



Investigating the imagination levels of students playing tennis

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Abstract

The aim of this study is to examine the imagination levels of 8 to 16-year-old students who are engaged in tennis. The sample group of the study consisted of 151 primary school students between the ages of 8-16, who are enrolled in primary and secondary education institutions and are engaged in tennis sports in the province of Aydın in the 2016-2017 academic year. In order to determine the imagination level of the students, Sports Imagery Questionnaire for Children developed Hall et al. (1999) and adapted to the Turkish by Kafkas (2011) was administered. In the evaluation of the data, the normality test Kolmogorov Smirnov, Kruskal Wallis, Mann Whitney-U, and Chi-Square tests were applied to determine the differences of imagination levels based on various demographic parameters. The results revealed that the level of imagination did not differ significantly based on age or gender. However, mean value of the imagination scores for female students was higher than that for male students. There was a significant difference between the persistence of doing the sport and the level of imagination. Significant differences were detected in the imagery aspect, general cognitive dimension and the persistence of the sports. Similarly, significant differences were observed in the imagery aspect, specific cognitive dimension and the longevity of sporting. There were no significant differences between imagery aspect, special motivation, general motivation stimulation, general motivational superiority dimensions and sporting longevity.

Keywords: Sports; tennis; imagination.

1. Introduction

Imaging is a life where real lives are imitated. We may notice that we see what we are imagining, we can feel the movements while imagining, or we can experience the images of sounds, tastes and fragrances without real experiences (Hall, 2001). With imagination, we develop both the physical skills and the mental skills. Physical adjustments such as the development of skills, correction of errors, and psychological arrangements such as control of emotions, concentration, and self-confidence can be accomplished with the imagination. It is very important for athletes to form positive images in their minds in order to be successful and take advantage of the imagination. Because positive images also affect the actions of athletes in a positive way (Kızıldağ, 2007). Additionally sport is a leading method which people, who want to be happy, apply. Sport, psychologically, make the individual live pleasure and happy in studies which was done for sports?

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effect on happiness. The most important factor in dealing with stress which is named as our century illness is sport for sure. It is possible to abolish monotonous life style and sense that people face in their daily life with sport (Yıldız and Ekici, 2017). Imagery is part of our thought system. In images, one can perceive himself/herself as doing the best s/he can so as to reveal a good performance. By rethinking or revealing a previous success, imagination can be implemented to recreate the successful performance in the past. In other words, we can remember and re-create the events of the past in our brains, or we can imagine events in our minds that never happened. Imagery is similar to our actual sensory experience (vision, feeling, hearing, etc.), but occur only in internal brain (Weinberg, 1995). Many psychologists believe that imagination is one of the most important studies in improving the psychological performance of the athlete.

The literature revealed that the imaginative strategy is more effective than no exercise and less effective than physical exercise (Özerkan, 2004). Tennis is a sports with many different technical features. In order to achieve a high level of success in this branch, players must have the necessary motor skills. These abilities are important for the tennis branch (www.topendsports.com, 2018). Anaerobic capacity is at the forefront in tennis and coordination, quickness, speed, and power are the most important components (Crespo and Miley, 1998; Yıldız et al., 2017). Playing tennis requires different skills due to the game structure. During the course of learning, the skills of closed skills should be done, and in the middle and upper levels it is more appropriate to carry out studies that require more open skills. Tennis is a sport which has more co-ordinated features. Therefore, transfer of previously acquired knowledge and skills to new acquired skills is more important during the acquisition of skills related to tennis (Ölçücü, 2011). In the light of this information, the aim of this study is to examine the imagination levels of 9-15 years old children who are engaged in tennis.

2. Methodology

2.1. Model

Since the research was based on the examination of the current situation as it is, it was done by general screening model.

2.2. Working Group

A total of 15 primary school students (57 males, 94 males and females) aged between 8-16 years and living in Aydin Province center participated in the study.

2.3. Data Collection Tools

Sports Imagery Questionnaire for Children developed Hall et al. (2011) and adapted to the Turkish by Kafkas (Kızıldağ, 2011) was administered. The imagination levels of the participants were compared in terms of gender, age and persistence of sporting.

2.3.1. Sports Imagery Questionnaire for Children

Sports Imagery Questionnaire (SIQ) for Children developed Hall et al. (Hall, 1999) and adapted to the Turkish by Kafkas (Kızıldağ, 2007) was administered. The SIQ used in the study consisted of 21 items and five subscales. The subscale a) Specific cognitive dimension (SCD, $\alpha = .77$) consists of 4 items and aimed to reveal the measures the potential of imagination of the technique, before the students exhibit the basic techniques of the sportive branch. b) General cognitive dimension (GCD, $\alpha = .62$) consists of 4 items and measures the overall planning of the sport activities. c) The the special motivation dimension (SMD $\alpha = .70$) consists of 4 items and measures the specific motivation of students in sport activities. d) The general motivation-stimulus dimension (GMSD, $\alpha = .77$) consists of 4 items and measures the ability of students to imagine the talent in advance to perform that talent in a sporting activity. e) The general motivation-supremacy dimension (GMSD, $\alpha = .70$) consists of 5 items and measures the the best way to imagine the activity that the students will do before exhibiting that activity in sporting. In accordance with the relevant literature, the 6 items from items from the dimensions mentioned above were removed from the questionnaire due to the fact that some items were repeated under different dimensions

and had the factor load value or item drop correlation value below 0.30. Therefore, the study was repeated with the remaining 15 items. As a result of the mentioned operations, it was seen that the inventory explained 51.9% of the total variance. Furthermore, it was found that the eigenvalue of the inventory was collected in 3 components. A total of 36.2% of variance was explained with the first dimension, 8.1% of the second, and 7.5% of the third dimension. The first sub-dimension is the specific cognitive-motivational sub-dimension, and has two factor structures in the original questionnaire: the specific cognitive (1, 2, 3, 4) and the special motivational (9, 10,11, 12) dimensions. In this study, it was seen that these two dimensions combined as a result of factor analysis. Specific cognitive motivational sub-dimension consisting of 8 items (1, 2, 3, 4, 9, 10, 11, 12) explains 36.24% of the total variance and the factor loadings vary between 0.38 and 0.72. An example of a specific cognitive-motivational sub-dimension is the item "I can usually imagine what a skill is like." The second sub-dimension is general cognitive sub-dimension and consists of 3 items. While this dimension was consisted of 4 items in the original of the scale (5, 6, 7, 8), the 8th item was excluded because factor load was below 0.30. The factor loads of this sub-dimension ranged between 0.78 and 0.65 and explained 8.12% of the total variance. An example of this sub-dimension is the item "I design new game plans in my head." The third sub-dimension is general-motivational superiority sub-dimension. This sub-dimension consists of 4 items (18, 19, 20, 21) with factor loads ranging from 0.72 to 0.65 and explaining 7.54% of the total variance. In the original questionnaire this dimension had 5 items (17, 18, 19, 20, 21), however, the 17th item was excluded from the scale because the factor load of was below 0.30. An example of a general motivation-superiority sub-dimension can be shown as "I imagine myself in a difficult situation." The reliability coefficient of the questionnaire used in the study was Cronbach Alfa=0.93.

2.4. Analysis of Data

In the evaluation of the data, the normality test Kolmogorov Smirnov, Kruskal Wallis, Mann Whitney-U and Chi-Square tests were applied to determine the differences of imagination levels according to some demographic characteristics.

3. Results

Table 1. Examination of the level of imagination according to the gender variable of students engaged in tennis sports

Gender	N	\bar{X}	SD	
Female student	Total score imagining	94	71.2872	15.75254
Male student	Total score imagining	57	68.3333	18.31308

As seen in Table 1, it is determined that female students' imagination scores are higher than male students'. While the mean imagination of female students was 71.28 ± 15.75 , the mean imagination level of male students was determined as 68.33 ± 18.31 .

Table 2. Studying the level of imagination of tennis sports students according to age and gender variable

Age	Gender		N	X	SD
8	Female	Total score imagining	4	63.7500	12.01041
9	Female	Total score imagining	10	71.3000	12.39220
	Male	Total score imagining	9	74.3333	11.32475
10	Female	Total score imagining	14	75.8571	16.36063
	Male	Total score imagining	13	58.4615	19.35035
11	Kız	Total score imagining	15	76.1333	14.52026
	Male	Total score imagining	13	65.2308	17.71607
12	Kız	Total score imagining	10	62.4000	19.93434
	Male	Total score imagining	10	78.3000	20.42357
13	Kız	Total score imagining	9	66.8889	21.76261
	Male	Total score imagining	7	63.2857	17.83923
14	Female	Total score imagining	11	76.8182	12.01514
	Male	Total score imagining	3	75.6667	10.01665
15	Female	Total score imagining	10	67.0000	14.85485
	Male	Total score imagining	2	82.5000	13.43503
16	Female	Total score imagining	11	71.6364	12.95587

The mean score of imagination in terms of age and gender in Table 2 indicates that the mean scores of the females in 10,11,13,14 age groups and Males in the 12,15 age groups are higher.

Table 3. Normality test for imagination level

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	p	Statistic	df	P
Total imagining score	.078	151	.025	.976	151	.009

As shown in Table 3, the data were deviated from the normality ($p < 0.05$).

Table 4. Normality test for imagination and sub-dimensions

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statist	Df	p	Statistic	df	P
Specific cognitive	.099	151	.001	.976	151	.009
General cognitive	.110	151	.000	.962	151	.000
Special motivation	.148	151	.000	.947	151	.000
General motivation-stimulus	.124	151	.000	.959	151	.000
General-motivational superiority	.093	151	.003	.961	151	.000

As seen in Table 4, the data were deviated from the normality ($p < 0.05$).

Table 5. According to the gender variable of students engaged in tennis sports examination of the imagination sub-dimensions

	Total imagining score	Specific cognitive	General cognitive	Special motivation	General motivation- stimulus	General-motivational superiority
Mann-Whitney U	2410.000	2566.000	2563.500	2265.500	2336.500	2457.500
Wilcoxon W	4063.000	4219.000	7028.500	3918.500	3989.500	4110.500
Z	-1.033	-.436	-.445	-1.592	-1.319	-.852
P	.302	.663	.657	.111	.187	.394

As seen in Table 5, there was no significant difference between the imagination levels and the sub-dimensions of the students engaged in tennis and gender ($p > 0.05$).

Table 6. Examining the the sub-dimensions imagining and the age variable of the students engaged in tennis sports

	Total imagining score	Specific cognitive	General cognitive	Special motivation	General motivation- stimulus	General- motivational superiority
Chi-Square	4.645	10.009	4.543	6.699	2.007	6.633
df	8	8	8	8	8	8
P	.795	.264	.805	.569	.981	.577

As seen in Table 6, no significant difference was found between the imagination levels and the sub-dimension scores of the students engaged in tennis sport ($p > 0.05$).

Table 7. The total imagination score and sub-dimension scores of the students engaged in tennis sports in respect to the persistence of doing sports

	Total imagining score	Specific cognitive	General cognitive	Special motivation	General motivation- stimulus	General- motivational superiority
Chi-Square	16.805	15.033	5.383	11.683	13.856	6.955
df	7	7	7	7	7	7
p	.019	.036	.031	.111	.054	.434

As seen in Table 7, there was a significant difference between the imagination level of the students and the persistence of doing sports ($p < 0.05$).

A significant difference was found between the imaginative sub-dimension of the general cognitive dimension students engaged in tennis and and the persistence of sports ($p < 0.05$).

A significant difference was found between the imagination sub-dimension of the specific cognitive dimension students engaged in tennis and their and the persistence of sports ($p < 0.05$).

There was no significant difference between the imagination sub-dimensions of the students engaged in tennis sports, the levels of motivation, general motivation, general motivational superiority and the duration of sports ($p > 0.05$).

4. Discussion and Conclusion

When the average level of imagination of students engaged in tennis sports is analyzed by gender, it is determined that female students' imagination scores are higher than those of Male students (Table 1). The level of imagination according to age and gender variables is examined and it is observed that the mean imagination level of females in 10,11,13,14 age groups and males in 12 and 15 age groups were higher (Table 2).

When the total imagination score and sub-dimension scores were evaluated in respect to gender, no significant association between the gender and total imagination score and sub-dimension scores were observed (Table 5). According to the analyses of the gender variable and imagining participants level subscale (specific cognitive motivational, general cognitive and general-motivational superiority), there were no significant differences between the groups. Unlike our study, in Kızıldağ's study (2007) entitled "Different Imagery Formats of athletes in Various Sports" the comparison of the the male and female and concluded that in terms of the general cognitive imagery, special motivation, and General motivation-stimulus subscale females performed significantly higher scores compare to the male athletes. The difference between the studies may be due to the nature of the tennis sport in our study. Cross comparisons between the imagination levels of of athletes in different sports may reveal important findings.

Imagination total score and sub-dimension scores were examined according to age variable and no significant difference was found between imagination levels and sub-dimensions and age variable (Table 6). According to a previous study, no significant effect of the age variable on imagination level of sub-dimensions (specific cognitive, general cognitive, general motivation-stimulus, and general motivation-superiority) was reported (Elmas, 2018). Contrary to our results reported here, Kolayış, Sarı, and Köle (2015) reported a positive correlation between age and cognitive imagery and general motivational superiority dimension. When the findings of the previous studies considered a partial coherence was present and with different contradicting results in cognitive imagery and general motivational superiority dimensions.

There was a significant difference between the level of imagination and the duration of sports. Significant differences were found between the imaginative sub-dimension, the general cognitive dimension and the duration of sporting. Significant differences were found between the imaginative sub-dimension specific cognitive dimension and the duration of sporting. No significant difference was found between the imagination sub-dimensions, specific motivation, general motivation stimulation, general motivational superiority dimensions and the duration of sporting (Table 7). In a study targeting the effect of imagination levels of adolescents participating in sportive recreation activities on success perception, a positive effect of imagination on the perception of success was reported (Elmas, 2018). Another study examined the concentration levels of tennis athletes reported a relatively higher concentration performance of tennis athletes compare to the table tennis and badminton athletes (Baştuğ, 2018). In the study which examined the imagination levels and problem solving skills of the athletes participating different sports branches, a positive significant relationship between the cognitive imagery values of imagination sub-dimensions and gender, age and longevity of sporting values, and general motivational superiority dimension values with gender, and sporting year variables were reported (Ağlönü, 2014). A comparison of the imagination and anxiety levels of athletes engaged in individual and team sports was conducted and significant differences were found between age, sporting year and general motivation-stimulus scores (Erdoğan, 2009). While the findings of some studies in which the imagination level is examined in athletes is in congruent with our study, some other studies contradict to our study.

In conclusion, it was determined that the level of imagination did not show a significant difference in respect to age and gender in the students engaged in tennis sports. However, female students' mean imagination scores were found to be higher than those of male students. Significant differences were found between the imaginative sub-dimension, the general cognitive dimension

and the duration of sporting. Significant differences were also found between the imaginative sub-dimension specific cognitive dimension and the duration of sporting. There were no significant differences between the imagination sub-dimension special motivation, general motivation stimulation, general motivational superiority dimensions and sporting time.

In order to generalize the findings regarding the imagination levels of the individuals who are engaged in sports, analyses with the larger sample groups in different sports branches are needed.

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