The Predictive Level of Emotional Intelligence for the Domain-specific Creativity: A Study on Gifted Students

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Abstract

The relationship between intelligence, emotional intelligence and creative thinking skills is complicated, multi-layered and multi-dimensional. The general purpose of this study is to determine the relationship between emotional intelligence of the students and their domain-specific creativity and the effect of emotional intelligence in predicting domain-specific creativity. Two different high schools were accepted as the study group and the data obtained from 239 gifted students was included into the study. In the study, the Creativity Tests for Kaufman Domains adapted by Şahin (2015b, 2015c) and the Trait Emotional Intelligence Questionnaire–Short Form adapted by Deniz, Özer and Işık (2013) were employed. The results of analysis revealed that the sociality which is one of the sub-dimensions of emotional intelligence was in relation with the entire creativity subdomain and self/everyday creativity subdimension was in relation with the entire emotional intelligence dimensions. Moreover, it was determined that sociability could predict academic creativity, artistic performance and self/ everyday creativity whereas the other dimensions failed in doing it.

Introduction

The history of studies for understanding and defining intelligence dates back to Plato and Conficius. Both philosophers regarded intelligence as a gift of god for human beings (Ziegler and Heller, 2000) and brought proposals for identifying and supporting the gifted individuals (Mönks, Heller, and Passow, 2000). Since the ancient times, another skill which draws the attention of human beings has been creativity as well as intelligence. Plato wrote his opinion about the creativity process in poetry as a response to Socrates (Rothenberg and Hausman, 1976, as cited in Sak, 2014).

The relationship between intelligence and creativity is multilayered, multidimensional and complicated. This situation beclouds the assessment of both concepts independent from each other. When the term emotional intelligence which enables the productive and effective use of both structures is added, on the other hand, it becomes much more difficult to solve the puzzle. The general purpose of this study is to analyze the levels of emotional intelligence among the gifted students on their creativity. Within this scope, the emotional intelligence, the relationship between emotional

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intelligence and giftedness, giftedness-creativity and emotional intelligence-creativity will be discussed and then the conceptual framework of the creativity sub-fields will be outlined.

Emotional Intelligence

Emotional intelligence is a concept which is defined as comprehending, explaining and managing own feelings and the feelings of others (Mayer, Salovey, Caruso and Sitarenios, 2001). Although emotions are common for entire human beings, individuals process their emotions and differentiate in using those (Petrides and Furnham, 2003). In order to express the emotions effectively and relevantly in explaining the emotional intelligence, the elements such as having the competences of managing them (Cooper and Sawaf, 2003), rationalizating the emotions and competence of receiving and explaining the emotion, using and understanding the emotions to facilitate ideas, managing the emotions for emotional improvement and competence of managing all draw attention (Brackett and Warner, 2004).

Petrides and Furnham (2000) consider the emotional intelligence in two forms such as emotional intelligence as a "trait" and "information processing process". The Trait Emotional Intelligence (TEQ) is regarded as self-oriented perceptions related to emotions and located into the concept of "personality" and includes the individual differences of the individual related to experiencing, identifying, understanding, organizing and using his/ her own emotions or other people (Petrides and Funham, 2001). In other words, the trait emotional intelligence emphasizes personal tendencies in perceiving, processing, organizing and using the emotional information and it includes qualifications related to personal intrinsic evaluation of the individual (it reflects itself in particular attitudes and traits such as consistent attitudes in different environments, optimism, safe assertiveness and empathy).

According to the researches, emotional intelligence increases the levels of adapting strategies. The individuals with high emotional intelligence may cope with stress better and have larger social networks; they also may get higher grades in academic performance – through decreasing the negative effect of the pressure (Petrides, Fredericson and Furnham, 2004). The individuals with higher emotional competences are the individuals who facilitate having higher levels of life saturation and subjective well-being; have higher capacities in obtaining, using, perceiving and managing the emotions of himself/ herself and other people. The individuals with higher emotional competences have more adequate mechansims to cope with the situation and regard the situation as an opportunity for their development rather than considering it a threat (Mikolajczak and Limunet, 2008). The more ability of the individuals for recognizing their own feelings, perceiving the feelings of the others and manipulate their emotions increase; the more their perception to solve the problems increase (İşmen, 2001). Moreover, the more optimism and skills of expressing feelings which are among the sub-indicators of emotional intelligence increase among the individuals; the more their life satisfaction levels increase (Akkan, 2010; Koçak and İçmenoğlu, 2012).

The feature of high emotional intelligence helps the individuals choose the transducer strategies, reduce the negative feelings and replace the positive emotions. Against the troublesome events and situations, individuals with high emotional intelligence experience less stress than those with lower emotional intelligence, during exam, the individuals with higher EQ, levels show psychological symptoms and somatic complaints lesser than those with lower EQ (Mikolojczak and Limunet, 2008). Individuals with higher emotional intelligence levels are more successful at regulating their emotions and evaluating the social clues, better at providing the encouragement in social relations and they are accepted more by the others (Mavroveli, Petrides, Sangareau&Funham, 2009).

Giftedness – Emotional Intelligence

According to the general intelligence theory suggested by Spearman (1904), the intelligence is regarded as a general cognitive power that affects all the activities of the individual. Especially after 1980's, however, this point of view which means the competence levels of individuals might differ and the domains could be completely independent from each other started to be discussed. One of those approaches is the theory of emotional intelligence.

Although the literature related to emotional intelligence is rather large and prosperous, the number of available studies is relatively limited. In the study of Singh and Sharma (2012), the performance sub-dimension of WISC-R India version was compared to the scores of intelligence developed by Schutte and measured using Emotional Intelligence Scale. No significant relation was obtained between both variants ($r= -.26$). A similar result was obtained in the study of Haro and Castejon (2014). The researchers compared the scores obtained from the Spanish version of the General Intelligence Test developed by Catell (1993) to the scores obtained from the Spanish version of Trait-Mood-Scale-24 (as cited in Haro and Castejon, 2014). No relationship was determined between general intelligence and emotional perception, comprehending the emotions, emotional self-arrangement which is all sub-dimensions of emotional intelligence. In the study of Leana and Köksal (2007) conducted on total 53 students in the first year of the primary schools which 32 of them were gifted while 21 of them had an average level of intelligence. No significant relationship was determined between WISC-R verbal, performance and total scores and Bar-On Emotional Intelligence Test. In the study of Derksen, Kramer and Katzko (2002), a slight positive and significant relationship was determined between emotional intelligence and general intelligence ($r= .08$). On the other hand, Wolfradtz, Felfe and Köster (2001) determined a nonsignificant negative relationship between verbal intelligence and self efficacy and a slightly negative significant relationship between perceiving and verbal intelligence ($r = -.17$).

In another study, the emotional responses which are effective on the interaction of the individual with his/ her environment were analyzed from the point of Dabrowski's hyperalertness domains. It was determined that the gifted students obtained higher scores-Dabrowski's hyperalertness domains - than their peers in kinetic, emotional and intellectual domains while they obtained similar scores in affective and creativity fields (Yakmacı-Güzel, 2002). The way individual perceives himself and his interaction with his environment have impact on his emotional intelligence level (Köksal, 2007). In a similar study, it was analyzed that whether the gifted individuals differ from their peers from the point of the density and qualification of their interaction with other people and personality traits having indirect impacts on them the data was compiled through a meta-analysis study. The studies executed on the personal traits of the gifted people and their peers were compiled through a meta-analysis study. As a result of the 14 researches which employed MBTI personal traits inventory, it was determined that the gifted students were more extraverting (51.30%), more intuitoning (71.60%), more thinking (53.80%) and more perceiving (60.10%) than their peers (Sak, 2004).

In another group of researches, some affective traits to be considered within the context of emotional intelligence were analyzed. In the aforementioned researches, it was determined that gifted individuals were in better situation than their peers in the social development and adaptation, they were sensually happy, controlled and optimistic and they experienced less problems related to the school discipline, crime and aggressive behaviors (Terman and Oden, 1976). Moreover, they were determined to be the individuals who can experience emotional density (Chan, 2000; Finley, 2008; Terman and Oden, 1976), having advanced level of feelings of humor and aesthetics (Finley, 2008), are into their independency (Durr, 1979; Endepohls-Ulpe and Ruf, 2005; Terman and Oden, 1976), having more developed self-conception than their peers (Durr, 1979), internally motivated individuals (Chan, 2000). While interpreting the research findings in this group, however, it should be considered that the occurrence levels of those behaviors might suddenly become distinct (Gross, 2004; Özbay and Palancı, 2011) and might emerge in any period of the developmental process (VanTassel-Baska, 1998).

Giftedness – Creativity
The relationship between intelligence and creativity is another research subject which draws the most attention and employs the most contradictory results in the literature. It was mainly aimed to explain the aforementioned relationship using threshold hypothesis in the studies. According to this hypothesis, an individual should at least have a medium-level intelligence in order to exhibit creative performance and the rate of relationship between intelligence and creativity is expected to be higher below 120 IQ scores than the individuals having the scores over 120 IQ (Kim, Cramond and VanTassel-Baska, 2010; Runco, 2007). The findings from a group of studies (Cho, Nijenhuis,

VanVianen, Kim and Lee, 2010; Fuchs-Beauchamp, Karnes and Johnson, 1993; Şahin, 2014) support the hypothesis while some others had contradictory findings (Kim, 2005; Runco and Albert, 1986; Runco, Millar, Acar and Cramond, 2010; Preckel, Holling and Wiese, 2006; Sligh, Conners and Roskos-Ewoldsen, 2005).

In a group of studies, the relationship between intelligence and creativity was analyzed ignoring the threshold effect. In this context, a relationship with general intelligence at the levels of $r=$ .34, .12, .20 and .21 (respectively, Batey, Chamorro-Premuzic and Furnham, 2009; McCloy and Meier, 1931, as cited in Ogurlu, 2014; Silvia, 2008), the fluid intelligence rate of $r=$ .43, .26 and .21 (Batey, Chamorro-Premuzic and Furnham, 2009; Batey, Furnham and Safiullina, 2010; Virgolim, 2005) was determined. In addition to this, there are also studies where no significant relationship was obtained (Furnham, Zhang and Chamorro-Premuzic, 2006; Plucker, 2010; Richmond, 1966; Sanchez – Ruiz, Hernandez – Torrano, Perez – Gonzalez, Batey and Furnham, 2011; Solomon, 1967; Yoon, 2005). Even, there are studies reporting negative correlation (Batey and Furnham, 2006). The results of a study which analyzed the scores of WISC-R sub-dimension and sub-scores of Torrance Creativity Thinking Test (TTCT) through factor analysis technique indicate that intelligence and creativity are different structures (Şahin, 2015a).

According to Jauk and others (2013), the main reason for the occurrence of different and contradictory results in the studies which the relationship between intelligence and creativity is analyzed is that the criteria of 120 IQ score which was regarded as the threshold value is deprived of experimental proof. In addition to this opinion, Şahin (2014) stated that this occasion results from the different criteria of assessment tools and the nature of the assessed groups. According to Şahin, -in addition to this opinion– the reason for this occasion comes from the different criteria in the evaluation instruments employed in various researches and nature of the evaluated groups. The emerging of different findings is among the factors which cause this occassion.

Emotional Intelligence-Creativity

The multi-dimensional nature of the creativity depends on the interaction between personal traits of the individual, his/ her cognitive competence, thinking style and motivation (Amabile, 1983, 1996; Sternberg and Lubart, 1991). Creative thinking differentiates as creative potential and creative performance. Since potential dimension was reviewed in this study, the sub-title will be limited within this context.

Creative potential has two important critera. They are divergent thinking (Guilford, 1966) and creative personality traits. The findings from the studies of Barron and Harrington (1981), Runco (1994) and Feist (1999) summarize the general personality traits seen in the individuals with high creativity. In one of their collected works, Barron and Harrington (1981) which classified the individuals with higher creativity have common interests, high aesthetical criteria, risk-taking, energetic, they are able to make independent decisions, internally motivated, interrogator, self-confident and having ability to bring different perspectives. Runco (1994) defines the individuals with high creativity as the people who are successful in coping with difficulties and can manage the tension effectively. The creative individuals have higher tendency to new experiences and ideas and they can give independent decisions. They can convince others related to the quality of their opinions and use social competencies effectively. In one of his studies, Feist (1999) summarized the traits of the individuals with high creative achievement in the domains of art and science. He reported that the scientists are open to new experiences, more traditionalist, having high self-confident, having high self-perception, internally oriented, ambitious and aggressive. The artists were determined to be more affective, a nonstationary mood, having lower social competencies and less accepted by the group members than the scientists. According to Russ (1998), the personal traits related to emotions facilitate creativity. The executed studies point out two emotional traits. They are sensitivity to emotions (perceiving and expressing emotions) and self-control (regulation of emotions and stress control) (Feist, 1998).

The relationships between divergent thinking and personality traits of the individual were analyzed by a group within the content of "Big Five personality traits". In those studies, a positive

relationship was determined between divergent thinking and being open to new experiences (Furnham, Batey, Anand and Manfield, 2008; Furnham and Bachtiar, 2008; McCrae and Costa, 1997), extravertion (Batey *et al.*, 2009; Furnham *et al.*, 2008; Furnham and Bachtiar, 2008), agreeableness and conscientiousness (Furnham and Bachtiar, 2008). In a study by Batey, Furnham and Safiulluna (2010), on the other hand, no significant relationship was determined divergent thinking fluency rates and personality traits. Even, there is a study which has found a negative relationship with conscientiousness (Furnham and Bachtiar, 2008).

In a meta-analysis study which employed eighty three studies on scientific and artistic creativity, a positive relationship was found between extraversion, openness and neuroticism while a negative relationship was found between agreeableness, and conscientiousness (Feist, 1998). In a longitudional study of 45 years which Soldz and Vaillant (1999) executed on 163 males, a positive relation with openness was determined (*r*= .40) while a negative relation with agreeableness (*r*= −.27) was determined. No significant relationship was determined in the other three personality traits.

In another study which Wolfradtz, Felfe and Köster (2001) analyzed the relationships between the emotional intelligence and five major personality traits; a positive relationship was determined between the dimensions of self-efficiacy, empathy and utilization and extraversion, openness, agreeableness, and conscientiousness (respectively, *r*= .42, .16, .28, .45, .27, .33, .27, .21, .24, and .21); a significant and positive relationship was determined between the dimension of perceiving and extraversion and agreeableness (*r*= .16 and .15); a negative relationship was found between emotional balance and self-efficiacy and empathy (*r*= −.52 and −.16) while a non-significant relationship was found between neuroticism and utilization and perception. Moreover, significant relationships were determined between creative personality scale and self-efficiacy, empathy, utilization and perception (respectively, *r*= .55, .40, .33, and .36). A similar study was conducted by Sanchez – Ruiz and others (2011). The researchers found significant and positive relationships between well-being, self-control, sociability and global emotional intelligence and creative personality (respectively; *r* = .19, .19, .40, and .29), and nonsignificant relations were determined with emotionality. Significant relationships were determined between the total of divergent thinking test TTCT and openness (*r*= .29) and neuroticism (*r*= .23) while non-significant relations were found in other dimensions. Moreover, a negative relation was determined between the total of TTCT and self-control (*r*= −.10); a positive relationship was determined with sociality (*r*= .03) yet the relationships in the dimensions of well-being, emotionality and global emotional intelligence weren't significant. In the doctoral thesis which Bender (2006) collected data from 80 university students, significant and slight reltionships were determined between the originality, flexibility and fluency scores of TTCT Verbal Form and total score of Bar-On Emotional Intelligence Scale (*r* = .23, .26 and .25, respectively).

Creativity Sub-Fields: Conceptional Framework

One of the contemporary discussions in the literary of creativity is whether creativity is a domain-specific or a general aspect. According to Guilford (1966), the creative thinking ability (which he described as divergent thinking) is a general cognitive characteristics which emerges in various fields such as art and science. According to Gardner (2009), it describes human cognition – in the theory of multiple intelligence which he presented in 1983 for the first time – as mutual interaction of numerous factors. The factors are relatively independent from each other and they differ from each other from two aspects. The first of them is the basic data processing operations employed for each mental process function according to their domain-specific principles. The second one is that data processing operations which are in direct interaction with domain-specific forms of the information. In the specific occasions, an activity/process may occur in more than one intellectual field. The creative responses may emerge depending on the interactions between domain-specific knowledge, skills and educational life. The Creativity Componential Model of Amabile (1983, 1996) and the Amusement Park Theory by Kaufman and Baer (2004b) are theoretical approaches supporting the idea that creativity is domain-specific. In various experimental studies, there are results supporting both perspectives. In a group study, it was found that creativity is domain-specific (Baer, 1991, 1994, 1996, 2003; Baer, Kaufman and Gentile, 2004; Han, 2003; Hickey, 2001) while another group of studies

revealed that creativity is a general characteristic (Conti, Coon and Amabile, 1996; Eunsook and Milgram, 1995).

One of the topics which incorporates no concensus in literature of creativity is the sub-fields of creativity. Various researchers conducted studies considering various sub-fields (For the sample studies; Ayas and Sak, 2014; Carson, Peterson and Higgins, 2005; Kaufman, 2012; Kaufman and Baer, 2004a; Kaufman, Cole and Baer, 2009; Oral, Kaufman and Agars, 2007; Rawlings and Locarnini, 2007). In this study, the creativity sub-fields presented by Kaufman (2012) was considered. The aforementioned researcher conceptualized creativity in five sub-fields. They are scholarly, mechanical/scientific, artistic performance, self/ everyday and art.

While scholarly (academic) creativity is developed, the intellectual creativity by Ivcevic and Mayer (2009), the language field by Feist (2004) and linguistic intelligence field of Gardner (1999) were considered. Mechanical/scientific creativity is theoretically based on the logical-methematical intelligence and naturalist intelligence by Gardner, intellectual creativity by Ivcevic and Mayer and scientific factor by Carson and others (2005). The field artistic performance was developed considering bodily/ kinesthetic and musical intelligence by Gardner, performance arts by Ivcevic and Mayer and musical field of Feist. Self/ everyday creativity field is based on the interpersonal and intrapersonal intelligence by Gardner and creative life style by Ivcevic and Mayer The theoretical infrastructure of the field of art was presented through inspiring from the spatial intelligence by Gardner, the art factor by Carson and others and the field of art by Feist.

In brief, there are scattered and contradictory results in the studies which the relationships between giftedness-creativity and emotional intelligence-creativity are analyzed. There is limited availability of researches in the literature related to the relationships between intelligence and emotional intelligence while there is limited number of studies consisting the analysis of the relationship between the general intelligence scores of the individuals and their emotional intelligence scores and which is related to the gifted people. However, gifted individuals differ from their peers according to with their both cognitive traits and socio-emotional traits (Detailed information: Saranlı and Metin, 2012; Özbay and Palancı, 2011; Şahin and Kargın, 2014). According to Shiyko, Rim and Grimm (2012), on the other hand, some sub-groups which data is collected from may have different ranges. Hair, Hult, Ringle and Sarstedt (2014) suggest reviewing and defining unobserved mixed groups in the sampling in order to avoid the possible mistakes that may emerge during the analysis of the data set containing mixed groups. In other words, the scores of those sub-groups should be computed separately when there are possible sub-groups which may distort the homogeneity in the study group (Bryne, 2010). Considering the fact that the socio-emotional traits of the gifted students might differ from their peers and there are contradictory results and statistical suggestions in the literature, it was concluded that conducting the study with the individuals with gifted would provide more healthy results.

The general purpose of this study is to analyze whether there is a relationship between emotional intelligence and creativity among the gifted students and the effect of their emotional intelligence in predicting their creativity. The answers will be sought for the following questions within the context of this general purpose:

1. Is there a significant relationship between domain-specific creativity of the gifted students (academic, mechanic/scientific, artistic performance, self/everyday, and art) and their emotional intelligence (well-being, self-control, emotionality, sociability, global emotional intelligence)?

2. Does the emotional intelligence of the gifted students significantly predict their domain-specific creativity?

Methods

Study Group

The study was conducted on the students[4] of two different science high schools in 2014-2015 educational years. The schools where data was collected were chosen among the schools in the 3% percentile and according to the principles of easily accessible convenience sampling. One of the high schools was public high school while the other was a private enterprise. In order to enroll to the aforementioned high schools, there is an exam to pass secondary education from the basic education (TEOG) which is conducted all over the country and is a mixture of competence and achievement tests is required. In the TEOG exam, the students who ranked in the first one percent share all over Turkey were enrolled to the science high school of private enterprises while those who were in the first 2.75 percent share were enrolled to the science high schools of public enterprises (Ministry of National Education, 2014). Data was collected from 239 students through Trait Emotional Intelligence Scale-Short Form (TEQ-SF) and Kaufman Domains Creativity Scale (KDOCS). Of all the students, 122 of them (51.05%) were females (48 of them in the 9 th grade, 35 of them in the 10.th grade, 23 of them in the first grade and 16 of them are in ythe 11.th grade) and 111 of them (46.44%) were males (40 of them in the 4.th grade, 30 of them were were in the 10.th grade, 21 are in the 11.th grade and 20 of them were in the 12.th grade). 6 of the students (2.51%) didn't state their gender or grade. The students are voluntarily participated the research. The data of research was analyzed through using 16.0 version of SPSS package program.

Data Collecting Instruments

Trait Emotional Intelligence Scale-Short Form (TEQ-SF): TEQ-SF is a scale developed by Petrides and Furnham (2000, 2001) based upon the conceptualization of emotional intelligence as a "trait of personal character". The scale was adapted into Turkish by Deniz, Özer and Işık (2013). The adaptation was sustained with 464 students attending university. As a result of the adaptation, a structure consisting of 20 items and four factors was asserted. As a result of Confirmatory Factor Analysis (CFA), the fit indices of the model were determined as; $\chi2/df= 2.46$, $GFI= .95$, $AGFI= .92$, $CFI= .91$, $RMSEA= .056$, and $SRMR= .060$. Two different types of scores are obtained from the scale. The internal consistency reliability coefficient of TEQ-SF; .72 for well-being factor, .70 for self-control, .66 for emotionality, .70 for sociability .81 for the totaly scale and test-repeat reliability score was calculated as .86. The internal consistency reliability coefficients of this research are given in Table 1. The scale was prepared in seven point likert scale. The minimum score which may be obtained from sub-dimensions is 4 while maximum score is 28. Moreover, another score which is called as global emotional intelligence score might be obtained from the scale. The range of the scores to be obtained from the scale is between 4 and 28. Three field experts were consulted about whether the scale adjusted for the university students could provide convenient results for the gifted students of high schools and it was decided to employ in this study upon the responses of those experts stating that positive results could be obtained without any alterations in the measurement instrument.

Kaufman Domains Creativity Scale (KDOCS): Through the scale consisting 50 items and developed by Kaufman (2012) with the approach stating that creativity appears in a "domain-specific" form, the creativity skills in the academic, mechanical/ scientific, artificial performances, self/ everyday and art domains. The scale is assessments according to self-evaluation method. The scale was adapted

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[4] According to the Theory of Three-Ring Conception of Giftedness, giftedness emerges depending on the interaction between motivation, creative abilities and above average ability (Renzulli, 2005). In the description of the aforementioned individuals, numerous instruments with various characteristics from intelligence or creativitiy tests to general ability test may be used separately or together. Within the framework of the description by Renzulli, the science high schools in Turkey may be regarded as private schools which serve to gifted (gifted and talented students in the intellectual fields) (Sak, 2007). According to the description accepted by the Ministry of National Education (2012), "The individuals who display higher level performances than their peers from the points of intelligence, creativity, art, sports, leadership capacity or in the special academic fields" are regarded gifted. According to this definition, the students who are within the 2-3% percentile and attend science high schools may be considered as gifted within the context of "special academic ability".

into Turkish by Şahin (2015b, 2015c). In order to bring KDOCS into Turkish, the consent was obtained from James C. Kaufman through e-mail. Then, the adaptation activities started. For the language equivalence of KDOCS, the scale was translated into Turkish from English by two expertisized people who know both English and Turkish well. Afterwards, the form which had been previously translated into Turkish was re-translated into English from Turkish by two different people who are experts in their field. Those translation forms were compared by two people who are experts in their field and they were finalized. The adaptation activity was conducted on 254 gifted students attending science high schools. As a result of the adaptation, a structure with 42 items and five factors were presented. The fit indices of the CFA model was found as; $\chi^2_{(765)}$= 1480.75 p< .01; χ^2/Sd= 1.93, $RMSEA$= .06, $SRMR$= .074, CFI= .93, and GFI= .78. The internal consistency reliability coefficient of KDOCS was found as .87 for academic creativity, .84 for mechanic/ scientific creativity, .86 for creativity in the field of artisitic performance, .77 for self-everyday creativity, .83 for art creativity, and .90 for the totaly scale. The internal consistency reliability coefficients of this research are given in Table 1. The scale is in five point likert form. The scores to be obtained from sub-dimensions are as follows; 5-55 for creativity, 7-35 for mechanic/ scientific, 9-45 for artistic performance and self/ everyday, 5-25 for art field, and 42-201 for totaly scale.

Findings

First of all, it was tested in the study that whether TEQ-SF developed for pre-analysis on the university students would provide similar results for gifted students. As a result of CFA, t values of the observed and unobservable variants were found to be significant (p< .01). Model fit indices are as computed; $\chi^2_{(98)}$= 189.64 p< .01; χ^2/Sd= 1.94, $RMSEA$= .063, $SRMR$= .066, CFI= .94, $AGFI$= .88, and GFI= .91. As a result of CFA, it was concluded that TEQ-SF scale could provide convenient results. After then, the arithmetic mean, standart deviation and Cronbach α internal consistency coefficients of the responses of the participants for the questions of the scale were measured.

Table 1. The Descriptive Statistics and Internal Consistency Coefficients of TEQ-SF and KDOCS

Measurement Instruments	Sub-domains / Scores	Scores		α
		$\overline{X}$	SS	
TEQ-SF	Well-being	19.54	4.55	.66
	Self-control	17.65	6.06	.60
	Emotionality	19.31	4.05	.60
	Sociability	20.48	4.63	.61
	Global emotional intelligence	19.15	4.79	.64
KDOCS	Academic	33.90	7.26	.83
	Mechanic/ scientific	20.03	6.09	.80
	Artistic performance	25.83	8.45	.86
	Self/ everyday	32.24	4.66	.67
	Art	14.45	4.57	.75

The the arithmetic means and standard deviation of the scores from two measurement instruments are given in Table 1. The Cronbach α internal consistency coefficients for measurement instruments were calculated as .91 for KDOCS while sub-tests are within the range of .83 – .67. TEQ-SF sub-tests are within the range of .60–.66. In the study, it was analyzed that whether there is a relationship between the domains of emotional sub-score and the domain of creativity.

Table 2. The Relationships Between Sub-Dimensions of KDOCS and TEQ-SF

KDOCS	TEQ-SF				
	Well-being	Self-control	Emotionality	Sociability	General EQ
Academic	-.002	-.021	.124	.236**	.099
Mechanic/ Scientific	.108	.049	-.072	.127*	.082
Artistic performance	-.007	-.084	.084	.211**	.011
Self/ Everyday	.145*	.193**	.229**	.311**	.279**
Arts	-.036	-.057	.010	.144*	.051

N= 239, *p< .05, **p< .01.

As seen in Table 2, a positive, slight and significant relationship was determined between the sub-scores of sociability and mechanic/ scientific, artistic performance, self/ everyday and art (r= .236, .211, .311, and .284, p<.05; r= .127, and .144, p<.01). Moreover, a similar relationship was found between TEQ-SF sub-scores and self/ everyday creativity. (r= .145, p<.01; r= .193, .229, .311, and .279, p<.05). No significant relationship was observed between the other sub-scores of KDOCS and TEQ-SF (p>.05). In the study, emotional intelligence sub-domains were examined predictors of creativity sub-domains.

Table 3. The Results of Regression Analysis

KDOCS Sub-fields	R	R^2	F	β	t
Academic	.271	.073	3.694	.249	3.337*
Artistic performance	.271	.073	3.685	.057	.769*
Self / Everyday	.356	.127	6.762	.214	2.955*

N= 239, * p< .001.

It was analyzed through hierarchical regression analysis that whether the TEQ-SF well-being, self-control, emotionality and sociality sub-scales and global intelligence scores predict KDOCS academic, mechanic/scientific, artistic performance, self/everyday and artistic creativity scores or not. The results of analysis indicate that KDOCS-SF doesn't provide significant contributions to the regression model established so that the sub-dimensions except its sociality dimension and global emotional intelligence score can predict creativity sub-fields. The sociality diemension can significantly predict only creativity fields of academic, artistic performances and self/everyday.

The analyses which provide significant contributions to the regression model are given in Table 3. It was determined that Sociality sub-dimension of TEQ-SF (β= .249) could significantly predict academic creativity score (R= .271, R^2= .073, $F_{(5-233)}$= 3.694, p<.001) and it could explain .07% of the total variance. It was also determined that sociality score (β= .057) could predict artistic performance creativity score significantly (R= .271, R^2= .073, $F_{(5-233)}$= 3.685, p<.001) and could explain .07% of the total variance. It was determined that sociality scores (β= .214) could significantly predict the self/everyday creativity scores (R= .356, R^2= .127, $F_{(5-233)}$= 6.762, p<.001) and explain .13% of the total variance.

Discussions, Conclusions and Suggestions

In the study, it was found that there was a significant relationship between the entire sociality and subfields of creativity while there was a significant relationship between self/ everyday creativity and the subfields of emotional intelligence. A significant relationship was seen between the entire emotional intelligence sub-fields and self/ everyday creativity and between sociability and the entire creativity sub-domains. No significant relationship was determined among the other sub-dimensions. In the literature, no study which the relationship between self/ everyday creativity field and emotional intelligence sub-dimensions is studied was obtained. In the study of Sancez – Ruiz and others (2011), a slight, positive and significant relationship was found between general creativity skills and sociability. On the other hand, no significant relation was determined between general creativity and well-being, emotional, and global emotional intelligence. These results were parallel to the findings of this study.

On the other hand, a slight, significant and negative relationship was observed between the general creativity and self-control in the same study. This result is contradictory to the findings of this study. Moreover, significant, positive and slight relationships were determined between socibiality and academic, mechanical/ scientific, artistic performance and arts domains. In the study conducted by Sancez – Ruiz and others no significant relationship was seen among fluency, flexibility, elaboration and originality sub-scores while a positive, significant and slight relationship was found with the total score.

The TCTT total score reported in their study by Sancez – Ruiz and others was obtained in four sub-score types. According to Torrance (1974, as cited in Cramond, Matthews-Morgan, Zuo, Bandalos, 2005), using total creativity scores isn't a convenient way to obtain information related to the details of creativity among the individuals. Thus, the findings of Sancez–Ruiz and others should be considered within the frame of that limitedness.

Researchers' think that the basic reason of the significant relationship between emotional intelligence sub-dimensions and self/everyday creativity is that it may occur depending on its theoretically originating from internal or inter-personal intelligence. In other words, this sub-dimension contains affective skills. The studies show that there is a relationship between creative personality traits and divergent thinking abilities (For a detailed meta-analysis; Feist, 1998). Moreover, those findings may be indirectly explained using over-excitability field s discussed by Dabrowski. One of the fields where gifted students are over- excitability is the sensory field which indicates over-excitability related to the senses (Yakmacı-Güzel, 2002). The results of the study is parallel to those of this research.

Significant, positive relationships were determined between sociability and entire sub-fields of creativity. When the item pool consisting of TEQ-SF sociability scores, it is seen that this dimension includes the traits of effectively coping with problems, having the ability to discuss, being able to defend their right even in the hard positions and affecting the emotions of other people. It may be concluded that those traits substantially overlaps with general personality traits of creative individuals. The personality traits of individuals are effective factors in the emergence of creativity (Amabile, 1983, 1996; Sak, 2009, 2014; Sternberg and Lubart, 1991). According to Feist (1998), moreover, the sensitivity to the emotions is the occassion which facilitates creativity. Sensitivity to the emotions indicates the status of emotions which were indirectly mentioned under the title of sociality. The result of this study supports these findings. Moreover, it may be concluded that the sociality dimension might be found significant as a result of the better status of gifted students than their peers from the point of social development and compliance, their joyful and optimist psychological state from the point of sensuality (Terman and Oden, 1976) and their activeness in numerous fields (Reis and Renzulli, 2004).

When the matter is examined from the point of another view; it is seen that the creativity thinking abilities in the "Amusement Park Theory" presented by Kaufman and Baer (2004) consists of general and specific creativity domains skills. In the study of Sancez–Ruiz and others (2011), a positive and significant relationship was reported between general creativity and sociability. When the findings of aforementioned research and this research are assessed together, sociability sub-dimension of emotional intelligence seems to be the trait which is effective in the emergence of general and domain-specific creativity.

Another problem which was examined in the research is the question whether emotional intelligence sub-domains predict the creativity fields or not. The results of analysis may separately explain well-being, self-control, emotionality, sociability and sub-dimension of global emotional intelligence but only sociability dimension is a significant predictor on creativity domains. This occasion is the same for the dimensions of artistic performances and self/ everyday creativity. In the study of Sancez–Ruiz and others (2011), it was seen that other sub-dimensions except social traits don't predict general creativity.

In the literature, there is limited number of studies which the relationship between divergent thinking abilities (general creativity) and emotional intelligence is examined. These studies were conducted on different groups except gifted individuals. Moreover, no study which the relationship between traits emotional intelligence of the gifted individuals and domain-specific creativity or whether it predicts the creativity was obtained. For that reason, this study had to compare the findings through indirect evidences. However, it may be regarded as the indicator that showing the originality of this study from these two aspects.

In this study, self-evaluation method was employed in order to assess the skills related to creativity. This occasion is the limitedness which may mask the findings of the study. By its nature, self-evaluation method employs a problem of carelessly given answers (Silvia, Wigert, Reiter – Palmon and Kaufman, 2012) or the parallelism high/ low scores obtained from measurement instruments with the feedbacks of the teachers (Beghetto, 2006). However, this method is a highly informative application in the occasions which no information is available related to the creative thinking abilities of the participants (Kaufman, Evans and Baer, 2010). In order to avoid the limitedness thay may arise from data collecting instruments chosen in this study; some precautions such as providing students enough time to complete the evaluation instrument, interpreting the results individually and eliminating the opportunity to compete and excluding the extreme values from the analysis.

The researchers who may be interested in the topic may conduct a study on the domain-specific creativity of the individuals such as specific to a different domain, general or emotional intelligence traits. Numerous studies show that there is a latent relationship between intelligence-emotional intelligence and creativity. Another limitedness of the study is that the study which KDOCS was adopted was used in a notice and the expanded version of the aforementioned study is in the process of publication in a journal. In order to avoid this limitedness, the factor structure, validity and reliability values of KDOCS was summarized under the sub-title of "Data Collection Tools".

This study is limited with the gifted students determined with the general talent test to attend to science high schools. Thus, different results may be obtained depending on the employment of measurement instruments which emotional intelligence is conceptualized as a "data processing operation" or among the students with the diagnosis of giftedness through using various evaluation instruments such as intelligence or creativity test. Moreover, more detailed information related to the topic may be achieved through the comparative studies including various creativity fields such as science, art and writing and various intelligence levels. The findings to be obtained through this method in the education programs prepared for the development of both emotional intelligence and creativity has great significance. In other words, the education programs to be presented with the purpose of developing those skills and increasing its productivity will be parallel to the determination of starting point among the participants.

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