too fast: Emotional intelligence remains an ''elusive'' intelligence. *Emotion, 1,* 265-275.

Zeidner, M., Roberts, R. D., & Matthews, G. (2002). Can emotional intelligence be schooled? A critical review. *Educational Psychologist, 37,* 215-231.

Footnotes

[1] In Portugal, the public and private schools adhere and follow to state guidelines regarding the subjects to be taught in every grade. The private school differs from the public school type mainly in funding matters. While public schools don't charge fees of their students and are financed by public sources, the private school charges their students for their programs. Some of the private institutions can also receive public funding, but their central source of income is student's fee. Moreover, while public schools accept all subjects of their local area, private schools can admit students based in their academic or behavioral standards. Private schools are, therefore, grounded in a more academic and economic selective context. In the secondary Portuguese context, the rate of mobility from public to private school is significant, and no rare times, students attending public institutions seek to enter in the private schools due to their more personalized and demanding accompaniment in this determinant academic stage.

[2] In Portugal, the Secondary Education Level follows the Basic Education stage of 9 years. It applies to adolescents aged from 15 to 18 years-old, which correspond to the 3rd level of the International Standard Classification of Education (ISCED). The secondary school lasts for 3 years, comprising the 10th, 11th and 12th grades. The access to the secondary school is achieved after the successful accomplishment of the Basic Education. From 2009 on, with the Law n. º 85/2009 the secondary school became universal, free and compulsory.