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Prezentat la 20.06.2013

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# THE COMPARISON OF INTELLECTUAL AND EMOTIONAL INTELLIGENCE: SECTIONAL RESEARCH ON STUDENTS AT FINAL CLASS OF HIGH SCHOOL

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## Summary

This study was performed on private school students in Izmir province who were at final class of the high school during academic year 2011-2012. IQ and EQ tests composed of 20 questions and 30 questions respectively were distributed to 63 students in total and they were asked to reply each test in 20 minutes. Through EQ test, assessment was made on emotional awareness, managing emotions, motivating oneself, being empathic and handling relationships components of the emotional intelligence. The statistical analyses were made by SPSS 11.0 program using Kruskal Wallis, Mann Whitney U, Khi Kare, Student tests. For the statistical significance, p<0,05 was accepted.

While 32 (50.8%) students replying the tests were male, 31students (49,2%) were female. The average age was  $17,81\pm0,59$  and their scores were ranging from 58 to 138 (The average was  $111,02\pm18,90$ ). The average IQ scores of males and females were  $111,00\pm21,87$  and  $111,03\pm15,61$  respectively (p:0,995). The numbers of respondents detected as very strong, requires progress and requires highly progress were balanced for the EQ test parts entitled as

emotional awareness, being empathic and handling relations. However, it is found that the number of respondents requiring highly progress on managing emotions and motivating oneself was distinctly more.

There was a significant difference in regard to IQ scores at different levels of handling relations capability (p:0,031). Correspondingly, capability of handling relations was found more developed among the group with IQ scores more than the average of the study (p:0,012). The capability of handling relations and being empathic were found to be stronger among females (p:0,008 and p:0,044).

In this study held on the high school students at final class, it is found that the capabilities of managing emotions and motivating oneself require highly progress. Therefore; taking this in consideration, schools' departments providing guidance should prepare and implement proper development programs. The capabilities of being empathic and handling relations are more developed among females than males. The capability of handling relations is more developed among individuals with high IQ scores. This difference becomes more significant when the scores climb over the average.

**Keywords**: Intellectual intelligence, emotional intelligence, students.

### Резюме

Сравнение интеллектуальной и эмоциональной интеллигентности: секционные исследования учеников выпускного класса средней школы

Работа выполнена при участии учеников частных школ провинции Измир, которые были в последнем классе средней школы в течение 2011-2012 учебного года. IQ и EQ тесты, состоящие из 20 вопросов и 30 вопросов соответственно, были распространены среди 63 студентов, которых просили ответить на каждый тест за 20 минут. При помощи теста EQ была проведена оценка эмоционального осознания, управления эмоциями, самомотивации, эмпатии и управления отношениями — компонентов эмоциональной интеллигентности. Статистические анализы были сделаны с помощью программы SPSS 11.0 Крускала Уоллиса, Манна-Уитни У., Кхи Каре, тесты Стьюдента. Для статистической значимости было принято р <0,05.

В то время как 32 (50,8%) учеников, отвечавших на тесты, были юношами, 31 (49,2%) респондент были девушки. Средний возраст составил 17,81+0,59 лет и их баллы были в диапазоне от 58 до 138 (в среднем 111,02+18,90). Средний балл IQ юношей и девушек были 111,00+21,87 и 111,03+15,61, соответственно (p=0,995). Респонденты, выявленные как очень сильные, с хорошим и высоким интеллектом, были сбалансированы и для разделов теста ЕQ теста, и проявили себя как эмоционально осознанные, с высокой эмпатией и управляющие отношениями. Тем не менее, оказалось, что число респондентов, требующих лучших результатов в управлении эмоциями и самомотивации было более заметным.

Было значительное различие в отношении IQ оценки при различных уровнях способности управления отношениями (p=0031). Соответственно, способность управления отношениями была более развитой в группе с баллами IQ выше, чем средний бал исследования (p=0012). Способности управлять отношениями и быть эмпатичным оказались сильнее у женщин (p=0,008 и p=0044).

В данном исследовании, проводимом на старшеклассниках выпускного класса, было обнаружено, что возможности управления эмоциями и самомотивации требуют высокого интеллекта. Поэтому, принимая это во внимание, ведомства школ, обеспечивающие руководство, должны подготовить и реализовать соответствующие программы развития. Возможности для эмпатии и управления отношениями более развиты у девушек, чем у юношей. Возможность управления отношениями более развита среди лиц с высоким баллом IQ. Эта разница становится более существенной, когда оценки превышают среднее значение.

**Introduction.** All general intellectual capabilities such as learning, understanding, perception, adapting to new circumstances, analyzing and criticizing constitutes the "intelligence" concept. Intelligence is the most interest generating and researched property of living creatures. Many researchers studied on the concept "intelligence" up to date and tried to make definitions [1, 2]. Many researches carried out in recent years point out the necessity of revising the definition of "intelligence" and to include emotional intelligence (EQ) to this definition in addition to the classically accepted intellectual intelligence (IQ).

Intellectual intelligence is the capabilities of cognizing the relationship between abstract or concrete objects through concepts and perceptions, thinking in abstract manner, evaluating the data, ratiocinating and managing these intellectual functions consistently to reach an objective. Intellectual intelligence which we have at birth, transfer from generation to generation by genetics and that covers central nervous system functions is composed of certain intellectual capabilities. Recognizing and understanding the words, making mathematical calculations rapidly, two or three dimensional perception, audio visual memory and ratiocinating can be listed among these capabilities [3].

Emotional intelligence involves the capabilities of emotional awareness, managing emotions, motivating oneself, being empathic and handling relationships. It may be simply defined as wisely usage of the emotions. Age, family circumstances and gender are the foremost factors affecting the development

of emotional intelligence. Emotions have a crucial role in understanding the other and giving meanings to her/his thoughts and behaviors [4, 5].

Human being has two entirely different intellects as rational and emotional ones which she/he thinks with the first one and feels with the other one. These two intellects are always under interaction with each other. Rational intellect is mainly a perception form which we are aware of. In addition, it is closer to our conscious and evaluates through thinking and pondering in the mind [6]. Both intelligences are needed for a person to be successful. Organizing activities in order to determine the levels of both intelligences and enhancing them would ensure successful individuals and as a result lead the foundation of stronger communities [7].

In this study; IQ and EQ evaluations of 63 high school students at final class were made. The gender distribution of the sample group was homogeneous and the average age was 17,8. With the evaluation of their IQ and EQ, both the correlation between two intelligences and the development levels of EQ components; such as the capabilities of emotional awareness, managing emotions, motivating oneself, being empathic and handling relationships, were researched.

Materials and methods. This study was approved by the Ethical Board with its decision no 17 and dated 30 December 2012. It is planned as a descriptive survey to be held on final class students of a private high school in province Izmir between the dates 01 November 2011-29 February 2012 in order to determine the correlation between IQ and EQ. 63 students voluntarily participated to the survey among the total of 78 final class students. 15 students couldn't be included to the study, since they were absent at the school during the period of the survey. The participation rate to the survey was calculated as 63/78 (80,72%).

All students existing at school on the days in which tests were applied were included to the study and thus the only excluding criteria was determined as being absent at school. The participating students were orally informed about the study before the survey, their oral confirmation has been taken and then the tests were applied. None of the students refused to participate.

Intelligence Quotient (IQ) test and Emotional Quotient (EQ) test developed by Hall in 1999 which are existing at internet and consisting of 20 and

30 questions respectively were distributed to the students voluntarily participating to the study. They were asked to complete each tests in 20 minutes [8]. The target of EQ test was to evaluate the emotional intelligence components such as emotional awareness, managing emotions, motivating oneself, being empathic and handling relationships. The responses of the participants were collected through questions enabling Likert-type grading. All grades of the questions regarding each emotional feature had been summed and the emotional components were ranked as very strong, require progress and require highly progress. On the other side, the grading of IQ test had been done in accordance with its own specific scale. Each section of emotional intelligence is compared with IQ score and the correlation between them is researched in general and on gender base. In addition, the similarities and differences between the emotional intelligence components in terms of females and males had been analyzed.

The statistical analyses were made by Statistical Package for Social Sciences (SPSS) 11.0 program using Kruskal Wallis, Mann Whitney U, Khi Kare, Student tests. For the statistical significance, p<0,05 was accepted.

**Results.** While 32 (50.8%) of the 63 students participating to the study were male, 31students (49,2%) were female. The average age was  $17,81\pm0,59$  and their IQ test scores were ranging from 58 to 138 (The average was  $111,02\pm18,90$ ). The average IQ scores of males and females were  $111,00\pm21,87$  and  $111,03\pm15,61$  respectively. In regard to the age and gender parameters, the sample group was homogeneous and there were no significant difference statistically between them (p=0,995).

When the descriptive statistics of the capabilities of emotional awareness, managing emotions, motivating oneself, being empathic and handling relationships constituting the five components of emotional intelligence were made, the figures corresponding to the titles emotional awareness, being empathic and handling relationships for "very strong", "requires progress" and "requires highly progress" were balanced. However, the number of respondents requiring highly progress was found to be distinctly more corresponding to the titles managing emotions, motivating oneself (table 1).

Descriptive Statistics of EQ Test Results

	Conclusion	N	%
Emotional Awareness	Requires Highly Progress	19	30,2
	Requires Progress	29	46,0
	Very Strong	15	23,8
	Requires Highly Progress	53	84,1
Managing Emotions	Requires Progress	10	15,9
	Very Strong	0	0,0
	Requires Highly Progress	43	68,3
Motivating Oneself	Requires Progress	16	25,4
	Very Strong	4	6,3
	Requires Highly Progress	19	3,2
Being Empathic	Requires Progress	23	36,5
	Very Strong	21	33,3
Handling	Requires Highly Progress	25	39,7
Handling Relationships	Requires Progress	24	38,1
	Very Strong	14	22,2

Table 1

In the frame of research made in order to find out statistical correlation between EQ components and IQ scores of the respondents, significant difference were not detected in regard to IQ scores at various levels of emotional awareness, managing emotions, motivating oneself and being empathic. However, there was a significant difference in regard to IQ scores at various levels of handling relations capability (p=0,031) (table 2).

**Table 2**The statistical correlation between EQ components and IQ scores

		IQ			
		N	Average	P	
Emotional Awareness	Requires Highly Progress	19	107,68 <u>+</u> 18,62	0.225	
	Requires Progress	29	115,31 <u>+</u> 17,92	0.225	
	Very Strong	15	106,93 <u>+</u> 20,56	1	
Managing Emotions	Requires Highly Progress	53	111,32 <u>+</u> 19,48	0.104	
	Requires Progress	10	109,40 <u>+</u> 16,27	]	
Motivating	Requires Highly Progress	43	109,95 <u>+</u> 20,37	0.604	
Oneself	Requires Progress	16	112,13 <u>+</u> 16,09	0.694	
	Very Strong	4	118,00 <u>+</u> 13,85		
Being Empathic	Requires Highly Progress	19	107,16 <u>+</u> 18,84	0.356	
	Requires Progress	23	112,35 <u>+</u> 18,61	0.550	
	Very Strong	21	113,05 <u>+</u> 19,65		
Handling Relation- ships	Requires Highly Progress	25	103,68 <u>+</u> 21,17	0.021	
	Requires Progress	24	117,25 <u>+</u> 13,82	0.031	
	Very Strong	14	113,43 <u>+</u> 18,86		

**Table 3**The statistical correlation between Handling Relations and IQ scores

		IQ			
		N	Average	P	
Handling Relationships	Requires Highly Progress	25	103,68+21,17	0.009	
	Requires Progress	24	117,25+13,82		
	Very Strong	14	113,43+18,86	0.109	
	Requires Highly Progress	25	103,68+21,17		
	Requires Progress	24	117,25+13,82	0.727	
	Very Strong	14	113,43+18,86	0.737	

As a result of the statistical analyze of emotional intelligence components; emotional awareness, managing emotions, motivating oneself, being empathic and handling relationships which also takes gender factor in consideration, there were no differences among females and males regarding their emotional awareness, managing emotions and motivating oneself levels. However, The capability of handling relations and being empathic were found to be stronger among females and the difference was statistically significant (p=0,008 and p=0,044) ( $table\ 4$ ).

Analyzing the correlation between the capabilities of emotional awareness, managing emotions, motivating oneself, being empathic and handling relationships, a statistically significant difference between being empathic and handling relations was found out (p<0,001).

**Table 4**Statistical analyze of EQ components on gender base

		Male		Female		Sum	D
		N	%	n	%	N	P
Emotional Awareness	Requires Highly Progress	11	57,9	8	42,1	19	0.206
	Requires Progress	16	55,2	13	44,8	29	0,296
	Very Strong	5	33,3	10	66,7	15	
Managing Emotions	Requires Highly Progress	27	50,9	26	49,1	53	0,956
	Very Strong	5	50,0	5	50,0	10	
Motivating Oneself	Requires Highly Progress	23	53,5	20	46,5	43	NT A
	Requires Progress	7	43,8	9	56,3	16	NA
	Very Strong	2	50,0	2	50,0	4	
Being Empathic	Requires Highly Progress	12	63,2	7	36,8	19	0,044
	Requires Progress	14	60,9	9	39,1	23	0,044
	Very Strong	6	28,6	15	71,4	21	
Handling Relation- ships	Requires Highly Progress	15	60,0	10	40,0	25	0.000
	Requires Progress	15	62,5	9	37,5	24	0,008
	Very Strong	2	14,3	12	85,7	14	

**Discussion.** Intelligence is a concept which can not be fully described by distinct borders. It is a

constitution of many general intellectual capabilities including learning, understanding, perception, adapting to new circumstances, ratiocination and criticizing.

Having solely high level of IQ neither ensures a successful life and happiness nor is enough for carrying a person to a respective position within the society. The individuals having developed emotional and social capacities, high EQ levels; in other words, the ones being aware of their emotions and able to control them, making empathy and handling their relations in a masterly manner are able to become more successful and stand front [6, 9].

Emotional intelligence is complementary and supportive for academic-intellectual intelligence and determinant of vital successes [10, 11]. A significant correlation between EQ levels and general intelligence was found in the study carried out by Lam and his colleagues on 304 university students composed of 152 females and 152 males [12]. Emotional intelligence besides being natural can be developed at any age and time through learning [13-16]. Individuals with higher EQ levels are more successful at solving emotional problems and stress management. Thus, they are more successful at inner family relations and social relations due to their constructive and positive reactions [17]. Similarly, these individuals have advanced skills in coping with stress and solving problems [18, 19]. Conversely, individuals with lower level EQ fail in handling their relations and develop negative relations due to their non-constructive and aggressive manner [20].

The IQ scores of the respondents vary in between 58 and 138 (average= $111,02\pm18,90$ ). The lowest score of 58 belongs to the test results of two students whose EQ tests were also analyzed and observed that they didn't reply the questions seriously.

As a result of the research made in order to determine correlations between IQ scores of respondents and five components of EQ, only handling relations capability was determined to be in relation with IQ scores. At higher IQ levels, higher handling relations capabilities were observed. Nonetheless, Bar-On advocates that an individual will finally fail in case of having high IQ, but low EQ levels as a result of being unable to establish good relations with others and finding nobody to present her/his IQ [21, 22].

Age is one of the principal factors in development of emotional intelligence. EQ starts to be formed at just infanthood and keeps on developing with experiences. Many studies in literature puts forward that EQ increases by age. In accordance with a

large scale research held in USA, it is determined that emotional intelligence climbs up to highest level at the middle 50s [23].

In this study, when the five components of EQ was analyzed, there was a balanced distribution of the number of respondents that were very strong, requires progress and requires higher progress in regard to the components; emotional awareness, being empathic and handling relations. Considering the fact that the sample was composed of young adolescents, our findings could be claimed to be supporting the literature. The distinct higher number of respondents requiring higher progress on managing emotions and motivating oneself comes out as a finding in line with the literature for our study group who are at the ages of just 17-18s.

It has been a matter of interest for researchers to find out whether there is a correlation between emotional intelligence and gender or not. Researching the literature, it is possible to find different outcomes. When the differences concerning emotional intelligence are analyzed, it is observed that EQ is more developed in general among women [24-27]. Anyhow; in Chu's study, EQ among men was found higher than women [28]. A significant difference couldn't be detected between the emotional intelligence levels and gender of 181 persons at Acar's article published in 2002 [29]. Women got higher scores in all components of EQ in another study published in Turkey [30]. In this study, statistical analyze was held taking the gender factor in account and while there was no difference among women and men in regard to emotional awareness, managing emotions and motivating oneself levels, the capabilities of handling relations and being empathic were detected to be significantly stronger among women. These findings are also inline with the literature.

A significant correlation between EQ components and communications skill was found as a result of a study applied on 203 university students by Cetinkaya and Alparslan. This correlation was found to be the "strongest" between communication skill and being empathic [9]. In other words, individuals with high EQ; particularly the ones having developed capability of being empathic, become more successful at interpersonal relations through establishing healthier communication with their neighborhood. In the study, this capability of female students was also found to be "developed".

Individuals confront with stress stimulus in daily life. It is alleged in a study that individuals having low IQ levels together with neurotic personalities are more

sensitive to stress conditions; the anxiety of individuals affects their cognitive performance negatively [31]. Solving problems by "thinking" is a characteristic of IQ and individuals with high IQ levels are able to generate effective solutions under stressful circumstances [32]. According to some researchers, lower degree of stress symptoms are observed due to higher EQ levels [33, 34]. Further to discussions concerning the issue of coping with stress, it is observed that both high levels of IQ and EQ are providing advantage to individuals in this sense.

Considering the composition of the sample group of this study as university students at the eve of taking the university exam, lower probabilities of having exam anxiety and failure can be foreseen for the ones with higher IQ and EQ scores.

**Conclusion.** There is one or several intelligence fields that every individual surely uses more. According to Gardner, all kids born with various levels of intelligence fields and improve these intelligence fields in their life time. Besides, an intelligence field very weak at born may be developed by education and it may even become dominant [35]. In a study held in Turkey on primary school students at 5<sup>th</sup> class, it was shown that the students had enjoyed from the lectures and their success had been increased in the frame of lecture programs prepared in accordance with the intelligence fields in which they are dominant [36].

It is beyond debate that intelligence together with its all dimensions is very important for the whole life of individuals. Determination of IQ, EQ and the dominant intelligence of individuals is critically important and it has to be determined within the earliest possible time. Happier and more successful individuals would be possible in case of determining the prominent intelligence characteristics of kids and preparing lecture and education programs accordingly. The assessments of intellectual and emotional intelligence of kids and adolescents are crucial in frame of supporting the success in academics and social relations. The intellectual intelligence doesn't develop roughly after adolescent and university ages, however emotional intelligence may develop life time and reach up to adequate levels.

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Prezentat la 10.06.2013

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