The Comparison of Multiple Intelligence Levels of 13 - 16 Years Old Athlete and Non-Athlete Children

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Abstract

The purpose of the study was to compare the multiple intelligence levels of athlete children and new registered children to summer sport courses. Screening model was used in the study.

The research included 156 voluntary children attending to 2013 summer term sport courses ($\bar{x}$ age = 15.27 ± 0.90). Children's personal information form to obtain demographic information and data on multiple intelligences data were collected for evaluation. Data analysis software SPSS was used for data analysis. Frequency, mean, standard deviation values were obtained, as well as inferential statistical techniques, considering the normal distribution of the data from the independent samples t-test was used. Significance level of p <0.05 was considered.

Considering the findings of the study, verbal / linguistic intelligence, physical /kinesthetic intelligence, and social / interpersonal communication in favor of athletes in the areas of intelligence differences were detected (p <0.05).

As a result, important information gathered from this study pointing out that there is significant differences between multiple intelligence development of athlete and non-athlete children. The children at development ages should be supported to attend regular sport activities.

Key Words: Sport, Multiple Intelligence, Children

13 – 16 Yaş Spor Yapan ve Spora Yeni Başlayan Çocukların Çoklu Zekâ Alanlarının Karşılaştırılması

Özet

Bu araştırma, spor yapan ve spora yeni başlayan çocukların çoklu zekâ alanlarının karşılaştırılması amacıyla planlanmıştır. Araştırmada tarama modeli kullanılmıştır. Araştırma kapsamında 2013 yaz dönemi kurslarındaki yaş ortalaması $\bar{x}$ yaş=15.27±0.90 olan 156 gönüllü çocuk çalışma grubunu oluşturmaktadır. Çocukların demografik bilgilerini elde etmek için kişisel bilgi formu ve çoklu zekâ alanları ile ilgili verileri değerlendirilmek üzere veriler toplanmıştır. Verilerin analizinde SPSS veri analizi programından yararlanılmıştır. Frekans, ortalama, standart sapma değerleri elde edilmiş, ayrıca verilerin normal dağılımları dikkate alınarak vardamsal istatistiksel tekniklerden Bağımsız Örneklem T-Testi kullanılmıştır. Anlamlılık düzeyi p<0.05 olarak değerlendirilmiştir.

Araştırmanın bulguları incelendiğinde, sözel/dilsel zekâ, bedensel ve kinestetik zekâ ve sosyal/kişilerarası iletişim zekâ alanlarında spor yapanlar lehine farklılık tespit edilmiştir (p<0.05).

Sonuç olarak spor yapan ve yapmayan çocukların gelişiminde önemli ve nitelikli bilgiler elde etmemize olanak sağlayan çoklu zekâ alanlarındaki farklılıkların gözlemlenebileceği ortaya çıkmıştır. Özellikle gelişim dönemlerindeki çocukların spor yapmalarının desteklenmesi gerektiği söylenebilir.

Anahtar Kelimeler: Spor, Çoklu Zekâ, Çocuk

1. Introduction

There is always a change and development in education and teaching methods each day in our era. Each new research adds innovations about how much human brain and intelligence can develop and blazes new trails in science world. With the help of importance gaining of individual differences, the individual progress concept has gained importance and also education level in societies has raised. Howard Gardner's "Multiple Intelligence Theory" in 1983 appeared as a result of these changes and echoes since then in education community. Multiple Intelligence Theory explains how each individual has various intelligences in different rates, learning types of these people, their tendencies, interests and capabilities. This theory became very popular among educators, because of its giving opportunity for preparing programs which keeps students' individual differences in mind in a creative and reminding way (Ramadan et al., 2010).

Intelligence in general meaning, among other things, is a general mental capacity which includes learning quicly and from experiences, understanding complex ideas, abstract thingking, problem solving, making plan, taking out conclusion capabilities. This talent is not about only learning from book, an academic talent in a narrow meaning or a high point which is taken in a test. More, it shows us a wider and deeper capacity about comprehending, understanding or shaping capabilites about what to do the beings around us (Gottfredson, 1997).

Intellgence concept is a dark secret being tried to enlighten working on it for centuries, and always wondered by people. Intelligence is a feature, which is thought, argued and researched as a talent and capacity. It can't be observed directly, and is very complicated structure which is one of the most important psychlogical changeables, so it became basic curiosity of every science branch, and every science branch and society have defined intelligence subjectively through their history (Kurtçuoğlu, 2007).

Multiple Intelligence theory, was developed by Howard Gadner who was a professor in Harvard in the beginning of 1980's (Bayrak et al., 2005). In Harvard University, Gardner, made his research with observing many people which we call as talent, genious, retarded, brain damaged, during Zero Project. Through the research, it was emphasized that the ideas in traditional understanding about intelligence had been being used for about 100 years and there was a need for innovation about it (Armstrong, 2003).

In many intelligence theories, while the score which each person gets is the measurement, in multiple intelligence theory, it's important how, when and in which conditions the person is learning. It's suggested that it's a big mistake to measure people's intelligences by only looking at their IQ test results. On the contrary of this understanding, intelligence is not a lone fact, it's a compilation of talents. In this context, intelligence, is an echo of a brain structure which is formed from different modules (Gardner, 1999).

Multiple Intelligence Theory, was suggested by Howard Gardner in his book named "Frames of The Mind" and intelligence areas were mentioned for the first time (Gardner, 2004). Gardner, pointed that intelligence has eight different areas: Lingual intelligence, logical (mathemathical) intelligence, visual intelligence, musical (rhytmic) intelligence, physical (kinestetic) intelligence, social intelligence, inner intelligence, natural intelligence. For example, a football player runs, catches and shoots with his physical intelligence; he knows the pitch and his duty; he learns the rules of the game with his lingual intelligence; he argues

and shares with his teammates with his social intelligence; he evaluates himself with his inner intelligence. (Gardner, 2006).

1.   Lingual Intelligence : An individual's capacity of effectively using the concepts which belong to his own language like a story teller, a speaker or a politican, or written like an author, an editor or a journalist. This intelligence needs to be used with a great mastery according to one's own language's grammer structure, word composition and accent and the concepts, appropriate with the meanings which they really mean. (Armstrong, 1994).

2.   Logical-Mathemathical Intelligence: It's one of the scientific talents which explains how intelligence works. It includes one's behaviours like logical thinking, effective using of the numbers, solving the problems scientifically and realizing the differences or bounds between concepts , classifying, generalizing, explaining with a mathemathical formula, calculating, testing hypothesis and making imitations. Mathematician, accountant, statistician and computer programmers are good examples of this intelligence. (Gardner, 2004).

3.   Visual Intelligence : Our talent in visual intelligence is about how much we can imagine the shape and image of a three dimensional object. Here, the matter is about seeing the details and reanimating without really seeing the object. (Gardner pointed that visual intelligence has develops on blind people). Visual intelligence includes behaviours like visual thinking, explaining shapes and graphics, drawing, painting and shaping. Hunters, scouts, guides, architects, decorators, painters and designers can be good examples of this intelligence.

4.   Musical- Rhytmic Intelligence: This intelligence reminds us the people who uses music as a tool to transfer emotions. These individuals have rhytym, melody and fret sensitivity. It includes talents like playing instrument, finding similars of the song which is playing at that moment. Individiuals whose this intelligence is strong enough generally are musicians or conductors. (Hoşgörür and Katrancı, 2007).

5.   Physical - Kinestetic Intelligence: It expresses one's using ways of his body and movements. People whose physical intelligence are high can easily apply sportive movements, and regular – rhythmic games. Coordination, balance, speed, hand talents and flexibility are seen on these individuals. Dancers, actors, sportsmen, pantomime artists, surgeons, technicians, sculptors are good examples of this intelligence.

6.   Social Intelligence : Within this intelligence there are communicating with people, having emotional bonds with them and explaining their behaviours. Politicians, leaders, psychologists, teachers, actors are the peope who can use this intelligence of them very effectively (Özden, 2003).

7.   Inner Intelligence : This intelligence explains how an individual hears and understands himself. Thinking about who we are, why we feel which emotions are about our this intelligence. People whose this intelligence are high, can easily know, trust themselves, be disciplined, determine the goals and solve personal problems.

8.   Natural Intelligence : This is the last intelligence which was added to Multiple Intelligence Theory by Gardner. Nature intelligence is explained as knowing plant groups, seeing the important changes in natural life and using this talent in a productive way (like hunting, farming or biological sciences). It includes behaviours like explaining regional or global environment changes, pets, nature life, love for gardens and parks, examining the nature by using microscope or telescope and taking photos. Hunters, scouts and biologists can be examples of these people (Talu, 1999).

Scientific studies have revealed that stress has negative effects on human health (Schneiderman et al., 2005). Stress is a psychological situation which is difficult o define and measure, however, is experienced frequently by almost all people (Gadzella, 1991). Stress is a situation revealed when people are encountered with events perceived as danger in terms of physical or psychological means (Atkinson et al., 1996). Two types of stresses were mentioned in the researches: first one is positive stress (eustress) which activates and motivates people and the second one is negative stress (distress) which damages physically and emotionally (Gadzella and Masten, 2005). Stress is an important psychological problem that university students are faced with. When the researches are investigated, the main reason of this situation is growth problems experienced by university students during university life (Ozguven, 1992). New life problems together with university life are indicated (Perine and Lisle, 1995). While enduring people display talents such as struggling, survival and overcoming with developing against imposed stress and negative conditions, indurable people have low-level of self-confidence and bear negative opinions about personal success and developments (Sergek and Sertba, 2006).

Positive emotionality can be high-end defined with energy, cheer and happiness qualities. It was revealed that people with high positive emotionality get pleasure out of life. Low positive emotionality can be interpreted as no positive emotionality instead of negative emotionality. It was observed that people not having positive and negative emotionality are insensitive and impassive (Weiss and Cropanzano, 1996; Doğan, 2005). Negative emotionality, on the other hand, has different moods. It was stated that people with negative emotionality have emotions such as anger, tension, anxiety, guiltiness (Doğan, 2005). Positive and negative emotionality might reveal during the day (mood) or might base on past (emotion). Positive emotionality arouses a feeling of satisfaction and negative emotionality arouses a feeling of dissatisfaction (Cropanzano et al., 2003).Positive and negative emotionality are not concepts which are opposite to each other. They express two different dimensions of a concept. Level of positive or negative emotionality of individuals has a significant effect on moods and emotions in organizational behavior (Greenberg, 2002). Positive mood as a personality trait corresponds to tendency which helps living positive emotional experiences and is described as emotions such as interpersonal relationships, self-confidence and good feeling (Clark and Watson, 1991). Positive emotions forwards the person to positive and increase psychological development and psychological well being (Fredrickson, 2000; Lyubomirsky et al., 2005). In spite of this, negative emotions increase anxiety, depressive signs and stress while they decrease psychological well-being and psychological health (Dua, 1993; Fredrickson, 2000). High levels of negative emotions indicate that the individual feels "bad" and has high dissatisfaction whereas high levels of positive emotions indicate that the individual feels "good" and has a positive relationship with his/her environment (Crowford and Henry, 2004). Regular physical activity and exercise are accepted as effective methods for people not having psychological problems or to prevent and treat psychiatric diseases such as anxiety and depression (Leppamaki et al., 2002).

In the light of this information, the aim of this study was to determine whether there is a significant relationship between dealing styles of university students with stress and their positive and negative emotions.

2. Method

In this section, there is detailed information about the qualifications of the participant who attended the research and statistical analyze given together with the methods used for collecting data in this research.

In this research, there are 156 volunteered children who were in 2013 smmer time sport courses and whose average ages are $\bar{x}$ age=15.27±0.90. Besides, 84 of these students are those who did sport for at least 3 years, 72 of them were Non-athlete courses.

Multiple Intelligence Inventory, which was developed by Özden (2003) for determining intelligence areas of the participants, was used in this study. This inventory was arranged for finding adults' own areas of interests. This inventory is Likert type and consists of 10 parts. And in each part there are 80 entries which address to eight different intelligence areas. These entries are shown with letters from A to H.

They are assessed as "Undeveloped" if total points are between 0-10; "A little" if between 11-20 points; "Average" if between 21-30 points; "Developed" if between 31-40 points; "Very Developed" if between 41-50 points. (Özden, 2003).

SPSS data analyze program was used for analyzing the datas of this research. Frequency, average and standard deviation assesments were taken, besides Independent Exampling T-Test were used from VARDAMSAL statistical techniques regarding datas' normal distributions. Meaningfullness level was taken as p<0.05.

3. Findings

Table 1. Changeable comparisation of participants' who are athlete and who are non-athlete according to Multiple Intelligence Areas

		N	$\bar{x}$	Ss	t	Sd	p
Lingual	Athlete	84	33.50	6.65	-3.094	154	.002
	Non-athlete	72	31.87	5.63			
Logical Mathemathical	Athlete	84	32.26	6.20	-1.406	154	.160
	Non-athlete	72	33.27	5.88			
Visual	Athlete	84	32.21	6.07	-1.585	154	.140
	Non-athlete	72	34.05	5.98			
Musical Rhythmic	Athlete	84	31.44	6.43	-1.567	154	.118
	Non-athlete	72	32.60	5.66			
Physical Kinestetic	Athlete	84	35.90	6.64	-2.931	154	.010
	Non-athlete	72	32.61	5.66			
Social Communication	Athlete	84	35.28	6.91	-2.332	154	.040
	Non-athlete	72	32.54	5.46			
Inner	Athlete	84	33.72	6.44	-1.189	154	.235
	Non-athlete	72	34.60	5.41			
Natural Intelligence	Athlete	84	34.62	6.93	-.319	154	.750
	Non-athlete	72	34.88	6.36			

When table-1 is studied, there is a significiant difference in favor of those who do sport statictically in lingual area, considering athlete or not according to research group's multiple intelligence areas. [T(154)= -3.094; p<0.05]. Those who do sport ($\bar{x}$ =33.50±6.65), compared to those who are Non-athlete ($\bar{x}$ =31.87±6.65) have higher average points in lingual intelligence area.

Besides, there is also a significant difference in favor of who do sport in Physical Kinetistical Intelligence area. [T(154)= -2.931; p<0.05]. Those who do sport ($\bar{x}$ =35.90±6.64), compared to those who are Non-athlete ($\bar{x}$ =32.61±5.66) have higher average points in physcal / kinestetical intelligence area.

And also in Social Intelligence Area there is a significant difference [T(154)= -2.332; p<0.05] in favor of those who do sport ($\bar{x}$ =35.28±6.91), compared to those who are Non-athlete ($\bar{x}$ =32.54±5.46).

Table 2. Comparision of multiple intelligence areas of the participants who have athlete relatives with participants who don't have athlete relatives

	Athlete Relative	N	$\bar{x}$	Ss	t	Sd	p
Lingual	Yes	35	32.74	6.56	1.728	82	.085
	No	49	31.60	6.54			
Logical Mathemathical	Yes	35	33.64	6.40	1.613	82	.095
	No	49	32.03	6.04			
Visual	Yes	35	33.17	6.39	1.434	82	.152
	No	49	32.29	5.98			
Musical Rhytmic	Yes	35	32.18	6.12	1.156	82	.248
	No	49	31.44	6.38			
Physical Kinestetic	Yes	35	35.31	6.60	1.629	82	.090
	No	49	34.60	6.41			
Social Communication	Yes	35	36.53	6.87	0.381	82	.218
	No	49	34.93	6.60			
Inner	Yes	35	34.62	6.24	1.579	82	.115
	No	49	33.62	6.29			
Natural Intelligence	Yes	35	35.73	7.13	1.055	82	.184
	No	49	34.32	6.72			

According to the information acquired from Table 2, there is not a significant difference for research group in any intelligence area statistically. (p>0.05).

4. Discussion and Conclusion

This research was made for analyzing the effect over multiple intelligence area distributions and levels of the children who do sport and who do not. For determining the socioeconomic and cultural similarities of the students who took part in the research, we made demographic information interrogation and comparisions in purpose of finding the changes on the multiple intelligence area distributions and levels. According to the statistical analyze results belongs to data gained, literature was scanned and explanations below were made.

When we look at the datas in Lingual Intelligence area, we see a sinificant difference between those who do sport and who are new to sport. Stdents who do sport gained much higher average points in lingual intelligence area. Besides, students who do sport also have much higher average points in Physical / Kinestetic Intelligence area and Social Communications compared to those who are new to sport.

Gardner, emphasized that children's development are not always the same. While until 3rd grade has a strong area in learning, Lingual intelligence's usage decreases on next terms. (Gardner, 2004). Physical- kinestetic intelligence is an effective intelligence area during elemantary school. This shows us that students choose to get thwe information in a visual, and active learning way. (Açıkgöz, Ün, 2003). This strengthens the assumption about that the children choose physical/kinestetic intelligence for learning and that intelligence can be used effectively in sports, too.

It's important to take each student's superior intelligence area, which learning style he/she prefers, into consideration Gardner, clarified that it's needed to use profile in order to find easy learning ways, this profile is a way for the individual's understanding himself better and with this way capabilities can be upgraded. (Gardner, 2004). However, teachers should take individual differences seriously and know each student.

Fischer says that children, who can't follow the stream and density of the movements, become uninterested because of television and radio (music players etc.), lose their speaking senses and emotions (Renate Fıscher-Tıetze, 2001). This opinion backs the results got from lingual intelligence area of the research up.

In the research about how efficient are the games for the development of a child done by Demirci and his friends, %99 of the teachers have the same opinion as education with games are important and it increases children's success at school in a positive way, %97 of the them have clarified that education with games makes learning easier, and % 95 of them said that education with games makes it better for teachers to know more about the child. (Demirci, Demirci, Toptaş, 2006).

Sturck found out increasing deficiencies in children's balance and touch sense's motoric coordintion rates because ofthe fact that these senses are not used well enough. And the reason why this is so, is because they spend most of their time in front of television and computer or listening to music, and they don't do walking, jumping, climbing, and this restricts children's behaviours, so they become sensibly declined (Renate Fıscher-Tıetze 2001). This opinion is supported by the research findings.

Şarvan Cengiz expressed that students, whose physical intelligence have developed enough, are better in motor abilities compared to those whose are not so developed, they answer quicker to the environment, they are balanced and also these students' intelligence and body balance are good. (Şarvan Cengiz, 2008).

Finding different intelligence areas in sport education system and which area students are superior in, effects significantly individual's development and the development of other intelligence areas with the help of this intelligence area. When the research finding are overlooked, we can see that students who do sport have positive development compared to those wo are new to sport. When each intelligence area is examined one by one, it can be said that sport assists student's development in multiple ways.

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