Brief report

Brief report: Trait emotional intelligence, peer nominations, and scholastic achievement in adolescence

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A B S T R A C T

Current research on trait EI in adolescents suggests that the construct impacts on several important domains of youths' psychological functioning, including school adjustment and achievement. The purpose of this study is to explore the role of trait EI and of its subcomponents, on adolescent's academic achievement. Data were collected from 321 Italian adolescents (162 female; Mage = 15.5, SD = 1.86; aged 13–18 years) recruited from secondary schools. The effects of perceived and actual peer nominations, gender, personality dimensions, and non-verbal cognitive abilities were also controlled. Results highlight that trait EI as assessed by means of the TEIQue impacts Italian but not math's grades, while trait EI's factors predicted both academic subjects, with significant contributions of Self-Control and Sociability. Limitations and implications are discussed.

1. Introduction

Emotional Intelligence (EI) captures individual differences in how we perceive, communicate, regulate, and understand our own emotions and the emotions of others (Zeidner, Matthews, & Roberts, 2009). An increasing number of studies and meta-analysis (e.g., Sánchez-Álvarez, Extremera, & Fernández-Berrocal, 2015) attest to the importance of the construct and its applications in different domains, including health (e.g. Martins, Ramalho, & Morin, 2010), work (Schlaerth, Ensari, & Christian, 2013) and education (Fernández-Berrocal & Ruiz, 2008).

One of the most popular model of EI is trait EI or 'trait emotional self-efficacy' (Petrides & Furnham, 2000, 2001). Trait EI conceptualizes the construct as a combination of dispositions measurable through self-report questionnaires, and located at the lower levels of personality hierarchies (Petrides, Pita, & Kokkinaki, 2007). Particularly, trait EI refers to a person's perception of their emotional skills. As self-beliefs are important determinants of adaptive functioning and behaviors (e.g., Castiglione, Rampullo, & Licciardello, 2014), high trait EI scores may be especially relevant in buffering against the development of maladaptive outcomes. Though current literature suggests that the construct impacts on several important domains of youths' psychological functioning (Resurrección, Salguero, & Ruiz-Aranda, 2014), mixed evidence is available on the relationship between trait EI and academic performance (e.g., Andrei, Mancini, Mazzoni, Russo, & Baldaro, 2015; Qualter,

Gardner, Pope, Hutchinson, & Whiteley, 2012; Siegling, Vesely, Saklofske, Frederickson, & Petrides, 2015). In addition, thus far no study has explored the role of trait EI's subcomponents in such relationship. This is considered by scholars of the field an essential step for an advancement in the field of EI (Di Fabio & Palazzeschi, 2015).

The present study aims to investigate the role of trait EI considering both the global construct's composite and its subdimensions on adolescent's academic achievement. Given their relevance for a good school adjustment (Beeri & Lev-Wiesel, 2012; Bowker & Spencer, 2010), the effects of perceived and actual peer acceptance/rejection will be controlled, together with those of gender, Openness and Conscientiousness from the Big Five personality trait model (McCrae & Costa, 1999), and non-verbal cognitive abilities.

2. Method

2.1. Participants

This study involved 321 Italian adolescents (162 female, $M_{age} = 15.5$ years, $SD = 1.86$, age range from 13 to 18 years). We recruited participants from two State high schools in northern Italy. Students were excluded from subsequent analysis if they reported a diagnosis of psychological disabilities certified by the public mental health service and if they missed more than 15% of the items on the Trait Emotional Intelligence Questionnaire—Adolescent Full Form (TEIQue—AFF; Petrides, 2009).

2.2. Measures

2.2.1. Trait EI

We used the Italian adaptation of the TEIQue—AFF to measure trait EI (Andrei, Mancini, Trombini, Baldaro, & Russo, 2014; Petrides, 2009). The TEIQue—AFF comprises 153 brief statements responded to on a 7-point scale, ranging from completely disagree to completely agree. The TEIQue-AFF ($\alpha = 0.83$) comprises 4 factors: Well-Being ($\alpha = 0.82$), Self-Control ($\alpha = 0.65$), Emotionality ($\alpha = 0.71$), Sociability ($\alpha = 0.72$).

2.2.2. Peer nominations

We measured actual and perceived peer acceptance/rejection using a sociometric approach. Participants were asked to imagine that they were going to go on a school journey, and to indicate an unlimited number of classmates on each of four questions asking to nominate: (a) the peers they would like to take with them on the trip (peer acceptance); (b) those they would rather not take along (peer rejection); (c) those classmates who would accept them (perceived peer acceptance), and (d) those classmates who would reject them (perceived peer rejection).

2.2.3. Personality traits

The Big Five Questionnaire-2 (BFQ-2; Caprara, Barbaranelli, Borgogni, & Vecchione, 2007) is a self-reported questionnaire comprising 134 items rated on a 5-point Likert scale. It provides scores on the five personality trait of Extraversion, Agreeableness, Conscientiousness, Emotional stability, and Openness. Cronbach's reliability coefficients for the BFQ-2 scales were: 0.82 for Extraversion, 0.85 for Agreeableness, 0.83 for Consciousness, 0.90 for Emotional stability, and 0.84 for Openness.

2.2.4. Non verbal cognitive ability

We used Raven's Standard Progressive Matrices (SPM; Raven, 2008) to measure non-verbal cognitive ability. It comprises 60 items presented in five sets of 12 each, and providing a global IQ score.

2.2.5. Scholastic performance

School offices provided first and second term grades in the core areas of high school curricula, namely Italian language-literacy and math. Because these two subjects reflect pupils' performance in writing, reading, and arithmetic abilities, they were thought to be highly representative of academic achievement. Grades ranged from 1 to 10 (excellent), with sufficiency being 6.

2.2.6. Recruitment and procedures

We obtained informed consent from parents/careers. All measures were administered collectively in classrooms at a time agreed upon with each institute, by specialized personnel, with respect for the ethical guidelines regarding privacy. A code number was assigned to each individual.

2.3. Statistical analyses

All statistical analyses were performed using PASW (SPSS version 21.0 for Windows). Bivariate correlations were used to explore the association among variables, while hierarchical multiple regression analyses were employed to predict scholastic achievement. Each model comprised individual difference predictors entered in separate steps to assess for their incremental

contribution. Analysis were first run as moderated multiple regressions (Aiken & West, 1991; Cohen & Cohen, 1983) considering gender as a moderating variable. To analyze the peer nominations Social network analysis (SNA; Scott, 1991; Wasserman & Faust, 1994) was used. In this study, both actual and perceived sociometric status are represented by the in-degree centrality, which was considered as the most effective to represent positive and negative sociometric status. This index goes from 0 (low status) to 1 (high status).

3. Results

Correlations and multiple regression analyses were conducted to examine the relationship among trait EI, peer nomination and scholastic achievement. Table 1 reports Pearson's correlations among study variables. Briefly, the global TEIQue - AFF was found to correlate positively with participants' grades in literature ($r = 0.19$, $p < 0.001$), but not in math ($r = 0.09$, $p =$ n.s.), while none of the peer nomination indicators correlated with academic achievement (all ps = n.s.), with the exception of actual peer acceptance which correlated positively with both math ($r = 0.12$, $p < 0.05$) and Italian ($r = 0.12$, $p < 0.05$).

As there were significant correlations between gender and academic performance, as a preliminary step moderated hierarchical multiple regression analyses (Aiken & West, 1991; Cohen & Cohen, 1983) were tested considering gender as moderator of the relationship of peer nomination and trait EI indicators with scholastic achievement. Given that the moderation terms were non-significant (ps > 0.05), they were dropped from the analyses.

The final regression models comprised four steps. Gender and non-verbal cognitive ability were included as Step 1, personality traits as Step 2, actual and perceived peer nomination indicators as Step 3, and either the global TEIQue−AFF score of the four trait EI dimensions as Step 4a and Step 4b respectively. The global TEIQue−AFF score predicted a significant amount of the variance in Italian language ($\beta = 0.16$, $p < 0.01$) but not in math ($\beta = 0.02$, $p =$ n.s.). Summary statistics regarding both models are shown in Table 2.

Analyses were rerun entering the four TEIQue−AFF factor scores in place of the global score. Inspection of the contribution of each of the EI dimensions revealed that Self-Control made statistically significant contribution to the prediction of both Italian ($\beta = 0.16$, p < 0.05) and math ($\beta = 0.14$, p < 0.01), while Sociability only significantly predicted Italian ($\beta = 0.15$, p < 0.05; see Table 2).

4. Discussion

This was the first study using the full adolescent form of the TEIQue to investigate the relationship between trait EI and its subdimensions with scholastic achievement in a sample of adolescents. As widely described in the literature (O'Connor & Paunonen, 2007; Roth et al., 2015), our study confirmed the relationship between cognitive ability, the personality dimensions of Conscientiousness and Openness and academic achievement. Our results also suggested that trait EI impacts Italian but not math's grades. Similarly, a previous study (Petrides, Frederickson, & Furnham, 2004) highlighted that Trait EI had no considerable influence on preadolescent's maths or science performance. Nevertheless, current literature shows mixed evidence on the role of trait EI assessed with the TEIQue over different school subjects (Siegling et al., 2015), thus requiring more thorough investigations on such relationship. Yet, as the use of aggregated global indices of both EI and school achievement could lead to some bias (Perera & DiGiacomo, 2015), it would be beneficial for future psychoeducational studies to consider and further expand their analyses on the construct's constituent elements as well as to distinguish by type of school subject.

Table 1
Intercorrelation matrix for study variables.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Gender															
2. Non-verbal IQ	0.05														
3. Openness	−0.01	0.26**													
4. Conscientiousness	0.01	0.17**	0.57**												
5. Global TEI	−0.04	0.15*	0.24**	0.25**											
6. Well-Being	−0.06	0.11	0.14*	0.20**	0.82**										
7. Self-Control	−0.25**	0.15**	0.21**	0.26**	0.56**	0.33**									
8. Emotionality	0.15**	0.10	0.15**	0.15**	0.77**	0.47**	0.25**								
9. Sociability	−0.04	0.07	0.17**	0.08	0.63**	0.54**	0.15**	0.49**							
10. Actual peer acceptance	0.03	−0.09	−0.05	−0.10	−0.06	−0.03	−0.13*	−0.04	0.04						
11. Actual peer rejection	0.06	−0.25**	−0.03	0.04	0.02	0.02	0.07	−0.01	0.00	−0.17**					
12. Perceived peer acceptance	0.11	−0.00	−0.07	−0.10	0.05	0.07	−0.02	0.04	0.05	0.38**	0.00				
13. Perceived peer rejection	0.05	−0.17**	−0.01	−0.01	−0.02	−0.04	0.07	−0.07	0.03	0.08	0.35**	0.10			
14. Math grades	0.05	0.18**	0.23**	0.23**	0.09	0.06	0.16**	0.06	0.06	0.12*	−0.04	−0.01	0.06		
15. Italian language/literature grades	0.12*	0.11	0.32**	0.24**	0.19**	0.13*	0.17**	0.17**	0.17**	0.12*	−0.07	0.04	0.02	0.68**	

Note. IQ = Intelligence Quotient; TEI = Trait Emotional Intelligence.
*$p < 0.05$. **$p < 0.01$.

Table 2
Hierarchical Regression Analyses with Demographics and IQ (Step 1), the Big Five (Step 2), Peer Nomination (Step 3) and either Global Trait EI (Step 4a) or the TEIQue Factors (Step 4b).

Criterion	Italian		Maths	
Step 1	$F(2, 312) = 4.4^{*}$		$F(2, 312) = 7.39^{***}$	
Step 2	$F(5, 309) = 9.07^{***}$		$F(5, 309) = 7.94^{***}$	
Step 3	$F(9, 305) = 6.88^{***}$		$F(9, 305) = 6.74^{***}$	
Step 4a	$F(10, 304) = 7.15^{***}$		$F(10, 304) = 6.06^{***}$	
Step 4b	$F(13, 301) = 5.89^{***}$		$F(13, 301) = 5.19^{***}$	
Predictor	β	ΔR^2_{adj}	β	ΔR^2_{adj}
Step 1		0.03^{*}		0.05^{***}
Gender	0.11		0.03	
IQ	0.13^{*}		0.22^{***}	
Step 2		0.11^{***}		0.07^{***}
Conscientiousness	0.19^{*}		0.25^{***}	
Openness	0.27^{***}		0.16^{*}	
Step 3		0.04^{**}		0.06^{***}
Actual peer acceptance	0.17^{**}		0.25^{***}	
Actual peer rejection	0.11		−0.05	
Perceived peer acceptance	−0.03		−0.12	
Perceived peer rejection	0.01		0.06	
Step 4a		0.02^{**}		0.00
Global TEI	0.16^{**}		0.02	
Step 4b		0.04^{*}		0.02
Well-Being	−0.00		−0.03	
Self-Control	0.16^{*}		0.14^{**}	
Emotionality	−0.05		−0.11	
Sociability	0.15^{*}		0.07	

Note. IQ = Intelligence Quotient; TEI = Trait Emotional Intelligence. $^{*}p < 0.05$. $^{**}p < 0.01$. $^{***}p < 0.001$.

Along these lines, regarding the four TEIQue factors, Self-Control significantly predicted both academic subjects, while Sociability played a role in the prediction of Italian only. Differently from other studies investigating trait EI's incremental validity with the TEIQue in adult populations (Andrei, Siegling, Aloe, Baldaro, & Petrides, 2016), Well-being did not emerge as significant predictor. Hence, further studies on the incremental validity of trait EI's factor during adolescence are needed to further clarify their role.

Furthermore, it seems that students who are actually more accepted by classmates have a better performance in both school subjects considered by the present study, thus confirming already existing literature (Andrei et al., 2015; Roseth, Johnson, & Johnson, 2008). The use of a non-self-reported tool for the assessment of peer acceptance helps to broaden the psychoeducational literature that mainly emphasizes the role of peer rejection during adolescence as a negative predictor of educational performance as a negative experience (Lev-Wiesel, Nuttman-Shwartz, & Sternberg, 2006; London, Downey, Bonica, & Paltin, 2007). These results are therefore in line with the principles of positive psychology, which suggests the relevance of positive psychological factors such as peer acceptance, rather than rejection, on students' school engagement and academic outcomes (Shankland & Rosset, 2016).

Though this study has a number of strengths, such as the combined use of self-report questionnaires and sociometric measures, several limitations should be acknowledged. Particularly, the correlational nature of the analyses, the cross-sectional design, and the mono-cultural setting may have biased our results. Cross-cultural studies, comparing different cultural groups and school settings using similar measures and variables, may improve the accuracy of these findings. Future research may acknowledge that results referring to the academic context tend to require diverse demands of their students, influencing the role of psychological attribute, including trait EI, over academic success. Moreover, future studies could add further data regarding the TEIQue-AFF by using more sophisticated statistical analyses, such as confirmatory factor analysis to test the factor structure of this version of the measure and structural equations modeling to analyze its relationships with other variables.

Our results provide useful insight into the relationship between trait EI and academic achievement in the context of Italian secondary schools. Future investigations are needed to expand our results, and support the development of new interventions in the school context to enhance trait EI (Di Fabio & Kenny, 2011).

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