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Connecting Emotional Intelligence and Academic Achievement in Adolescence: A Systematic Review

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Abstract

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Over the last decades, completion of compulsory education has become increasingly important due to labour market requirements of higher education personnel. There is a growing body of research suggesting associations between EI and scholastic success. The present paper focuses on the connection between emotional intelligence (EI) and academic performance in compulsory education, by examining the existent research. The rationale of the paper resides in the need of improving our understanding on the connection between EI's multiple dimensions and academic achievement of adolescents, especially in countries where the school drop rate of adolescents is reported as being a high one. The primary objective was to summarize our knowledge on the connection between EI and academic achievement in adolescence. The second objective was to highlight specific factors that were investigated in this relationship. Also, we aimed to identify gaps in the research and formulate questions that could drive future diligence in this field. The results could be harnessed as a ground in designing Emotional Intelligence development programs in relation to academic achievement of adolescents.

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Keywords: Emotional intelligence; academic achievement; adolescents.

1. Introduction

The concept of Emotional Intelligence (EI) was coined by psychologists Peter Salovey and John Mayer (Mayer & Salovey, 1990), who defined it as “*the ability to monitor one's own and others'*

feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (p.189). Later, the authors offered a revised definition of EI as the ability to perceive emotion, integrate emotion to facilitate thought, understand emotions and regulate emotions to promote personal growth (Mayer & Salovey, 1997). This conceptualization represents the ability model of EI.

Mayer & Salovey (1990) are recognized for their great contribution in the emergence of EI. Later, in 1995, the popularization and broadening of EI construct begun, with Daniel Goleman's work having a great contribution. Goleman (1995) defines EI as a set of "*abilities such as being able to motivate oneself and persist in the face of frustrations, to control impulse and delay gratification, to regulate one's moods and keep distress from swamping the ability to think, to empathize and to hope*". Daniel Goleman's approach is recognized as a mixed model of EI, which describes a range of competencies and skills consisting in five main areas: self-awareness, self-regulation, social skill, empathy and motivation (Goleman, 1998).

Another influential name in the field of EI is Reuven Bar-On. According to the author, EI represents "*an array of non-cognitive capabilities, competencies, and skills that influence one's ability to succeed in coping with environmental demands and pressures*" (Bar-On, 1997, p. 14). The author described five key components of emotional intelligence: intrapersonal, interpersonal, adaptability, stress management and general mood (Bar-On, 1997). This conceptualization is considered to represent a mixed model of EI (Mayer, Salovey & Caruso, 2000; Stys & Brown, 2004). More recently, Petrides (2011) proposed a conceptual distinction between the ability-based and the trait-based model of EI. The author describes trait EI (also known as trait emotional self-efficacy) as a group of emotional perceptions located at the lower levels of personality hierarchies (Petrides, Pita, & Kokkinaki, 2007). Trait EI encompasses multiple facets, such as self-esteem, empathy, social awareness, emotional perception and emotion regulation, which are viewed as personality traits, as opposed to previous models which described competencies or mental abilities (Petrides, 2010). This approach corresponds to the trait model of EI.

Although different approaches depict distinct aspects of EI, a common concern of these approaches consists in explaining the influence of EI in various contexts. While some enthusiasts were claiming that EI quotient plays a more important role in predicting life success, compared to cognitive intelligence quotient (Goleman, 1995), other authors considered some of the statements on EI grandiose (Zeidner, Matthews & Roberts, 2009). Numerous studies followed and highlighted that EI can exert a significant degree of influence in social/interpersonal context (Schutte et al., 2001), academic context (Parker et al., 2004) and occupational setting (Caruso & Wolfe, 2001).

The present paper focuses on the potential effects of emotional intelligence in formal education settings. We examined the results of the research related to EI and academic achievement in compulsory education. The primary objective of this paper was to summarize our knowledge on the connection between EI and academic achievement in adolescence. The second objective was to highlight specific factors that were most frequently investigated in the relationship between EI and academic achievement. Also, we aimed to identify gaps in the research and formulate questions that could drive future diligence in this field.

2. Emotional Intelligence and academic achievement in adolescence

Over the last decades, the completion of compulsory education has become increasingly important due to labour market requirements of higher education personnel. Even though the body of research initially focused on the cognitive or psychological correlates of academic achievement, more recently, there is a growing interest regarding the role of EI in scholastic success. Numerous studies have shown connections between higher levels of emotional intelligence and better academic performance in adolescent students (Parker et al., 2004; Downey et al., 2008; Brouzos, Misailidi & Hadjimatheou, 2014). Moreover, EI appears to have a compensatory effect on school performance of lower cognitive ability students (Petrides, Frederickson & Furnham, 2004; Qualter et al., 2012)

Several studies indicate that EI can be developed and refined in educational context and that the investments in EI trainings can turn to be beneficial both at an individual and societal levels (Ruiz-Aranda et al., 2012; Castillo et al., 2013). In this light, one can consider that EI could be used in educational settings as a primary and secondary school drop-out prevention tool. Designing and implementing Emotional Intelligence training programs that aim to develop students' emotional competencies could support preventing school drop-out and increase students' chances of academic success.

3. Method

The procedural guidelines of Judi & Sahari (2013) and of Petticrew & Roberts (2008) were followed in designing, carrying out and reporting the stages of the present systematic analysis of the literature. The planning stage of this paper consisted in an analysis aiming to identify the need for such a review, to develop a review protocol and to identify and structure the research questions (Judi & Sahari, 2013). The rationale of the paper resides in the need of improving our understanding on the connection between EI's multiple dimensions and academic achievement of adolescents, especially in countries where no specific EI development programs exist, i.e. Romania, and where the school drop rate of adolescents is reported as being a high one. Data provided by the National Institute of Statistics (<http://www.insse.ro/cms/en>) in *Romanian Statistical Yearbook* shows an ascending trend of secondary education dropout rates. Moreover, the results of a national study revealed that the risk for school dropout increases with age (Apostu et al., 2015). Since studies have shown that once an individual drops out of school, it is rarely expected to return (Roberts-Schweitzer, Greaney & Duer, 2006), efforts to identify specific factors that can increase the chances of school completion are much needed. The present analysis is necessary in order to engineer educational interventions which could potentially increase the chances of academic achievement in adolescents.

The research questions focused on essential issues regarding EI - academic achievement relationship related research: (1) What are the aims of the research studies on emotional intelligence and academic achievement? (2) Which emotional intelligence model is most frequently used for measuring the variables defining EI? (3) Which method of assessment is most commonly used for emotional intelligence in relation to academic achievement? (4) Which type of assessment is frequently

used for academic achievement? (5) Which dimensions of EI are found to be significant for academic achievement? (6) Which factors are studied in relation to EI and academic achievement?

In the second phase, we developed the research protocol to examine the relevant literature on emotional intelligence and academic achievement, as suggested by Petticrew & Roberts (2008). Full text access studies and dissertations published in journals between 2000 and 2016, which provided empirical data on the relationship between EI and academic achievement, were included in the analysis. All texts included in the review had to be published in English. We included research papers that analyzed the whole EI construct and papers addressing only one/several aspect/s of EI. Our review focused on studies addressing adolescent students, aged between 12-20 years, enrolled in compulsory education in public schools.

Enformation research engine (<http://www.e-nformation.ro/>) was used for the literature search, which gives access to a wide range of scientific databases, such as: Wiley, Springer, ScienceDirect, Scopus, ProQuest, Oxford University Press, Cambridge University Press, Central and Eastern European Online Library, Taylor & Francis, SAGE, BMJ and Online Computer Library Center, *i.a.* Research Gate database it was also searched. The literature search was performed by two groups of keyword combination, as it follows: (1) for EI, it was used *emotional intelligence* and *emotional competence*; (2) for academic achievement the keywords were *academic achievement adolescents* and *academic performance adolescents*.

4. Results and discussion

As a result of the keywords combination search, 58 studies were identified. The full list of studies was filtered according to the aforementioned criteria and 18 studies met the full inclusion criteria. Critical reviews that did not provide complete original data of interest (*e.g.* Singh, 2013) were excluded from the analysis. Quasi-experimental studies were not included in the analysis (*e.g.* Adeoye & Emeke, 2010) because the present paper aims to describe the relationship between the variables of interest in their “natural” state (*i.e.* before any type of intervention). Studies that used measures which we were unable to identify as being evidence-based instruments or having no clear operational definition were also excluded from the analysis (*i.e.* Sudha & Anu, 2013; Tajularipin, 2009).

4.1. Research question 1: What are the aims of the research studies on emotional intelligence and academic achievement?

Several studies investigated the relationship between overall EI and academic achievement (Petrides, Frederickson & Furnham, 2004; Akbar, Shah, Khan, & Akhter, 2011; Abdo, 2011), as well as the link between different dimensions of EI and academic performance of adolescents (Parker et al., 2004; MacCann, Fogarty, Zeidner, & Roberts, 2011; Yazici, Seyis & Altun, 2011). While some studies focused on the influence of various factors, such as demographics or psychological characteristics (Ekaterini Kargakou, 2015; Yazici, Seyis & Altun, 2011) on the relationship between EI and academic achievement, other studies aimed to test the potential mediator/moderator effect of EI (Hogan, 2009; Qualter, Gardner, Pope, Hutchinson & Whiteley, 2012;). A few studies proposed to examine the

predictive role of EI, fluid intelligence and personality traits in scholastic performance and aimed to compare their influence (Di Fabio & Palazzeschi, 2009; Downey, Lomas, Billings, Hansen & Stough, 2014). The full list of research aims is presented in Table 1.

Table 1. Identified aims of research on EI and academic achievement in adolescents presented in the reviewed studies (2000-2016)

Aim
Examine the relationship between EI and academic achievement
Assess the relationship between different academic levels and EI
Investigate the role of various demographics on EI and academic achievement
Examine if EI moderate the relationship between cognitive ability and academic performance
Investigate the relationship between EI and students' socio-economic adjustment to school
Examine the role of fluid intelligence, personality traits and EI in predicting scholastic success
Determine if differences in scholastic performance are related to differences in personality or EI
Examine the relationship between EI and negative affect towards school tasks and academic achievement
Investigate the influence of EI and self efficacy beliefs on academic achievement
Explore the predictive influence of EI, peer social support and family social support on GPA
Assess the influence of EI and mindfulness on how adolescents cope with academic difficulties and stress
Test a model that depicts coping as a mediator of EI-academic achievement relationship

4.2. Research question 2: Which emotional intelligence model is most frequently used for measuring the variables defining EI?

According to the literature, there are three main models of EI: ability model, trait model and mixed model (Stys & Brown, 2004). Table 2 summarizes the models of EI used for measuring the variables defining EI in the reviewed studies. The literature analysis shows that most of the studies relied on trait-based measures (Downey, Mountstephen, Lloyd, Hansen & Stough, 2008) and mixed model measures (Brouzos, Misailidi, & Hadjimatheou, 2014), while only a few studies used the ability-based model (Bayani, 2015) or combined measures (Mestre, Guil, Lopes, Salovey & Gil-Olarte, 2006).

Table 2. Models of EI used for measures in the reviewed literature

Item	Number
Trait-based measure	7
Mixed model measure	6
Ability-based measure	2
Combined measures	3

4.3. Research question 3: Which method of assessment is most commonly used for emotional intelligence in relation to academic achievement?

Although the accuracy of data collected with self-report instruments is extensively debated by the scientific community, the majority of studies included in this study relied on self-report instruments (Nasir, 2011; Yüksel & Geban, 2014). Several studies applied both self-report and performance-based tools for assessing EI (Mestre, Guil, Lopes, Salovey & Gil-Olarte, 2006). Only two papers used

performance-based measures (Abdullah, Elias, Mahyuddin, & Uli, 2004) and one paper used a self-report and other-report measure (Bayani, 2015).

Table 3. Methods used for assessing EI described in the reviewed literature

Item	Number
Self-report	12
Self-report and performance-based	3
Performance-based	2
Self-report and other-report	1

4.4. Research question 4: Which type of assessment is frequently used for academic achievement?

The analysis revealed that the most commonly used indicator of academic achievement is GPA (grade point average). Some studies used GPA for the entire school year (Hogan, 2009), while others for one semester (Parker et al., 2004). Most of the studies considered GPA across all academic subjects (Downey, Mountstephen, Lloyd, Hansen & Stough, 2008) and only a few studies used GPA for the core disciplines (Yüksel & Geban, 2014). National examination scores were also used as a measure of academic achievement (Petrides, Frederickson & Furnham, 2004). The full list of identified measures can be analyzed in Table 4.

Table 4. Types of measures used for academic achievement in the reviewed literature

Item	Number
GPA	12
National examination scores	2
Annual examination grades	1
Mid-term examination results	1
Academic scores of the last given exam	1
Teacher ratings	1

4.5. Research question 5: Which dimensions of emotional intelligence are found to be significant for academic achievement?

Although most of the reviewed papers which analyzed overall EI – academic performance relationship highlighted an association between the assessment of overall EI and academic achievement of adolescents (Downey, Mountstephen, Lloyd, Hansen & Stough, 2008; Abdullah, Elias, Mahyuddin & Uli, 2004), a few papers did not find a significant association between these measures (Mestre, Guil, Lopes, Salovey & Gil-Olarte, 2006; Ekaterini Kargakou, 2015). From the list of papers that used combined measures of EI, one paper found that both measures (i.e. self-reported and performance-based) predicted academic achievement, but performance-based measure predicted academic achievement greater than self-reported measures (Di Fabio & Palazzeschi, 2009). Another study highlighted correlations between performance-based measures of EI and academic achievement, but not for self-reported measures (Mestre, Guil, Lopes, Salovey & Gil-Olarte, 2006). One paper found an association between self-perceived EI and academic success, only in boys (Qualter, Gardner, Pope, Hutchinson & Whiteley, 2012).

Specific dimensions of EI, such as adaptability and stress management, followed by emotional management and interpersonal EI were found significant for academic achievement by several studies (Parker et al., 2004; Brouzos, Misailidi & Hadjimatheou, 2014). The complete list of EI characteristics relevant for academic performance can be examined in Table 5.

Table 5. Identified dimensions of EI significant for academic achievement

Item	Number
Overall EI	11
Adaptability	4
Stress management	4
Emotional management	3
Interpersonal EI	3
Strategic EI	1
Sociability	1
Awareness of emotions	1
Understanding emotions	1

4.6. Research question 6: Which factors are studied in relation to emotional intelligence and academic achievement?

Recent studies focused on investigating the relationship between EI and academic achievement and at the same time on identifying specific factors, which could yield an effect on this relationship. Table 6 summarizes factors described in the reviewed papers. Several studies examined the influence of demographic characteristics (e.g. gender, age, socioeconomic status of the family) on the relationship between EI and academic achievement (Akbar, Shah, Khan, & Akhter, 2011; Yazici, Seyis & Altun, 2011), while others aimed to explain the role of cognitive intelligence and personality traits (Downey, Lomas, Billings, Hansen & Stough, 2014). Only a few studies investigated the role of coping style or social support on EI-academic achievement dyad (Hogan, 2009).

In the process of elaborating the current paper, a few shortcomings of the research were noticed. Hence, we identified only two studies that investigated affectivity characteristics (i.e. academic affect), which was a surprising fact considering that adolescence is recognized as a period subjected and associated with multiple affective changes (Crohne & Dahl, 2012). Furthermore, only one study investigated the role of social support in association with EI and academic performance, which might be worth to further investigate considering that adolescence is a time of high social engagement (Crohne & Dahl, 2012).

Table 6. Factors investigated in relation to emotional intelligence and academic achievement in the reviewed literature (2000-2016)

Variable
Gender
Personality traits
Cognitive intelligence
Coping style
Academic affect
Socio-economic status of family
Social support
Participation in extracurricular activities
School attending and school rules breakage

5. Conclusions

The current paper relied on a systematic review protocol to analyze the research on EI and academic achievement published between 2000 and 2016. The results refer to the aims of research, models and measures of EI, measures used to assess academic achievement, dimensions of EI related with academic performance and potential influential factors on EI- academic achievement relationship. Studies generally aimed to take a more in-depth look at the relationship between different dimensions of EI and academic achievement in adolescents. The majority of papers suggested a significant association between overall EI and academic achievement and several studies indicated that interpersonal EI, adaptability, stress management and emotional management (i.e. characteristics of EI) are significantly related to school performance. Other papers proposed to weigh up the influence of cognitive intelligence, personality traits and EI on academic performance. The reviewed literature indicates that the assessment of academic achievement was generally performed using GPA, for various periods of time and different academic disciplines. EI was assessed by widely-used methods, self-report instruments being preferred by the majority of the studies. Moreover, many of the reviewed papers investigated the influence of demographic characteristics on the relationship between EI and academic performance and only a few studies proposed to investigate the role of coping, social support or academic affect.

The results of this systematic review could be valued in designing and implementing an EI development program for adolescent students. Specialists in the field of emotional intelligence, as well as educators, might work together towards building a framework for an EI development program, which targets specific characteristics of EI repeatedly highlighted by research as exercising a beneficial influence on school performance. Moreover, the present analysis could be used in further developing practical guidelines for teachers, targeting to reduce school drop-out rates. Focusing on the role of EI dimensions' in school performance, such program might help educators to effectively identify students' emotional competencies and needs and promote the growth of emotional skills in educational environment. This could eventually result in increasing the chances of school completion in Romania, especially for those adolescents who are approaching the final stage of compulsory education.

Nevertheless, the results presented in the present paper should be interpreted keeping in consideration that in the field of EI, the differentiation between performance-based measures and self-report measures is a recurrent question. As mentioned afore, most of the studies included employed self-report questionnaires. Using this type of instruments carries numerous benefits, but it can also provide biased data, since this type of instruments assess the perceived level of EI which may not always coincide with the person's actual level of EI.

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