

**ORIGINAL PAPER**

**Research on the Association between Emotional Intelligence and Educational Achievement: A Case Study of the Pupils in the Senior High Schools of Sparta**

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**Abstract**

**Background:** In the past years a lot of questions have arisen about Emotional Intelligence (EI) and is seen with great interest and concern by the scientific community but also by the wider public.

**Aim:** The aim of the present study is the research into the association between emotional intelligence and educational achievement through the study of demographic and psychological characteristics of the pupils.

**Methodology:** The present is a quantitative cross-sectional study. In total 480 questionnaires were distributed to the pupils of the Second and Third classes of the Senior High Schools of Sparta and of those 79.4% responded. The tool used to measure Emotional Intelligence was Trait Emotional Intelligence Questionnaire- Adolescent Short Form by Petrides and his associates as well as the pupils' demographic particulars which included their Graduation Average achieved during the previous school year. The data collection was done in October 2013. The statistical methods used were testing t, test  $\chi^2$ , bi-variable analysis and multiple linear regressions. The bilateral level of statistical significance was set as equal to 0.05 while the data analysis was conducted with SPSS 19.0.

**Results:** The results revealed a significant statistical relationship between sociability indicator and the adolescents' assessment of performance ( $p=0.02$ ). Gender was statistically significantly related to Emotional Intelligence as a Personality Trait ( $p=0.03$ ) as well as in two out of its four individual factors: well-being ( $p=0.007$ ) and self-control ( $p=0.005$ ).

**Conclusions:** The results of the study showed that the overall Emotional Intelligence as a trait is not strongly related statistically to the grades achieved by the pupils. However, it was found that the increase in the sociability indicator is strongly related to better grades in Senior High School. Furthermore, it was found that girls when compared to boys, had a higher overall score in Emotional Intelligence as a Personality Trait but also in well-being and self-control.

**Keywords:** Emotional Intelligence, Educational Achievement, Emotional Development, Emotional Adequacy, Emotional Intellect.

## **Introduction**

In the past years, Emotional Intelligence has aroused many questions and intense interest but also concern in the scientific community as well as in the wider public.

The roots of EI go far back in time, to the meaning of social intelligence introduced by Thorndike (1920) and which refers to an individual's ability to comprehend and manage other individuals and to act wisely within human relationships. Similarly, Wechsler (1940) refers to the effect of non-cognitive factors on intelligent behaviour and claims that intelligent models will not be complete until the exact description of these factors has been achieved. Later in time, Gardner (1983) voiced his theory on multiple components of intelligence and introduced two new dimensions of social intelligence: interpersonal and inner-personal, which refer to an individual's ability to comprehend emotions and the mental processes of his own inner world as well as that of others. The term "Emotional Intelligence" was used for the first time in the field of psychotherapy by Leuner (1966) and later on in the field of personality psychology by Payne (1986) and Greenspan (1989). Salovey and Mayer (1990) were the ones who came up with the first official definition of Emotional Intelligence, which they later recasted, simultaneously starting an investigative programme aiming to develop valid tools for its measurement, in order to investigate its significance further. According to the latter EI "includes an individual's ability to perceive emotions accurately, to access and develop emotions in order to facilitate his/her thinking process, to comprehend emotions and emotional knowledge and to regulate his/her emotions in a way which will promote his emotional and mental development" (Mayer &

Salovey, 1997, p. 10). As stated by Mayer, Caruso and Salovey (1999, 2000) EI is closely related in terms of its structure and organisation to other forms of intelligence and its valid assessment can only be achieved through the method of objective measurement of its performance in projects which are related to emotions.

The term "Emotional Intelligence" became widely known through the literature of Daniel Goleman (1995, 1998), who, through the evaluation of programmes of Emotional Intelligence, collected and grouped its qualities into five dimensions: self-awareness, self-regulation, emotional motives, empathy and the ability to form relationships. Then, Bar-On (1997) defined EI as a group of emotions, social knowledge or abilities which affect the general ability of individuals to effectively face environmental requirements.

Petrides and Furnham (2001) were the first to suggest a conceptual discrimination between EI as a personality trait (Trait EI) and EI as an individual ability (Ability EI). EI, as a personality trait is defined as "a constellation of self-images regarding emotions, which lie at the lower levels of personality" (Petrides, Pita and Kokkinaki, 2007, p. 283). More simply, EI as a trait refers to an individual's self-imaging regarding his/her emotional abilities and is evaluated through self-reporting questionnaires (Mavroveli et al., 2007).

## **Emotional Intelligence and Educational Achievement**

In recent years, the question whether there is a relationship between emotional intelligence and educational achievement is acquiring significant strength. Babiniotis (2002, p. 647) defines performance as "progress and success in a certain field", "how well or badly one

performs” as well as “keen engagement in something specific”. Accordingly, Kriaras also (1995, p.505), when analysing the definition of performance in his dictionary mentions “particular engagement, development of an activity for a certain purpose”. So, performance is defined as the result of the aforementioned activity, which is everything achieved through an individual’s efforts. According to Kassotakis (1989, p.2018), in the framework of Educational Assessment, when using the term performance we usually mean the grade through which the individuals being educated achieve their pursued student goals. Abdali (1989) as stated by Theodosiadou (2013), claims that this conquest is quantitatively translated through grades (on a 10point or 20point scale) which pupils obtain for various subjects and is achieved through the use of various methods and techniques. The obtaining of satisfactory grades constitutes a means of distinction as well as a ticket for appraisal from the pupil’s parents as well as from his/her teachers. Respectively, obtaining unsatisfactory grades often leads to punishment and alienation of those pupils.

Therefore, the opinion regarding EI’s role as a factor of prediction and modulation of school performance is of great interest to scientists within various fields (psychologists, teachers, school nurses, etc) since it guides the way to the design of educational and psychological interventions.

However, the results from Greek and international studies (Petrides, Frederickson & Furnham, 2004; Downey et al., 2008; Parker et al., 2004; Bastian, Burns & Nettelbeck, 2005; Mavroveli, & Sánchez-Ruiz, 2011; Platsidou, 2005) on the said issue, based on samples of pupils and students, are not consistent since they do not reach a common conclusion.

The need for further investigation from the scientific community on the existing relationship between Emotional Intelligence and pupils’ educational achievement is imperative.

### **1.1. Purpose-Aims of the present study**

The aim of the present study is the investigation of the relationship between emotional intelligence and educational achievement through the study of demographic and psychological traits of the pupils. One of the aims is the present study’s contribution in locating the factors which affect educational achievement and the design of interventions leading to the reinforcement of the pupils’ knowledge, emotional and social skills aiming to the improvement of the quality of life for adolescents.

## **2. Methodology**

### **2.1. Study Sample**

The individuals under study were the 480 pupils of the Second and Third class of Sparta’s General High Schools, following the granting of the relevant permit from the Ministry of Education & Religion, Culture and Sport, subsequent to consultation from the Institute of Educational Policy. The pupils of the First class of the General High Schools did not take part in the study since their General Average achieved during their previous educational year referred to grades achieved in Junior High School. The questionnaires which were completed by the pupils – following written consent from their parents or guardians – were 381 (response percentage 79.4%).

### **2.2. Tool**

#### **2.2.1. Trait Emotional Intelligence Questionnaire- Adolescent Short Form**

Self-image of the pupils related to Emotional Intelligence as a personality trait (Trait EQ) was measured with the

Greek shorter version of the questionnaire evaluating Emotional Intelligence of adolescents as a personality trait (TEIQue-ASF) (Petrides et al., 2006). The specific tool is a simplified version of the short version of the questionnaire for adults (TEIQue-SF) (Petrides & Furnham, 2006) and consists of 30 items. The adolescent is asked to select his/her answer from a 7point Likert type scale (1= "I totally disagree" up to 7= "I totally agree"). From the TEIQue-ASF questionnaire there arise four factors (sub-scales) which evaluate

the following traits: well-being, self-control, emotionality and sociability. The four individual factors have values from 1 to 7, with the highest values indicating higher well-being, prosperity, self-control, emotionality and sociability. In order to be able to use the certain questionnaire we applied for and were granted permission by its compilers. The tool is available free of charge –for educational research - via London Psychometric Laboratory.

Table 1 consists of details regarding the four factors of EI and their interpretation.

**Table 1. Individual factors of Emotional Intelligence as a Personality Trait.**

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**The individuals who selected high values see themselves as:**

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**Well-being**

Self-esteem: successful and full of self-confidence.

Happiness Traits: happy and satisfied with their lives.

Traits of Optimism: they are trusty and look on the bright side of life.

**Self-control**

Emotional Control: able to control their emotions.

Stress Management: able to withstand pressure and manage their stress.

Impulsiveness (low): they have reflexes and are less likely to give in to their impulses.

**Emotionality**

Perception of Emotions: very clear regarding their own and others' emotions.

Expression of Emotions: able to convey their emotions to others.

Relationships: able to find fulfilment in their personal relationships.

Empathy: able to put themselves in other peoples' shoes.

**Sociability**

Social Awareness: able to achieve a network of relationships with exquisite social skills.

Management of Emotions: able to influence other peoples' emotions.

Assertiveness: direct, honest and willing to stand up for their rights

\***Adaptability:** flexible and able to adapt to new situations

\***Self-motivation:** do not give in to adverse conditions

**Overall Score of Emotional Intelligence as a Personality Trait**

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\*The above aspects are directly added to the overall score of Emotional Intelligence as a Personality Trait without being incorporated into any individual factor.

Demographic particulars include gender, class at school, date of birth and educational achievement. Educational achievement was evaluated based on the pupils' General Average of Graduation from the previous school year as it was received by the Headmaster according to each school's records.

In order to evaluate the inner reliability of the study tool, a pilot study was carried out which provided the opportunity to find ambiguities, non-comprehensible terms, difficulties in the selection of a response especially in the items where the responses were fixed. Through this pilot study the Cronbach  $\alpha$  was calculated as equal to 0.78 for overall EI, a fact which indicates inner reliability and it was also found that the content of the questionnaire was understood by the participants. In total, 480 questionnaires were distributed and the response percentage was 79.4%.

The participants' responses were recorded in Statistical Package for the Social Sciences 19.0 for Windows, through which the data was statistically processed and analysed. The category-based variables appear as absolute (n) and relevant (%) frequencies, whereas the quantitative variables appear as average value (standard variation). The control of Kolmogorov-Smirnov and the regularity diagrams were used for the control of the regular distribution of the quantitative variables. It was found that the quantitative variables were in line with regular distribution. Student's t-test was used for the investigation into the existence of a relationship between a quantitative variable and a bisection variable, whereas for the investigation into the existence of a relationship between two quantitative variables Pearson's correlation coefficient was used. The bilateral level of statistical significance was defined as equal to 0.05. The analysis of the data was performed

through SPSS 19.0 (Statistical Package for Social Sciences).

The distribution and collection of the questionnaires was done within one month (October 2013).

## **Results**

A 61.9% (n=236) of the participants were girls, whereas 38.1% (n=145) were boys. 51.2% (n=195) were in the Third class of Senior High, whereas 48.8% (n=186) were in the Second class of Senior High. The average grade of the pupils was 15.2 (2.9).

Cronbach's alpha ( $\alpha$ ) internal consistency rate of the questionnaire TEIQue-ASF was 0.78, which indicates acceptable internal consistency of the questionnaire.

Table 2 presents the adolescents' grades in respect to the indicators of emotional intelligence, well-being, self-control, emotionality and sociability. The well-being indicator had the highest average value (5.1) followed by emotionality (4.9), sociability (4.9), emotional intelligence (4.8) and self-control (4.3).

Table 3 presents the results of the bi-variable analysis among the 5 indicators and senior high school grade for educational achievement, gender and class being attended. The sociability indicator showed a significant statistical relationship to the adolescents' grade of educational achievement in senior high school. More specifically, there was an increase in the sociability indicator which was related to an increase in educational achievement in senior high school ( $r=0.12$ ,  $p=0.02$ ). No statistically significant relationships were found between the remaining indicators and educational achievement in senior high school. The boys had a higher grade average on the emotional intelligence indicator ( $p=0.03$ ), the well-being indicator ( $p=0.007$ ) and the self-control indicator ( $p=0.005$ ).

**Table 2. Pupils’ scores as related to the indicators of emotional intelligence, well-being, self-control, emotionality and sociability.**

<b>Indicator</b>	<b>Average value</b>	<b>Standard Deviation</b>	<b>Median</b>	<b>Minimum value</b>	<b>Maximum value</b>
Emotional intelligence	4.8	0.6	4.8	2.8	6.3
Well-being	5.1	1.1	5.3	1.2	7.0
Self-control	4.3	0.9	4.2	1.7	7.0
Emotionality	4.9	0.8	4.9	1.6	6.6
Sociability	4.9	0.8	4.8	2.0	7.0

**Table 3. Bi-variable analysis between the indicators of emotional intelligence, well-being, self-control, emotionality and sociability on the one hand and educational achievement in senior high school, gender and class being attended on the other hand.**

	<b>Indicator</b>				
	<b>Emotional Intelligence</b>	<b>Well-being</b>	<b>Self-control</b>	<b>Emotionality</b>	<b>Sociability</b>
Senior high school achievement <sup>a</sup>	0.07 (0.2)	0.07 (0.2)	0.05 (0.4)	-0.04 (0.5)	0.12 ( <b>0.02</b> )
Gender <sup>b</sup>	<b>0.03</b>	<b>0.007</b>	<b>0.005</b>	0.3	0.3
Boys <sup>c</sup>	4.9 (0.6)	5.3 (1.1)	4.5 (0.9)	4.8 (0.8)	4.9 (0.8)
Girls <sup>c</sup>	4.8 (0.7)	5.0 (1.1)	4.2 (1.0)	4.9 (0.8)	4.8 (0.9)
Class being attended	0.5	0.7	0.8	0.22	0.9
Second Senior High	4.8 (0.7)	5.1 (1.1)	4.3 (1.0)	4.8 (0.8)	4.9 (0.8)
Third Senior High	4.8 (0.6)	5.1 (1.1)	4.3 (0.9)	4.9 (0.8)	4.9 (0.8)

<sup>a</sup> Pearson’s Correlation Coefficient (value p)

<sup>b</sup> Value p, control t

<sup>c</sup> Average value (standard deviation)



## **Discussion**

According to the present study one of the basic factors of EI, the one of sociability, is significantly related to educational achievement as evaluated from the pupils' previous year's Graduation Average Grade. The results of the study showed that although the overall Emotional Intelligence as a trait did not have a strong statistical relationship to the pupils' educational achievement, the increase of the sociability indicator is related to better grades in Senior High School. In researches which have been carried out using the self-report method (Ciarrochi, Chan & Bajgar, 2001; Schutte et al., 1998) there seems to be substantial supremacy of the girls related to high EI. However, in the present study it was found that boys in comparison to girls, had a higher score in overall Emotional Intelligence as a Personality Trait as well as in two out of its four individual factors: well-being and self-control.

Studies from the international scientific community on similar topics, in which Emotional Intelligence has been evaluated through self-report questionnaires as well as through objective measurement of achievement questionnaires, do not reach a common conclusion. In the study of Mavroveli & Sánchez-Ruiz (2011) on a sample of 565 pupils of primary education level, where the pupils completed the questionnaire of Emotional Intelligence as a Personality Trait for children (TEIQue-CF), the relationship between EI and educational achievement was average and limited, whereas in a study (Hansenne & Legrand, 2012) on a sample of 73 pupils in which EI as a Trait was evaluated using the same tool (TEIQue-CF), no influence on educational achievement was found.

In a study in Greece (Platsidou, 2005) on a sample of 248 adolescents where EI

was measured with the use of a self-report questionnaire compiled by the writer according to the model of Schutte et al. (1998), a significant statistical relationship to educational achievement was found, which was based on the previous year's average grade. From the individual emotional dimensions, in the same study, the only significant relationship found was that between management of emotions and educational achievement.

Furthermore, through the study of Marquez, Martin and Brackett (2006), carried out on a sample of 77 Junior High School pupils, who completed the EI scale of Mayer, Salovey & Caruso (MSCEIT V 2.0), it was found that pupils with a higher EI had a higher educational achievement. Similar results were found through the study of Downey et al. (2008), in which the relationship of EI to educational achievement was studied for 209 adolescents in Secondary Education. The pupils completed the Emotional Intelligence scale for adolescents of the University of Swinburne (SUEIT). In this study a higher educational achievement seems to be related to higher levels of EI.

In a study carried out by Petrides, Frederickson & Furnham (2004) a strong relationship between EI and educational achievement was found in pupils of a low IQ level, according to which pupils with a low IQ level are forced to draw on resources beyond their cognitive abilities in order to deal with the demands of the school subjects. Furthermore, in this particular study, EI as a Trait had a different dynamic according to the subject being taught. In conclusion, there was a strong influence of EI as a Trait in the subject of English and in every pupil's grade on his/her General Secondary Education Certificate as opposed to Maths and Physics where its influence was negligible.

The study of Agnoli et al. (2012) on a sample of 352 pupils of primary education was in the same direction. Emotional Intelligence as a Trait, as evaluated from scale TEIQue-CF, was related to a better level of achievement in the subject of Language when the pupils were characterized as low or average achievers in cognitive skills as compared to pupils who were characterized by a high level of cognitive skills. Furthermore, the results of the said study showed a high predictive ability of EI on the performance in the subject of Maths.

In a study carried out by psychologist Parker et al. (2004) on a sample of adolescent pupils it was observed that success in school was strongly connected to various aspects of EI. EI was evaluated through scale Bar-On (EQ-i) and the pupils with high grades showed higher levels of inter-personal dimension, adaptability and stress management ability. The said study confirmed the findings made by the same researcher (Parker et al., 2004) through a previous study of his on a sample of first year students, where, overall, these variables were seen as a strong prelude of academic success or failure during the first year of tuition.

In the study of Sanchez-Ruiz, Mavroveli & Poullis (2013), which was conducted on a sample of 323 students of the University of Cyprus, it was found that EI, as measured through TEIQue-SF, had a positive but average relationship to educational achievement. On the contrary, in the study of Shipley, Jackson & Segrest (2010), on a sample of 193 undergraduate students where Emotional Intelligence was evaluated through the same tool (TEIQue SF), its relationship to the students' educational achievement was statistically insignificant. However, the students of the mid-grade scale showed significantly higher scores on the well-being indicator compared to the

students with higher grades. Similar results were found from the study of O'Connor and Little (2003), where EI, as a factor for the prediction of educational achievement, was assessed on a sample of 90 newly registered psychology students through a self-report questionnaire (EQ-i) and a skills questionnaire (MSCEIT). It was proven that EI (regardless of the method used to measure it) does not constitute a strong prediction factor of students' educational achievement. Bastian, Burns & Nettelbeck (2005) study was along the same line, in which it was concluded that the relationship of EI to educational achievement was low and statistically insignificant. The sample of the said study consisted of 246 (mainly) first year students of higher education, and whose EI was measured through: Trait Meta Mood Scale, Assessing Emotions Scale, Mayer Salovey and Caruso Emotional Intelligence Test Version 2.0. On the contrary, Chew, Zain & Hassan (2013), in a study on a sample of 163 first year Medical University students, it was found that EI, as evaluated through MSCEIT, constitutes a significant factor in the prediction of educational achievement. The students of Medical University, who were emotionally intelligent, showed higher levels of achievement in the continuous assessment process as well as in the final examinations. In the said study, the significant influence of EI on educational achievement was attributed to the students' ability to precisely perceive their emotions as well as to precisely comprehend the emotional causes. A similar result was found in the study conducted by Fernandez, Salamonson & Griffiths (2012) on a sample of 81 students of the Nursing Department of the University of Sydney. Emotional Intelligence as measured through TEI-Que for adults, was proven a significant prediction factor of the students'



educational achievement. More specifically, higher levels of consciousness and understanding of their own emotions had a positive influence on educational achievement.

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