



THE COMPARISON OF ATTENTION LEVELS OF UNIVERSITY STUDENTS IN DIFFERENT SPORT BRANCHES

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Abstract:

In this study, it was desired to measure the attention levels of university students in different branches and reveal the severity, direction of the relationship between sportspeople in different branches of sport and sedentary and also the effect of sport on attention. The population of the research is composed of 942 students between the ages of 17-28 who studied at the University of Firat in 2016-2017 academic year and are active in sport activities in 16 branches (Athletics, Basketball, Volleyball, Soccer, Futsal, Table Tennis, Tennis, Badminton, Boxing, Wrestling, Taekwon-do, Handball, Kickboxing, Folk Dance, Karate, and Marksmanship). The sample of the study consisted of 342 students selected by simple random sample method among 942 students (273 active students and 69 sedentary students). The d2 attention test was used to measure the attention levels of the students participating in the study and the obtained data were analyzed and evaluated by chi-square test, independent groups t-test and one-way analysis of variance (ANOVA) with the help of SPSS 22 statistical package program. In the study, it was observed that the students who play sports in the indoor fields have better attention skills than those who do sports in the outdoor fields when sport branches played in the indoor fields were compared with the ones played in outdoor fields.

Keywords: sport, selective attention, d2 test

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1. Introduction

Man is dependent on the sense organs for the purpose of being able to get to know his outer world. Nevertheless, the simple operation of these sense organs is not enough in this case. For example, at a moment when one is tired, one listens, but doesn't hear; looks, but doesn't see. Later when one realizes one's mistake, one gets sad by himself or herself by getting surprised at how one made that mistake. In fact, if one's sense organs had been stimulated in such issues, if the situation had been one that had taken his or her interest, one would have been much more successful ultimately. As can be seen, if an event or a situation motivates a person, that person focuses his or her attention on that stimulant depending on the level of the motif, he or she observes and scrutinizes it and places his or her impressions into his or her memory. In the event that the importance of attention is not utilized effectively, little of the stimulants received from the environment will be taken into the section called the processing unit and most of them will be disposed of without being processed. Apart from this, each of the stimulants presented has a different effect in creating behaviour changes that can make one reach a goal. It constitutes significance in choosing information regarded as important to reaching the goal among the stimulants presented to the individual that are more than one in number and in transferring this information into the limited processing unit. Not choosing the necessary and significant information by keeping the processing unit busy with unnecessary details creates big problems in reaching goals and utilizing time. The individual observes the situations, events and entities that motivate him or her more effectively rather than motivating them. During this process, the individual tries to distinguish the stimulants that motivate him or her from the ones that aren't relevant. *"As can be seen, the choice that an individual makes for the sake of being able to observe the entity or event that motivates him or her is called active attention."* In short, this can be defined as the selectivity in observation (Silah, 2005). Attention was defined by William James 110 years ago. For James, attention is the act of taking one of the several objects or one of a range of opinions at the same time by the consciousness in a vivid and particular fashion. Concentration, focusing and consciousness are always the core of attention. Attention is the situation where several stimulants are addressed more often than the other stimulants are (Tiryaki, 2000). Man is an entity that, by nature, tries to adapt to his milieu, shows reactions to the situations that he encounters, perceives stimulants, makes choices from among the reactions that he gives and interprets the choices he makes through his reason. The acceptance of stimulants in a systematic way into the consciousness is explained through "attention" (Bozan & Akay, 2012).

Attention is affected by objects more than one that is both external and internal. Some of these objects that attention is affected by affect it negatively; some of them affect it positively. Not only might the giving of several stimulants consecutively particularly throughout the learning stage of a sport branch in children cause shifts in attention, but it might also prevent the learning of athletic skills. For this reason, one should also take into account the circumstances and events that might cause shifts in attention while giving sport training. *"One of the most important conditions for success is*

also being able to continue the skill for focusing. The greatest secret for the success of man is directly proportional to focusing with selective attention, selectiveness and the continuation of this. People who can do this in one way or the other have a much lower possibility of being unsuccessful. And this can only be reinforced through education." (Dogutepe, Evlin, & Karakaş, 2008). As for sustained attention, it can be defined as the decision and determination by the organism of the amount of capacity that the function requires and the continuation of the state of being attentive during the application of a plan that has been put forward (Baddeley, 1999). Sustained attention, as it processes the information that has been flowing through for a long time in a productive and effective way, is measured through wakefulness faculties that are pretty much affected by such factors as anxiety, motivation and tiredness (Abernethy, Maxwell, Masters, Kamp, & Jackson, 2007). It can be defined as the capacity of focusing on a particular situation or an event without giving any breaks. Sustained attention is the continuation of the reaction until the end of the activity within a particular period of time in a consistent way. The sustainability of attention means the focusing of attention on the issue of interest for a particular period of time (Karaduman, 2004). The most important process for attention is the realization of the delivery of information that is necessary for the individual from among what is coming from around into the short-term memory. For this reason, reinforcing and increasing the attention of students is the first function that should be realized in education. Self-teaching is based on one's embracing one of the several attention strategies; one's being the objective learner (Asan, 2011). Strategies of attention and decision are two factors that play an important role for athletes and trainers in the exhibition in the best way of the performance that is owned in sport. The processing of information fast is the point in question in both skills. For this reason, strategies of attention and decision are very important to the exhibition of athletic skills (Çaglar & Koruc, 2006). Besides, participation in sports is regarded as a factor that develops the capacity for attention all by itself. That the attention of a sportsperson is distracted during athletic activities (for example, a basketballer who is bothered as there is too much noise on free throw line), that he or she cannot perform well because he or she is having difficulty concentrating as a result of being confused reveal the importance of the allotment of attention and selective attention (Abernethy, Singer, Murphey, & Tennant (Eds.), 1993). While sportspeople exhibit their skills in sport, not only the increase and decrease in attention but also which direction the actual attention is directed to constitutes great significance. The sportsperson has to shift attention to the outer world and watch what is going on and shift attention to the inner world from time to time, make plans and designations in mind (Ozerkan, 2004).

2. Material and Method

2.1 Study Group

The population of our study spans the participation of 342 students in total, 273 of whom were in 16 branches, continuing education at the University of Firat in the tutorial year of 2016-2017 and 69 of whom weren't in branches. Students either with or

without branches participating in the study were made to read informed volunteer agreement form (BGOF), their approval was obtained and they were included in the research. Data relating to the participants on some demographical attributes such as the chronological age of the subject, the duration during which the subject was involved in active sports, education status, dominant hand, daily duration of sleep, usage of glasses and information on the branch were obtained through surveys.

2.2 d2 Attention Test

d2 Measurement of Attention Test; d2 Attention Test was developed by Brickenkamp in 1962. It was made to go through some revisions in later years. The purpose of the test is to evaluate the skills for sustained attention and visual scanning. d2 Test is a measurement of selective attention and mind concentration. In the handbook of the test, the structure of "attention and concentration" was defined as performance-directed, sustained and focusing on choosing a stimulant. In the year of 2006, Caglar and Koruc carried out d2 Test for the purpose of determining its reliability and validity in Turkish athletes. It is observed that $R=0,86$ is also reached in the validity and reliability coefficients at acceptable levels relating to d2 test. On the front page of the test, the personal information of the subject was recorded. On the second page, there is the section where the results of the performance will be recorded. Also the subject was explained an exercise line and was made to solve it for the purpose of teaching him or her the assignment. On the third page, the subject was made to read the directions for attention test before he or she was made to do the standard test form and scoring was done on norm table section.

2.3 Statistical Analysis

In the research, data obtained from SPSS 22 statistical package program was subjected to analysis. The selective attention levels of athletes and sedentary in different branches were determined with scores obtained as a result of d2 attention test. As for the purpose of determining whether there is a significant difference by comparing the selective attention levels based on gender, indoor and outdoor fields, racket and indoor sports, defence and other athletic branches; chi-square test, independent samples t-test and one-way analysis of variance were used.

3. Findings

Table 1: The proportion of University Students Participating in the Research to Each Branch

Branch	Frequency	%	Cumulative %
Table tennis	10	2,9	2,9
Football	35	10,2	13,1
Basketball	30	8,8	21,9
Volleyball	29	8,5	30,4
Futsal	28	8,2	38,6
Handball	28	8,2	46,8
Wrestling	11	3,2	50,0
Box	10	2,9	52,9

Taekwondo	10	2,9	55,8
Kickboxing	14	4,1	59,9
Badminton	12	3,5	63,4
Real tennis	10	2,9	66,3
Karate	10	2,9	69,2
Folk Dances	15	4,4	73,6
Athletism	10	2,9	76,5
Marksmanship	11	3,2	79,7
Those without branches	69	20,3	
Total	342	100,0	100,0

As can be understood from the table, university students participating in the study are actively engaged in sports in 16 branches and %48,3 of them do team sports and %31,4 of them are individual sportspeople. The rate of students without a branch that participated in the study is %20,3.

Table 2: The Proportion of University Students Participating in the Research Based on Sex

Sex	Frequency	%	Cumulative%
Female	121	35,4	35,4
Male	221	64,6	100,0
Total	342	100	

As can be seen in the table, the gender information of university students participating in the study and actively engaged in sports: Females constitute 121(%35,4), males constitute 221 (%64,6).

Table 3: The Comparison of Students with Branches and Sedentary Students Participating in the Research with Independent T Test in terms of d2 Attention Test

	Levene test		t-test						
	F	P	t	S.D	P (bilateral)	Divergence	S.H	95% Confidence Interval	
								Bottom	Top
TN	11,808	,001	,784	340	,434	5,89537	7,52335	-8,90280	20,69353
E1	5,254	,023	-9,256	340	,000	-7,64007	,82540	-9,26360	-6,01654
E	4,936	,027	-8,878	340	,000	-1,92288	,21659	-2,34890	-1,49685
TN-E	8,917	,003	1,633	340	,103	12,10623	7,41385	-2,47657	26,68902
FR	15,116	,000	-9,431	340	,000	-6,27807	,66570	-7,58749	-4,96865
TN-%	9,638	,002	-,072	340	,943	-,18127	2,52318	-5,14428	4,78174
TN-E-%	6,119	,014	,939	340	,348	2,29806	2,44607	-2,51327	7,10938

It was observed that as a result of the examination of university students participating in the study and actively engaged in sports and sedentary university students in terms of attention deficit, students that received sports training in a particular branch were more attentive in almost all kinds of scoring. It can be stated that students who continue their athletic life within the frame of particular discipline have a higher attention level no matter what branch it is.

Table 4: The Discriminant Analysis of Students with Branches and Sedentary Students in terms of d2 Attention Test Measurement

Branch	TN	E1	E2	E	TN_E	CP	FR	TN%	TN_E%
Athletism	426,00	25,00	7,10	7,59	393,80	174,20	17,00	69,99	70,75
Marksmanship	437,81	19,54	5,90	5,85	411,27	175,90	14,90	73,09	72,57
Badminton	461,50*	12,33***	4,25	3,80**	443,25*	191,58*	10,33	81,51*	86,10*
Basketball	443,06	24,86	3,86	6,55	411,70	185,06	15,00	78,93	80,45
Boxing	479,70***	19,00	3,10	4,67*	457,60**	202,00**	14,00	89,59***	92,01**
Without any branch	424,47	28,75	3,88	7,72	393,66	173,72	18,69	73,70	74,88
Football	392,37	25,05	1,60***	6,81	365,74	163,28	10,69	59,60	66,79
Futsal	426,32	23,92	3,17	6,46	403,78	177,78	14,00	72,70	75,24
Wrestling	443,45	22,09	3,45	5,77	418,00	186,19	13,36	80,54*	83,73
Folk Dances	420,00	21,00	4,13	6,01	394,86	172,46	12,40	71,36	75,14
Handball	421,21	21,60	3,39	6,00	396,67	176,42	9,85	71,19	73,96
Karate	391,20	16,40	5,70	5,62	369,10	161,30	8,70***	61,81	66,30
Kickboxing	454,00	24,42	2,92	6,04	426,64	189,00	17,57	78,98*	82,15
Real Tennis	425,60	18,00	2,70	4,90	405,30	181,80	11,80	73,87	79,68
Table Tennis	475,00**	13,30**	1,70**	3,12***	458,00***	202,10***	9,70*	88,76**	92,66***
Taekwondo	428,10	18,80	2,70*	4,89	406,70	179,30	8,90**	72,45	77,50
Volleyball	434,20	17,17*	4,31	4,94	412,72	183,10	11,37	75,15*	80,16

*** The best, ** Good, * Medium

The university students participating in the study were regrouped according to branches and sedentary; the choices that they marked in d2 attention test were discussed and it was observed that the psychomotor speed was the best among the boxers and at the second turn were the students active in the branch of table tennis. When the selective attention (E1) was examined, it was observed that the students actively engaged in the sport of badminton got a better result than the students in other sport branches and sedentary. And as can be seen in the table for the attention problem for each branch; in the column E in this table, the best attention was observed in sedentary students actively engaged in the sport of table tennis among 16 branches and sedentary. When we have look at the concentration performance in the table (CP), again it was observed that the students actively engaged in the sport of table tennis got the highest point. It was observed that the sportspeople with the highest level of attention among the students with branches and sedentary participating in the study were the ones engaged in the sports of table tennis and boxing. All in all, in all kinds of scoring, the sportspeople in the branch of table tennis have the best scores compared to the sportspeople in other branches and sedentary.

4. Discussion and Conclusion

According to the data obtained from this study, it was discovered that the d2 test didn't point to a significant difference in all kinds of scoring when observed from the point of sex. In a similar way to this data, Kennedy and Zillmer didn't find a significant difference related to the sex among students whose ages were between 18 and 32 in the study that they carried out in 1999 (Zillmer & Kennedy, 1999). Again, in a study carried out by Brickenkamp and Zillmer, no significant difference between male and female

subjects came out (Brickenkamp & Zillmer, 1998). Schaefer, Tenenbaum and Benedick found out that TN and TN-E points in d2 test of gymnasts of older ages were significantly higher than the gymnasts of younger ages in their study which 29 gymnasts between the ages of 7 and 13 participated in (Schaefer, Tenenbaum, & Benedick, 1987). When the sports branches carried out in outdoor fields and sports branches carried out in indoor fields were compared, it was observed that attention in all kinds of scoring in branches of sport carried out in indoor fields was better than the one in sportspeople in branches of sport carried out in the outdoor fields. This result can also be interpreted in this way; the fact that there are more things in the outdoor field that will distract sportspeople's attention and there are less the things that will distract sportspeople in the indoor field can be regarded as a factor that will affect attention. At the same time, it can be concluded that when students engaged in individual sports and students participating in the study under the name of team sports are compared, individual sportspeople have better attention than sportspeople in team sports. Also, it can be stated that if we are to compare sportspeople in racket sports and the ones in defensive sports, racket sportspeople participating in the study are more successful in terms of attention in all kinds of scoring in this test than sportspeople in defensive sports. It was also observed that the sedentary were at the lowest level in almost all kinds of scoring among the athletic groups participating in the study in general. In another study, where the effect of educational game practices during the physical training lessons on attention levels of children was examined, it was determined that the attention values in students between the ages of 9 and 13 to whom educational game practices were applied were higher than in students in the control group (Akandere, Baştuğ, Asan, & Baştuğ, 2010). In a study named the relationship between the movement training and the development of attention and mind in children aged eight, it was determined that exercise training had positive impact on attention and mind development and this, in a way, confirms the study that we carried out (Akıncılı, 2005). Another study named "The comparison of the attention levels of university students who are sportspeople and who are not" was carried out. It was expressed as a result of the data obtained that university students engaged in sports had much more attention than the ones not engaged in sports (Özdemir, 1990). In another study, it was stated that the practice of the exercise of folk dances along with music during a treatment process applied to the subjects had a positive impact on the treatment of children with attention deficit disorder with hyperactivity (Topcu, Yildiz, & Topcu, Bilgen, 2007).

All in all; according to the data obtained, when university students actively engaged in sports and sedentary university students, both of whom having participated in the study, are examined in terms of attention deficit, it was observed that the students who received sports training in a particular branch were more attentive in all kind of points. It can be stated that the students who continue their sport lives within the frame of particular discipline have a higher level of attention no matter what branch it is. That individuals gain athletic skills at an early age can be the means for taking

them to success in later years. We can state that regular sport should be done in order to prevent the attention deficit in education.

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Bibliography

1. Abernethy, B., Singer, R., Murphey, M., & Tennant (Eds.), L. (1993). *Handbook of research on sport psychology*. New York: Macmillan.
2. Abernethy, B., Maxwell, J., Masters, R., Kamp, J., & Jackson, R. (2007). *Handbook of Sport Psychology*. Jhon Wiley.
3. Akandere, m., Baştuğ, G., Asan, R., & Baştuğ, K. (2010, Mayıs 21-23). Çocuklarda eğitsel oyunun dikkat üzerine etkisi. Costanta, Romania.
4. Akıncılı, N. (2005). Sekiz yaş grubu çocuklarda hareket eğitimi ile dikkat ve hafıza gelişiminin ilişkisi. *Yüksek Lisans Tezi*. Manisa, Türkiye: Celal Bayar Üniversitesi Sağlık Bilimleri Enstitüsü.
5. Asan, R. (2011). Sekiz haftalık masa tenisi egzersizinin 9-13 yaş arası çocuklarda dikkat üzerine etkisi. *Yüksek Lisans Tezi*. Konya: Selçuk Üniversitesi Sağlık Bilimleri Enstitüsü.
6. Baddeley, A. (1999). *Human Memory theory and practice*. Boston: Psychology Press Allyn and bacon.
7. Bozan, A., & Akay, Y. (2012). Dikkat geliştirme eğitiminin ilköğretim 5. sınıf öğrencilerinin dikkatlerini toplama becerisine etkisi. *Western Anatolia Journal of Educational Science*, 53-66.
8. Brickenkamp, R., & Zillmer, E. (1998). *d2 Test of Attention*. Göttingen: Hogrefe, Hubber.
9. Çağlar, E., & Koruç, Z. (2006). d2 dikkat testinin sporcularda güvenilirliği ve geçerliği. *Spor Bilimleri Dergisi Hacettepe*, 17(2),58-80.
10. Doğutepe, D., Elvin, & Karakaş, S. (2008). Nöropsikolojik Dikkat Testleri Arasındaki İlişkilerin Modellenmesi. *Klinik Psikofarmakoloji Bulteni*, 31-40.
11. Karaduman, D. (2004). Dikkat toplama eğitim programının ilköğretim 4. ve 5. sınıf öğrencilerinin dikkat toplama düzeyi, benlik algısı ve başarı düzeylerine etkisi. *Doktora Tezi*. Ankara: Ankara Üniversitesi Eğitim Bilimleri Enstitüsü.
12. Özdemir, M. (1990). Üniversiteli sporcu ve sporcu olmayan öğrencilerin dikkat seviyelerinin araştırılması. *Yüksek Lisans Tezi*. İstanbul, Türkiye: Marmara Üniversitesi Sağlık Bilimleri Enstitüsü.
13. Özerkan, K. N. (2004). *Spor Psikolojisine Giriş -Temel Kavramlar*. Ankara: Nobel Yayınları.
14. Schaefer, U., Tenenbaum, G., & Benedick, A. (1987). Social cohesiveness, arousalconcentration and persistence in young female gymnasts. *ICHPER-CAHPERPER Conference*, 9-13.

15. Silah, M. (2005). Sosyal Psikoloji, Davranış Bilimi. *Sosyal Psikoloji, Davranış Bilimi* (s. 46-47-48). içinde Ankara: Seçkin Yayınevi.
16. Tiryaki, Ş. (2000). *Spor Psikolojisi Kavramlar, Kuramlar ve Uygulama*. Ankara: Eylül Yayınevi.
17. Topçu, B., Yıldız, S., & Topçu, Bilgen, Z. (2007). Dikkat eksikliği hiperaktivite bozukluğu olan çocuklarda folklor egzersizinin etkisi. *Genel Tıp Dergisi*, 17(2), 89-93.
18. Zillmer, E., & Kennedy, C. (1999). Preliminary United States Norms For the d2 test of attention. *Arc Clin Neuropsychol*, 14(8) 727-728.

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