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The moderating role of emotional intelligence in the association between parenting practices and academic achievement among adolescents

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Abstract
The study examined the interactive links among parenting practices, trait emotional intelligence and academic achievement, as well as the moderating role of overall and dimensional (i.e., well-being, self-control, emotionality, sociability) trait emotional intelligence in this association among 250 Greek adolescents via self-report. The role of gender has been also examined. Female students perceived more parental behavioral control and scored higher in language achievement than males who scored higher in trait emotional intelligence and in science achievement. Behavioral control was positively correlated with overall and language achievement, whereas psychological control was negatively correlated with overall, language and science achievement. Moderation analyses showed that overall trait emotional intelligence, well-being and self-control increased the effect of parenting practices on academic achievement in language (for males) and science (for females). These results have implications for understanding the potentially beneficial role of adolescents' trait emotional intelligence in the parenting - academic achievement association.

Keywords Parenting practices · Trait emotional intelligence · Academic achievement

Successful adolescent development is an intergenerational process, where teens are responsible for being open to and taking advantage of new experiences, and adults for providing them with nourishing, mature-enhancing opportunities (Roeser et al. 2000). Parenting practices (i.e., specific strategies for achieving children's adaptation, maintaining control and fulfilling nurture's expectations; Frick et al. 2010) appear to be powerful predictors of adolescents' emotional, behavioral and academic development. Darling and Steinberg (1993) argued that parenting is a blend of parental practices, parental goals and parental style (i.e., the psychological climate in which parents manifest their behaviors). According to family systems theory, family is a system of relationships that change in response to changing needs and concerns of family members.

Adolescence is thought to bring new capacities for emotion knowledge and management skills (Larson and Brown 2007). Although the amount of time spent with family declines as children grow older, the quality of parent- child relationship plays a vital role in emotional development. It has been suggested that specific parenting practices, such as support (i.e., warmth, acceptance, involvement) and control (behavioral and psychological) bear an important influence on adolescents' psychological and behavioral adjustment, including academic achievement (Russell et al. 2010).

In an effort to better understand the relationship between parenting practices, adolescents' emotional development and academic outcomes, the present study was set out to explore the association between these variables. Additionally, to shed more light in these relationships, the moderating role of trait EI in the association between parenting practices and academic achievement was also investigated, since no study to date has explored these links.

I declare that the study was not submitted to an IRB and therefore there is no institutional decision regarding the administration of this study. For this reason, we have provided detailed description about the way the study was conducted.

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Parenting and Academic Achievement

Baumrind's (1967) parenting typology has provided solid evidence that authoritative parenting is linked to positive outcomes, whereas authoritarian parenting is more likely to result in a variety of psychological and behavioral problems (Steinberg 2001). Gray and Steinberg (1999) introduced three separate components of authoritative parenting: acceptance (i.e., warmth), behavioral and psychological control, which appear to have differential effects on adolescents' behavior and academic achievement. Studies on Canadian and American students including all ethnic groups (European, Latino-Americans, African-Americans, Asian-Americans Filipinos and Native-Americans) suggest that authoritative parenting is positively related to academic performance (Areepattamannil 2010; Rosenzweig 2001), especially to higher scores in reading and math, compared to authoritarian and permissive parenting style (Masud et al. 2015). According to the Parental Acceptance- Rejection Theory, warmth is related to the quality of the affectional bond between parents and their children (Rohner et al. 2012), and to better school performance (Hill and Wang 2015; Rosenzweig 2001). Thus, adolescents who perceive warmth, love and care by their parents tend to have higher GPA (Gisladóttir 2013; Kristjansson and Sigfúsdóttir 2009). However, parenting practices are differentially associated with different ethnic group and have varied impact on students' school performance, as it has been found that authoritative parenting combined with other positive practices (i.e., engagement, parent participation in school, grade expectations) is of particular importance to Asian-Americans and Latino-Americans in comparison to European-American and African-American students. Conversely, emotional support was not as influential for Asian-American and Latino-American as for European-American students (Rosenzweig 2001). On the other hand, Bean et al.'s (2003) study with a European American sample, showed that parental support/acceptance did not predict adolescents' academic achievement. Although parental support was significantly associated to academic achievement, when parental support, behavioral and psychological control were simultaneously examined as predictors, behavioral and psychological control had the stronger predictive value. This is in accordance with evidence suggesting that white students experience the greatest detrimental effects of parental control (Rosenzweig 2001). It is therefore possible that the association between authoritative style and academic achievement maybe not consistent across cultures, ethnicity and socioeconomic status (e.g., Masud et al. 2015).

In terms of behavioral control, research findings seem rather controversial probably due to the term's conceptual overlap with monitoring. Hence, some researchers claim that parental monitoring of adolescents' everyday life contributes to better academic performance (Hill and Wang 2015; Rosenzweig 2001). Indeed, Kristjansson and Sigfúsdóttir (2009) have found that reasonable monitoring is conducive to better academic achievement. Furthermore, parental monitoring had the strongest positive association with mathematics grades (Gisladóttir 2013). However, others have found contradicting evidence, in that parental monitoring was negatively associated with academic achievement (Areepattamannil 2010; Boonk et al. 2018), and that parental behavioral control was related to lower academic achievement, especially when the father's involvement is higher (Kramer 2012).

Psychological control, in contrast, refers to manipulative parenting behaviors, such as guilt-induction, shaming, and creating an environment in which acceptance is contingent on the offspring's behavior, that interfere in children's thoughts and feelings (Barber 1996). This type of control has been found to bear a negative association with adolescents' academic performance (Pinquart 2016; Rosenzweig 2001; Xiang et al. 2017). Psychological control is positively related to mastery avoidance and performance avoidance goals, which are associated with school adjustment variables, such as academic achievement, in a maladaptive manner (Xiang et al. 2017).

Emotional Intelligence

There are three popular models describing EI. According to Mayer, Salovey and Caruso's model (1999), EI is perceived as an ability that encompasses four different abilities or skills (i.e., identifying, using, understanding, and managing emotions). Goleman's mixed model (1995) considers EI as a set of personal and social abilities that determine how a person manages him/herself and his/her interpersonal relationships (Mayer et al. 2000). Finally, Petrides and Furnham (2000a, 2000b, 2001) propose the distinction of EI as a trait and as an ability. Trait EI (or emotional self-efficacy) refers to a constellation of behavioral dispositions and self-perceptions, measured via self-report, concerning one's ability to recognize, process and utilized emotion-laden information. It includes various dispositions from the personality domain (empathy, impulsivity, and assertiveness), element of social (Thorndike, 1920) and personal intelligence (Gardner, 1983). On the other hand, ability EI refers to the individual's actual ability to recognize, process and use emotional data, measured via performance-based tests (Aslanidou et al. 2018; Petrides et al. 2004; Petrides et al. 2007).

This study is grounded on trait EI theory, because it has several advantages compared to other models. Firstly, it acknowledges the inherent subjectivity on emotional experience; it is not associated with specific proprietary tests but rather it is general and gives a platform for interpretation of data from any questionnaire of EI or related constructs and finally, trait EI theory is readily extendable into cognate areas, such as social intelligence, and is not restricted to a single

idiosyncratic model (Petrides 2010). Petrides et al. (2007) sought to determine the location of trait EI in Eysenckian and Big Five factor space and they showed that trait EI is a distinct, compound construct that encompasses the emotional related personality's facets and lies at the lower levels of personality hierarchies. Thus, the trait EI framework provides an operationalization of emotional-related perceptions that can be integrated into the mainstream personality's taxonomies. Global trait EI consists of four factors: self-control, well-being, emotionality, sociability. Self-control refers to emotion control, stress management and impulse control. Well-being refers to self-esteem, trait happiness and trait optimism. Emotionality has to do with emotion perception (self and others), emotion expression, relationships and trait empathy. Finally, sociability refers to social awareness, emotion management, assertiveness, adaptability and self-motivation (Petrides et al. 2016).

In this study the trait EI questionnaire – Adolescent Short Form was used, because it measures global trait EI as well as four trait EI factors. In addition, the questionnaire has three significant advantages: 1) provides a direct route to the theory of trait EI, 2) offers comprehensive coverage of the trait EI sampling domain, and 3) it has better predictive validity (Petrides and Mavroveli 2018).

Trait EI and Academic Achievement

Research over the past few years has integrated EI among the determinants of academic performance. Emotional intelligence is presumed to contribute to the advancement of thinking and to the ability to manage emotions in anxious situations, such as taking part in standardized tests (Brackett et al. 2011). Regarding the trait EI, results from Greek and international studies are not consistent, as they do not reach a common conclusion. However, trait EI theory suggests that the construct should not show direct and strong relationship with cognitive ability or its close proxies, like academic achievement (Petrides and Mavroveli 2018). Thus, although Parker et al. (2004) found global trait EI to be a significant predictor of academic achievement, a study by Platsidou (2005) with a Greek sample reported low but significant correlations between academic achievement and trait EI. In the same line, a meta-analysis by Perera and DiGiacomo (2013) indicated that high trait EI may confer a modest yet important advantage in academic evaluation settings, while a study by Stamatopoulou et al. (2015) found that global trait EI did not have a strong correlation with academic achievement. Petrides et al. (2004) have also reported no significant correlation between trait EI and academic achievement except of a moderating effect according to which trait EI was positively linked to academic achievement in low IQ students. These findings are in line with Rodeiro et al.'s (2009) study claiming that trait EI may offer an advantage for lower ability students and for certain subjects.

In addition, studies have demonstrated that trait EI dimensions are positively associated with academic achievement. Stamatopoulou et al. (2015) advocated the significant association between sociability and school achievement. Parker et al. (2004) examining the transition from high school to university found that adaptability, stress management and intrapersonal abilities (recognizing and understanding one's feelings) were significant predictors of academic performance. Other studies demonstrated that well-being and emotionality were positively related to academic achievement (Gräbel 2017; Gumora and Arsenio 2002).

Trait EI has been also found to be differentially associated with performance in various school subjects. Mancini et al. (2017) and Petrides et al. (2004) demonstrated that global trait EI did not have a significant impact on mathematics as opposed to language and GPA. Trait EI's factor, self- control, emerged as an important predictor for math and language grades, while sociability predicted only language achievement (Mancini et al. 2017). Rodeiro et al. (2009) suggested that the self-control factor of trait EI was associated with better achievement in math, while most of the trait EI factors, except for the sociability factor and the global trait EI score, had a positive effect on science achievement, especially for students with lower ability. They also found that all trait EI factors, as well as the global trait EI score had a positive effect on language achievement. Similarly, Downey et al. (2008) found that emotion management and control may have an impact on math and science achievement.

Parenting and Trait EI

The proponents of the EI argue that authoritative parenting, including warmth and involvement, is positively related to trait EI, both global and dimensional (Argyriou et al. 2016). Alegre (2011) reported that parental warmth was positively linked to children's emotion knowledge, understanding and regulation. It has further been found that parental involvement was related to adolescents' psychological well-being and self-esteem (Flouri and Buchanan 2003). Authoritative parenting also bears a positive association with the level of children's and adolescents' happiness (Argyriou et al. 2016).

Moreover, parental monitoring has been found to be positively associated to trait EI, while punitive discipline was correlated to lower levels of emotion understanding and regulation (Alegre 2011). Also, moderate behavioral control may be beneficial for adolescents' emotional well-being (Russell et al. 2010). On the other hand, parents who provide high control and low care affect negatively adolescents' trait EI. Thus, psychological control was found to negatively predict trait EI (Gugliandolo et al. 2015a, 2015b).

Overall, despite the extensive research on parenting style, studies on the relationship between specific parenting practices and overall and dimensional trait EI are scarce.

The Role of Gender

Gender seems to differentiate parenting practices, trait EI and academic achievement. Thus, it has been shown to affect parental control and parenting style, while it seemed to not differentiate the level of warmth that teens received from parents. At the same time, it has been suggested that girls are monitored more than boys (Kristjansson and Sigfúsdóttir 2009). Varner and Mandara (2014), and Smetana and Daddis (2002) have also found that girls were more supervised and less autonomous in decision-making than boys, while Duchesne and Ratelle (2010) claim the opposite. In terms of parental style, a study by Mathibe (2015) found gender differences in favor of boys for the permissive and authoritative styles, while Olivari et al.'s (2015) study demonstrated that boys perceive their parents as being more authoritarian and permissive than girls. Regarding trait EI, the findings of empirical research are rather contradictory. Some researchers suggest that boys are superior in global trait EI (Argyriou et al. 2016; Stamatopoulou et al. 2015), while others claim the opposite (Ciarrochi et al. 2001). At the same time, each gender's superiority depends on the trait EI dimensions, as females are superior in some trait EI dimensions, while males are superior in others (Gugliandolo et al. 2015a, 2015b; Stamatopoulou et al. 2015). Stamatopoulou et al. (2015) have found that males scored higher on well-being and self-control, while Gugliandolo et al. (2015a, 2015b) study has found that males scored higher on self-control, sociability and well-being except emotionality. Other studies have demonstrated males' superiority in sociability and self-control and females' superiority in emotionality (i.e., Mikolajczak et al. 2007). However, Poulou's (2010) study found no gender differences in trait EI among Greek adolescents.

Gender has also been found to differentiate academic achievement. Voyer and Voyer (2014) found that girls had better academic achievement than boys, while Downey and Vogt Yuan (2005) suggested that gender differences in performance depend on the school subject, as they were evident for girls in language and for boys in mathematics.

Trait EI Moderates the Association between Parenting and Academic Achievement

Trait EI theory suggests that trait EI should not have direct and strong associations with cognitive ability and its proxies, like academic performance (Petrides and Mavroveli 2018). However, trait EI has been found as a moderator in several relationships. Petrides et al. (2004) suggest that trait EI moderates the relationship between cognitive ability and academic achievement. For students with low cognitive ability, high trait EI may improve their performance, since it enables them to handle more effectively emotional stress and anxiety.

Although, the association between trait EI and academic achievement has been well documented (Downey et al. 2008; Parker et al. 2004; Platsidou, 2005), as well as between trait EI and parenting (Alegre 2011; Argyriou et al. 2016), no study to date has explored the moderating role of trait EI in the association between parenting dimensions and academic achievement. It is therefore likely that high trait EI adolescents who perceive their parents as less behaviorally and psychologically controlling, and at the same time warmer and more involved are more likely to be high achievers. On the contrary, low in trait EI adolescents who perceive their parents as controlling, both behaviorally and psychologically, and less warm and involved, may be low achievers. Along the same line, high trait EI adolescents who perceive their parents as less authoritative may show high achievement suggesting that high trait EI may buffer the adverse effects of bad parenting on academic achievement.

Therefore, to clarify the association between dimensions of parenting and academic achievement a moderation model was tested to explicate the interplay between parenting and trait EI in the prediction of academic achievement. Another important aspect of this study is that it will examine the moderating role of each of the four dimensions of trait EI, as defined by Petrides et al. (2016), along with its total score. It is expected that a better picture will emerge regarding the role each one of the dimensions play in the association between parenting and academic achievement, and therefore the results will better inform prevention and intervention practices.

The Cultural Context of the Study, SES and Ethnicity

Parent-child interaction cannot be viewed independent of the cultural context, as this framework defines parents' values, beliefs and goals of socializing for their children. An important dimension of cultural differences is the individualism-collectivism distinction which affects parental behavior (Triandis 2001) and refers to the way individuals perceive themselves in relation to other members of the society. The individualism-collectivism as well as other dimensions of culture, such as avoidance of certainty, and long-term orientation affect the expression of emotions (Bhullar et al. 2012). At the same time, the dimensions of the power distance and the bipolar femininity / masculinity affect the regulation of emotions (Gunkel et al. 2014).

Greece is in a transition from collectivism to individualism (Georgas 1989). Family loyalty, adherence to group norm, and maintenance of harmony in relationships with group members, all these behaviors are promoted by Greek culture. This type of value system is related to severe and controlling parenting practices. Thus, the significance of conformity and obedience to parents' rules are underlined (Zervides and Knowles 2007). Greek parents are protective and highly involved in child-rearing. Filus et al. (2019) study conducted in four European countries (Greece, Norway, Poland, Switzerland), which differ in patterns of values and living conditions, revealed a differential role of Greek fathers' responsiveness and autonomy granting as opposed to fathers from the other countries. They found that in Norway, Poland and Switzerland paternal responsiveness was significantly associated with late adolescents' functional and psychological connectedness, whereas in Greece it was paternal autonomy granting, which had significant and negative association with psychological and functional connectedness. Greece represents the Mediterranean family model, where the strictly hierarchical family roles provide economic power to the father who controls the other family members in an authoritarian manner (Georgas 1991). Further, a recent study shows that despite the fact that Greek fathers are perceived by their offsprings as predominantly authoritative, they also score high on parental strictness (Antonopoulou et al. 2012). Thus, autonomy granting may play more crucial role rather than responsiveness in Greek late adolescents' individuation, which is considered as the central adolescence' s task that has significant effect on life outcomes, such as academic achievement and emotional adjustment (Filus et al., 2019).

Research has suggested that family socioeconomic status (SES) might also play a role in the relationship between parenting practices and adolescent's developmental outcomes. For example, it has been found that parental education and number of parents in the home were related to parental disciplinary practices (Spera 2005). A study by Shumow et al. (1998) claims that lower family income, less parental education, single parent households and maternal unemployment were associated with greater parental harshness, which in turn was related to children's poorer academic achievement. Emotional distress of caregivers caused by economic pressure is linked to disrupted parenting practices and lower positive child adjustment (Conger et al. 2002). However, low SES does not guarantee authoritarian parenting. Grimm-Thomas and Perry-Jenkins (1994) suggest that low SES, working-class fathers used more positive and supportive parenting practices when they had positive work experiences.

Furthermore, ethnicity has been found to affect parenting practices. African-American parents reported being harsher and less permissive than white parents (Shumow et al. 1998), while parents of Chinese-American adolescents were stricter than European-American parents (Lin and Fu 1990). Ethnicity has also been found to moderate the association between student' s achievement and parenting practices (Masud et al. 2015; Rosenzweig 2001).

The Present Study

The present study was set out to explore the relationship between parenting practices, trait emotional intelligence, and academic performance in a sample of Greek adolescents. Moreover, it has been suggested that parenting practices, trait EI and academic achievement depend on adolescents' gender (i.e., Argyriou et al. 2016; Varner and Mandara 2014; Voyer and Voyer 2014). Therefore, the way adolescents' gender differentiates these variables will be also examined.

In addition, the present study will provide evidence for the Greek cultural context which is in a transition from collectivism to individualism. Thus, the purpose of the study is to investigate the moderating role of trait EI (overall and its dimensions) in the association between parenting practices (warmth/ involvement, behavioral and psychological control) and academic achievement (total and per school subject). The research also aimed to examine the gender differences in parenting practices, trait EI (overall and its dimensions) and academic achievement (total and per school subject).

This study will therefore address the following research questions: (1) Is there an association between parenting practices and academic achievement (total and per school subject)? (2) Is there a correlation between parenting practices and trait EI (overall and its dimensions)? (3) Is trait EI (overall and its dimensions) linked to academic achievement (total and per school subject)? (4) Does adolescents' gender differentiate participants' responses? (5) Does trait EI (overall and its dimensions) moderate the association between parenting practices and academic achievement (total and per school subject)?

Method

Participants

The sample consisted of 250 Greek Senior High School graders attending two public schools in the region of Attica, Greece.108 were boys (43,2%) and 142 were girls (56,8%), aged between 15 to 18 years (Mean age = 16 yrs., SD = .74). The sample was convenient and was selected on the basis of the second author's accessibility to the schools. All participating students were of Greek origin, while most of them were from middle SES families.

Measuring Instruments

Parenting Parenting was measured with a shorter version of the Greek translation of the Parenting Styles Questionnaire (PSQ) (Kokkinos and Voulgaridou 2017). The 23-item questionnaire contained two subscales from the PSQ developed by Lamborn et al. (1991), namely Warmth/Involvement (9 items; e.g., "I can count on my parents to help me if I have some kind of problem") and Behavioral Control (8 items), and one subscale from Silk et al. (2003), namely, Psychological Control (8 items; e.g., "My parents keep pushing me to think independently"). High scores on the first subscale indicate that participants perceive their parent/s as loving, responsive and involved. Similarly, high scores on the second subscale are indicative of parents perceived as intrusive, manipulative and interfering with the adolescent's psychological and emotional development.

The first 17 items measuring Warmth/Involvement and Psychological Control were scored on a 4-point scale (1 = strongly disagree, to 4 = strongly agree). Negatively wording items (8) in both subscales (e.g., "My parents tell me that their ideas are correct and that I should not question them") were reverse scored. The remaining six items constitute the Behavioural Control scale, which assesses the amount of parental monitoring and supervision. All 6 items relate to participants' perception of how much (rated on a 3-point scale) their parents try to (1 = "Don't try", 2="Try a little", and 3="Try a lot") and do know (1 = "Don't know", 2="Know a little", and 3="Know a lot") where they go and what they do.

Kokkinos and Voulgaridou (2017) found alpha coefficients above .70 for all three subscales. In the present study, except from the Warmth/Involvement subscale which had an alpha of .64, the Psychological and Behavioural Control subscales had alphas of .71 and .75 respectively.

Academic Achievement Participants were asked to provide their achievement scores in four school subjects, namely, Ancient and Modern Greek Languages, Mathematics and Science. The secondary school grading system in Greece ranges between 1 and 20 (Pass: 10). In addition, based on the 1st article of the Presidential Decree No 465 of May 1981, published in the official Government Gazette Issue 129, vol. A, five levels of grading are possible. Thus, rated on a 5-point scale, students reported if their subject scores were 1 = below 10, 2 = between 10 and 12.5, 3 = between 12.6 and 15.4, 4 = between 15.5 and 18.4, and 5 = between 18.5 and 20. A total and two sub-scores (Languages and Sciences) were computed by averaging students' ratings. Total academic achievement was determined by students' grades in Ancient and Modern Greek Languages, Mathematics and Science. Although outcomes, such as grades, rely on students' self-reports, there is evidence that correlations between self-reported grades and actual grades are high (i.e., Gisladóttir 2013, $r = .77$, Shaw and Mattern 2009, $r = .74$).

Emotional Intelligence The Greek translation of the Trait Emotional Intelligence Questionnaire - Adolescent Short Form (TEIQue-ASF; Petrides et al. 2006; Kokkinos and Kipritsi 2012) was used to measure trait EI. The scale contains 30 short statements answered on a 7-point Likert scale (e.g., "I can make other people feel better when I want to" and "I find it hard to control my feelings"). The TEIQue – ASF provides scores on four trait EI factors: Well-being (i.e., optimism, self-esteem, and happiness), Self-control (i.e., impulsiveness, emotion control, and stress management), Emotionality (i.e., empathy, emotional perception, emotional expression, and relationships) and Sociability (i.e., assertiveness, emotional management, and social awareness). Global trait EI is derived by averaging all 30 items, whereas the four subscale scores can be derived from 26 of these items: Well-Being (6 items), Self-Control (6 items), Emotionality (8 items), and Sociability (6 items). The remaining 4 items measure two "stand-alone" facets (adaptability and self-motivation), which contribute directly to the total score and not to any of the factors. Cronbach's alpha reliability coefficient for the total scale was .79, whereas for the four factors were .81, .51, .51 and .52 for well-being, self-control, emotionality and sociability respectively. The TEIQue–SF has been frequently used in research (e.g., Arora et al. 2011; Siegling et al. 2012), but there are few cases where subscales scores were used along with the total composite, due to the low but accepted internal reliability coefficients, which was also the case for the three out of the four subscales in the present study.

Procedure

Students were recruited via oral communication with the school principals, who were presented with the purpose of the study, while written informed consent was sent to parents and/or guardians. In addition, students were also informed about the purpose of the study and about the voluntary basis of participation. Thus, a combination of active assent by the students and passive consent by their parents and/or guardians was applied. Passive consent from the participants' parents and/or guardians was deemed enough because no sensitive personally identifying data was collected. Thirteen parents of a total of 265 contacted denied participation. In addition, two students chose not to participate. The self-report questionnaires were administered in classes by the second author in the presence of a class teacher. Questionnaire completion time was approximately 15 min. Verbal and written instructions describing the procedure were given to the participants who were also assured about confidentiality.

Analysis Plan

Descriptive statistics were calculated for all measures. A series of independent t-tests explored possible gender differences in

parenting practices, trait emotional intelligence and academic achievement. Pearson correlation coefficients estimated the associations among the variables.

Moderation analyses examined the moderating role of trait emotional intelligence (total composite, and subscale scores) in the associations between parenting practices and academic achievement. All analyses were conducted using the statistical package IBM Statistics SPSS 21.

Results

Preliminary Analyses

Table 1 reports the means, standard deviations and correlations among the study's variables.

Preliminary analyses showed that females perceived more behavioral control by their parents, t (214.48) = 2.20, $p < .05$, ($M_{females}$ = 2.69 SD = .34, M_{males} = 2.59 SD = .39; Cohen's d = .27). No gender differences were found for warmth/involvement and psychological control.

In terms of trait EI and its dimensions t-tests indicated that males scored higher than females in global trait EI, t (247.08) = 3.44, $p < .001$, (M_{males} = 4.85, SD = .58, $M_{females}$ = 4.57, SD = .72; Cohen's d = .43), as well as in well-being t (247.12) = 2.94, $p = .01$, (M_{males} = 5.30, SD = 1.16, $M_{females}$ = 4.82, SD = 1.45; Cohen's d = .37), and self-control t (245.8) = 3.66, p < .001, (M_{males} = 4.49, SD = .92, $M_{females}$ = 4.02, SD = 1.10; Cohen's d = .46). However, no other gender differences were found in the rest trait EI dimensions.

In terms of achievement, while there was no statistically significant difference in the overall achievement score, there were differences in favour of female students in language, t (248) = 2.72, $p = .01$, ($M_{females}$ = 3.82, SD = .91, M_{males} = 3.49 SD = 1.00; Cohen's d = .35) and of boys in science achievement t (217.62) = 2.53, $p = .01$, ($M_{females}$ = 3.33 SD = 1.03, M_{males} = 3.68, SD = 1.14; Cohen's d = .32).

Trait EI was significantly positively correlated with all its dimensions (correlations ranged between .79 and .48). Positive correlations were also emerged between trait EI, its dimensions and two parenting practices, namely Warmth/Involvement and Behavioral Control (.43 and .31 respectively for EI). Negative, but statistically significant correlations were observed between trait EI, Well-being, Emotionality, and Psychological Control (−.28, −.25, −.23 respectively). Trait EI and the same two dimensions were also positively correlated with overall achievement (.24, .13, .14) and Science Achievement (.24, .17, .14). In the case of Language Achievement, the only significant positive correlation emerged only with overall trait EI.

Behavioral control was positively correlated with overall and Language Achievement (.16 and .19), whereas Psychological Control was negatively correlated with overall and Language and Science Achievement (−.23, −.22, −.17). No significant correlations emerged between Warmth/Involvement and Achievement.

Moderation

Moderation analyses were run for the total sample, and for males and females separately. Results (model 1 of the PROCESS macro v.3; Hayes, 2018) showed that high overall trait EI moderated the association between warmth/involvement and language achievement for the whole sample, (b = .39, SE = 0.19 95% CI [.02, .76], t = 2.06, p < .05). Simple slope analysis for trait EI showed that at one standard deviation (SD) above the mean of trait EI, increased language achievement was significantly positively associated with perceived warmth/involvement.

Table 1 Descriptive statistics, and correlations among trait emotional intelligence, parenting, and achievement

	Mean	SD	EI	WB	SC	E	S	W/I	PC	BC	Ach (total)	Lang
Trait Emotional Intelligence	4.69	.68										
Well-being	5.03	1.35	.70**									
Self-control	4.22	1.05	.67**	.38**								
Emotionality	4.67	.88	.79**	.50**	.38**							
Sociability	4.61	.66	.48**	.16*	.03	.29**						
Warmth/Involvement	3.33	.41	.43**	.50**	.23**	.36**	.09					
Psychological Cntrl	2.29	.50	−.28**	−.25**	−.12	−.23**	−.08	−.28**				
Behavioural Cntrl	2.65	.73	.31**	.33**	.10	.28**	.16*	.42**	−.20**			
Achievement (total)	3.58	.89	.24**	.13*	.07	.14*	.21**	.11	−.23**	.16*		
Language	3.68	.96	.18**	.05	.04	.10	.18**	.12	−.22**	.19**	.85**	
Science	3.48	1.09	.24**	.17**	.08	.14*	.19**	.07	−.17**	.09	.89**	.51**

EI Emotional Intelligence, *WB* Well-being, *SC* Self-control, *E* Emotionality, *S* Sociality, *W/I* Warmth/Involvement, *PC* Psychological Control, *BC* Behavioral Control, *Ach* Achievement, *Lang* Language

In the case of males, the association between psychological control and language achievement was moderated by well-being (b = −.28, SE = .14 95% CI [−.55, −.01], t = −2.06, p < .05) and self-control (b = −.53, SE = .21 95% CI [−.95, −.12], t = −2.55, p < .05). Specifically, low perceived psychological control increases language achievement for those male adolescents high in well-being (i.e., optimists, happy and high in self-esteem), and high in self-control (less impulsiveness, emotion control, and stress management). Simple slope analysis for trait EI dimensions showed that at one standard deviation (SD) above the mean of both well-being and self-control, increased language achievement was significantly negatively associated with psychological control. On the contrary, at one SD below the mean of well-being and self-control, the negative effects of psychological control on language achievement were smaller and insignificant.

In the case of female adolescents, the association between behavioral control and achievement in science was moderated by well-being (b = −.53, SE = .18 95% CI [−.89, −.16], t = −2.88, p < .001). Specifically, low perceived behavioral control increases science achievement for those female adolescents high in well-being (i.e., optimists, happy and high in self-esteem). Again, simple slope analysis for well-being showed that at one standard deviation (SD) above the mean of well-being, increased science achievement was significantly negatively associated with behavioral control.

No other significant moderation effects of trait EI dimensions were found on the associations between the rest of the parenting practices and academic achievement (Table 2).

Discussion

The purpose of the present study was to examine the relationship among parenting practices, trait EI and academic achievement in a sample of Greek adolescents. This study also examined gender effects, as well as the moderating role of both global and dimensional trait EI between parenting practices and academic achievement. Overall, the results showed that both global trait EI and two of its dimensions (i.e., well-being and self-control) increased the effect of parenting practices (warmth, psychological and behavioral control) on academic achievement in language (for males) and science (for females).

Parenting Style and Academic Achievement

Two out of the three parenting practices were correlated with academic achievement. Thus, behavioral control was positively correlated with overall and Language Achievement, whereas psychological control was negatively correlated with overall and Language and Science Achievement. These findings are consistent with those claiming that behavioral control is conducive to better academic achievement (Hill and Wang 2015; Kristjansson and Sigfusdóttir 2009; Rosenzweig 2001), though inconsistent with evidence suggesting that behavioral control is positively linked to mathematics achievement (i.e., Gisladóttir 2013; Shute et al. 2011). Furthermore, the present findings are in line with studies claiming that psychological control is related to poor academic achievement (Pinquart 2016; Rosenzweig 2001; Xiang et al. 2017). When parents punish their offspring and get angry with them for unsatisfactory grades, they exercise negative control instead of encouraging them. At the same time, when parents are over-controlling of their off-spring's thinking and behavior, then they show extrinsic motivation and lower academic achievement (Rosenzweig 2001; Boonk et al. 2018). Since psychological control increases an adolescents' focus on internal distress and adult approval rather than learning process, it is possible to undermine learning and academic performance (Pinquart 2016).

Trait Emotional Intelligence and Academic Achievement

Global trait EI and two of its dimensions (i.e., well-being and emotionality) were positively correlated with overall and Science Achievement. In the case of Language Achievement, the only significant positive correlation emerged with global trait EI. These results are different from those claiming that trait EI did not have significant effect on mathematics (i.e., Mancini et al. 2017; Petrides et al. 2004). It is possible that EI as a trait may vary across subject (Petrides and Mavroveli 2018). At dimensional level other studies have advocated that self-control is significant predictor for both math and language achievement and sociability only for the latter (i.e., Mancini et al. 2017). Trait EI promotes thinking, makes students able to manage their feelings in stressful situations (Brackett et al. 2011), and can compensate for cognitive intelligence (Petrides et al. 2004).

Moreover, these findings are in accordance with studies claiming that well-being and emotionality are positively associated with academic success (i.e., Gräbel 2017; Gumora and Arsenio 2002). The positive association between emotional and psychological well-being and academic achievement could be explained on the basis of Fredrickson's (2004) broaden and built theory. The experience of positive emotions motivates creative thinking and contributes to a spread of attention and the broadening of behavioral resources. Emotional well-being is related to positive emotions. The broadening of behavioral and cognitive repertoire results in the development of long-lasting, effective strategies, which contribute to the resilience against stress. Positive emotions may have positive influence on students' learning behavior too, as they are conducive to cognitive flexibility, which in turn facilitates new knowledge acquisition (Gräbel 2017). On the other hand, high psychological well-being indicates the fulfillment of basic needs (i.e., competence, relatedness, autonomy) which promotes intrinsic motivation and therefore better academic achievement (Gräbel 2017).

Table 2 Model summary of the moderating effect of EI, well-being, and self-control in the relationship between parenting and LA, SA

Variable	n	R^2	ΔR^2	B	SE	*t*	*p*
Trait EI as Moderator, LA as Outcome	250	.05**					
Constant				3.63	.06	57.02	.00
Trait EI				.26	.10	2.64	.01
W/I				.18	.16	1.12	.26
W/I x Trait EI			.02*	.39	.19	2.06	.04
Well-being as Moderator, LA as Outcome	105 (M)	.07*					
Constant				3.47	.09	36.63	.00
Well-being				−.02	.08	−.26	.80
PC				−.49	.21	−2.38	.02
PC x Well-being			.04*	−.28	.14	−2.06	.04
Well-being as Moderator, SA as Outcome	142 (F)	.06*					
Constant				3.42	.09	37.85	.00
Well-Being				.04	.06	.68	.50
BC				−.30	.27	−1.10	.27
BC x Well-being			.06**	−.53	.18	−2.88	.00
Self-control as Moderator, LA as Outcome	105 (M)	.09*					
Constant				3.49	.09	37.50	.00
Self-control				.05	.10	.46	.65
PC				−.40	.19	−2.05	.04
Self-control x PC			.06**	−.53	.21	−2.55	.01
Conditional effect of W/I on LA at values of trait EI				Effect	Boot SE	Boot LLCI	Boot ULCI
-1SD				−.08	.19	−.46	.29
Mean				.18	.16	−.14	.50
+1SD				.45	.22	.01	.88
Conditional effect of PC on LA at values of Well-being							
-1SD				−.17	.22	−.61	.28
Mean				−.49	.21	−.90	−.08
+1SD				−.82	.29	−1.40	−.24
Conditional effect of BC on SA at values of Well-being							
-1SD				.46	.33	−.19	1.11
Mean				−.30	.27	−.84	.24
+1SD				−1.06	.43	−1.91	−.22
Conditional effect of PC on LA at values of Self-control							
-1SD				.09	.27	−.44	.62
Mean				−.40	.19	−.78	−.01
+1SD				−.89	.28	−1.45	−.33

Note 1. *EI*, Emotional Intelligence, *W/I* Warmth/Involvement, *PC* Psychological control, *LA* Language achievement, *BC* Behavioral control, *SA* Science achievement, *M* Males, *F* Females; Bootstrapped estimates are based on 5000 samples. *LLCI* lower limit of confidence interval, *ULCI* upper limit of confidence interval. *B* unstandardized regression coefficient, *SE* = standard error

Note 2. Significant interaction effects in bold (**$p < .01$, *$p < .05$)

In terms of emotionality, previous evidence suggests that adolescents' emotional dispositions and their academically related affect are linked to school performance (Gumora and Arsenio 2002). It has been argued that emotionality may have an indirect effect on achievement, via cognitive processes (i.e., problem solving, memory, strategic thinking), motivational mechanisms (i.e., engagement, school linking, staying on task) and interpersonal resources (i.e., relationships with teachers and classmates) (Valiente et al. 2012).

Parenting Practices and Trait EI

Regarding the association between parenting and trait EI, parental warmth and behavioral control were positively correlated with global trait EI (Alegre 2011; Argyriou et al. 2016), suggesting

that teenagers who perceive their parents as supportive, available to satisfy their needs, and also monitor their everyday life, and have knowledge of their whereabouts, activities and social contacts, tend to report higher trait EI. Moreover, evidence suggests that behavioral control may also be beneficial for adolescents' well-being (Russell et al. 2010). On the other hand, negative associations were found between psychological control and total trait EI, well-being, and emotionality, suggesting that teenagers, whose thoughts and emotions are controlled by their parents, tend to report lower trait EI, emotional expression and perception, empathy, optimism, self-esteem and happiness. This finding is in line with studies which found a negative association between authoritarian parental style and trait EI (Alegre 2011; Argyriou et al. 2016). As it has been proposed, when children perceive harsh discipline and constant criticism of their emotional expression, they are likely to constantly attempt to gain approval from or to avoid the disapproval of their parents, rather than to understand their own internal states and regulate them appropriately (Argyriou et al. 2016).

The Role of Gender

The role of gender was also explored in the present study. Thus, female students reported receiving more behavioral control than their male counterparts, a finding which is in accordance with evidence claiming that adolescent females receive more monitoring and have to follow the parental rules more than males (Kristjansson and Sigfúsdóttir 2009; Smetana and Daddis 2002; Varner and Mandara 2013), while other studies claim the opposite (e.g., Duchesne and Ratelle 2010). The differences in monitoring and rule enforcement may be due to greater concerns about females' personal safety, as well as concerns about girls becoming sexually active (Varner and Mandara 2013). Additionally, parents' gender-role stereotypes is likely to influence parents' gender-differentiated use of controlling. According to the biosocial theory, cultural beliefs about gender affect the socialization received by boys and girls (Wood and Eagly 2012). Therefore, parents may use different control strategies with boys than with girls in accordance with the gender roles defined by the society.

Male adolescents reported higher global trait EI than females, a finding similar to that conveyed by Argyriou et al. (2016) and Stamatopoulou et al. (2015). Boys also reported higher sense of well-being and self-control than girls, as was the case with the studies by Gugliandolo et al. (2015a, 2015b), Mikolajczak et al. (2007) and Stamatopoulou et al. (2015), suggesting that boys are likely to be more successful, self-confident, cheerful, satisfied with their lives and more optimist than girls. At the same time, males are more capable of controlling their emotions, regulating stress and are less likely to give into their urges. On the other hand, other studies found girls to report higher global EI (i.e., Ciarrochi et al. 2001; Zeidner et al. 2005) and emotionality (i.e., Mikolajczak et al. 2007) than boys, while Poulou (2010) has found no gender differences in self-reported EI among Greek students.

Several plausible explanations could justify this inconsistency in findings. Firstly, they may be due to cultural differences. In male-dominated societies men tend to manifest their feelings as opposed to societies that are distinguished by a "feminine" approach (Gunkel et al. 2014). In addition, this discrepancy could be attributed to the different parenting practices, to the relationships between family members, as well as to the parents' EI level, since parenting practices influence the level of adolescents' EI development and the way adolescents behave in their interpersonal relationships (Alegre 2011; Argyriou et al. 2016). When high EI parents tend to use emotion related rearing practices, they are more likely to promote their offspring's emotional development.

Furthermore, the results confirm the prevailing view that females score higher in language, while males in science, as a statistically significant difference has emerged, similar to several studies (e.g., Downey and Vogt Yuan 2005). The expectation-value model (Eccles et al., 1983) suggesting that the expectancy for future success and value given to a task can predict achievement behavior could explain the findings. It is therefore possible that females do poorly than males in math or science because these tasks have low expectancy and value for them, while this would be reversed for language courses. Another social factor is the stereotypical threat which occurs when the performance of a group is influenced by the knowledge that its members belong to a social group that is not expected to succeed in a domain (Voyer and Voyer 2014). Therefore, it is believed that girls are expected to succeed in language courses and boys in science. Thus, the stereotypical threat potentially affects the expectation of success, which in turn affects the effort and persistence against specific courses.

Trait EI Moderates the Association between Parenting and Academic Achievement

Moderation analysis demonstrated that global trait EI moderates the association between warmth and academic achievement in language for the whole sample. This finding suggests that trait EI increases the effect of warmth dimension on language achievement indicating that adolescents who perceive their parents as loving, supportive and involved tend to report better language achievement scores if they have higher trait EI, suggesting that high trait EI adolescents are capable to identify accurately their parents' positive emotions about them. Males who perceive low parental psychological control and have a high sense of well-being and self-control report better language achievement, suggesting that these trait EI dimensions reduce the debilitating effects of parental psychological control on language achievement. Indeed, adolescents who are able to manage their emotions in stressful situations

(i.e., better self-control) appear to have better academic performance (Brackett et al. 2011). Additionally, well-being is positively related to resilience against stress, to cognitive flexibility and to intrinsic motivation, which promote academic achievement (Gräbel 2017). Trait EI includes dispositional tendencies to experience positive emotions in general (Petrides 2011), and those high in trait EI tend to experience positive emotions across diverse life situations or challenges (Perera 2016). Students with a high sense of well-being trend to have high self-esteem, be happy and optimists, which in turn may decrease sadness and encourage academic achievement (Perera 2016).

Regarding self-control, a study by Bertrams and Dickhäuser (2009) demonstrated that students with higher sense of self-control tend to have better grades, as self-control is crucial for attention regulation and persistence. When a student experiences negative emotions tends to focus on the object of emotion and cognitive recourses are diverted away from educational materials to events or circumstances that distract from learning (Valiente et al. 2012). Thus, for high trait EI students' tendencies towards the regulation of emotions may decrease susceptibility to the deleterious effects of negative emotions on cognitive function in learning (Perera and DiGiacomo 2013). Moreover, students high on trait EI who possess strong self-control dispositions is possible to preserve proximity to goal related stimuli and maintain distance from negative stimuli, such as over-controlling parenting. Self-control has been also found to be associated with positive psychological adjustment (Tangney et al. 2004). This means that it is a protective factor against depression or anxiety, which is detrimental to the academic achievement. As with the case of well-being, people with high self-control tend to have higher self-acceptance or self-esteem, which is often regarded as vital aspect of mental health and adjustment (Tangney et al. 2004).

In the case of females, only the trait EI dimension of well-being reduces the effect of behavioral control on achievement suggesting that low perceived behavioral control increases science achievement for those high in well-being. It has been found that parental monitoring in the form of parental pressure and control has a negative effect on children' s intrinsic motivation and on their sense of personal value and responsibility (Areepattamannil 2010). Female students with a high sense of well-being are more likely to believe that they are competent and they can effectively accomplish activities that they are involved in. Children's and adults' beliefs relate to their achievement performance (Wigfield and Eccles 1994). Further, they have favorable future aspirations and if they have a high sense of well-being their efforts in order to obtain academic goals may increase. Therefore, well-being seems to be a protective factor against the negative effect that parental excessive control and pressure have on girls' achievement in science.

In all it appears that students who are skillful in at regulating their own or others' emotions would be able to protect themselves from the adverse effects of less effective parenting reporting higher academic achievement. Thus, some dimensions of trait EI may protect students from the negative effects of adverse parenting and enhance academic achievement.

Implications

This research has several theoretical and practical implications. Theoretically speaking, the findings extend knowledge in the relationship among parenting practices, academic achievement and trait EI in adolescents, as they sed more light to the pivotal role parents play in adolescents' cognitive and emotional development and provide additional support to claims of some researches (Petrides et al. 2004) that, in addition to cognitive intelligence, trait emotional intelligence plays important role in academic achievement. Further, the empirical evidence for the associations between parenting and trait EI provides support for parental intervention concentrating on the promotion of socio-emotional abilities, which are beneficial for teens' social and emotional skills (Alegre 2011). Findings also provide support for student social and emotional skills intervention which can lead to better academic achievement (Babalis et al. 2013). At the same time, the present findings have uncovered the potential moderating role of trait EI (global and its dimensions) between parenting practices and academic achievement that may explain how trait EI affects parenting practices' effect on achievement.

Based on the correlations between parenting practices, academic achievement and trait EI, the findings provide the opportunity of drawing conclusions for optimizing educational programs. Specifically, educational programs should focus on social and emotional skills learning, such as recognizing, understanding and managing of emotions or empathy. In addition, it would be advisable for schools to provide training programs for parents concentrating on the ways in which they will adopt positive practices that promote adolescents' academic achievement and trait EI. Finally, teachers and parents should be in close collaboration in order to suggest ways that can create a home atmosphere that promotes trait EI. To this end their continuous training in issues of adolescent psychology would help. Moreover, it would be beneficial teachers to choose methods that combine cognitive and emotional intelligence, which will facilitate the development of adolescent's emotional skills.

Limitations & Strengths

The study bears some limitations that require further attention. First, it is a cross-sectional study and therefore precludes causal relationships. Thus, the present findings should be confirmed using longitudinal research designs. Secondly, shared method

variance may have increased confounds and demands of self-presentation due the unique dependence on self-report measures. Further, the multivariate statistical analysis included variables of lower than desired internal consistencies, which may threaten the study's replicability. Finally, although the results extend previous research to a relatively large Greek adolescents' sample, additional international research is necessary for the generalization of the findings across various sociocultural contexts.

Despite the above limitations, there are some noteworthy strengths in the present study: a) this is the first time that trait EI dimensions along its total score are used as moderators, b) to the extent of our knowledge, there has not been any research that examines at the same time the relationship between parenting practices, academic achievement and trait EI, especially in a Greek sample, c) this relationship is examined in a developmental period during which teenagers attempt to become autonomous, d) this study is interesting from a cultural point of view because examines this relationship in a country like Greece, which is in a transition from collectivism to individualism and finally, e) focuses on parenting practices, which have a direct impact on the developmental outcomes of children and adolescents, rather than parenting style, as do most studies, which has an indirect effect. Thus, the results have added to the scarce evidence on the interaction between emotional traits and parenting in explaining achievement outcomes and have set the basis for future research to explore more complicated links across development.

Compliance with Ethical Standards

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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