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A study of problem solving skills and non-functional attitudes of children who get training for football

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Abstract

This study aims to research problem solving skills and non-functional attitudes of children who train for football. It involves 120 students, 60 of whom get regular football training and the other 60 of whom do not. The average age of the participants is 12 ± 08 years. To the experimental group and control group applied'the Problem Solving Inventory' (PSI), developed by Heppener and Petersen (1982) and adapted into Turkish by Taylan, Savasir and Sahin (1997), in addition to 'the Non-functional Attitudinal Scale' (NFAS), developed by Weissman and Beck, and adapted into Turkish by Sahin and Sahin (1992). Independent t test was used to establish the difference between the groups. Paired sample t test was used to detect the difference between pre-test and post-test. There is a statistically meaningful difference in problem solving skills between the pre-test and post-test of experimental group ($p>0.05$). There is no statistically meaningful difference between the pre-test and post-test scores regarding problem solving skills of experimental and control groups ($p>0.05$). When the pre-test scores related to non-functional attitudes were compared in terms of experimental and control groups, a statistically meaningful difference was detected between the two groups ($p<0.05$). The problem solving skills of the experimental group increased as a result of football exercises. Furthermore, there is a meaningful difference between pre-test and post-test scores of non-functional attitudes of the experimental group. It was determined that football exercises applied in this study positively affect problem solving skills and non-functional attitude levels of participants.

Keywords: Football exercises, problem solving skills and non-functional attitudes.

INTRODUCTION

Problem solving is a cognitive and attitudinal process which involves creating effective options to cope with a certain condition, choosing one of them and applying it. Most people think that they are born equipped with problem solving skills. However, there are few individuals who have training in this subject and can grasp the importance of problem solving (12). A problem is the difference between the current condition of an individual and the one he/she desires (15). The tendency of individuals toward the problem can be either positive or negative. Positive tendency to refer to an individual who has in positive attitudes towards problems. People who tend to approach problems in a positive way can perceive them properly if they have, and do not ignore them. They consider problems as a part of life and can attribute the causes of them to correct sources. They perceive problems as something positive from which they can benefit. They also believe that the problem is solvable and that they are talented enough to solve the problems they face in daily life. They are conscious of the fact that sorting out problems successfully requires time and effort, and they are determined to solve the problems (8). Through the proper and correct decisions, an individual can create positive changes in his/her life. If the adverse is true, he/she can affect his/her life negatively. All of these conditions are true in the case of athletes as well. In the pitch, an athlete should be able to arrange his/her own position and action not only according to the positions and actions taken by his/her opponents but also to the conditions of his/her teammates. In order to perform better, a footballer needs to improve his/her physiological, psychological and social features according to football and the needs of football. The physiological needs of football refer to such features as strength, speed, endurance, coordination, balance, flexibility, technique, and tactics. The psychological needs are motivation, character, attention, concentration, boldness, determination, and problem solving as well as such social potentials as leadership, acting together, helping each other, cooperation, and sharing (13). Athletes, who do not have any problems in terms of physical features, struggle in developing new solutions to adapt to the changing conditions during matches. An athlete, making a

few successive mistakes, begins to undergo conflicts in making decisions. Under such conditions, although he/she is in a very suitable position, he/she does not shoot at goal but instead may pass the ball to a friend who is in a much more difficult position. This is what we call a problem. On the other hand, this problem negatively affects both the performance level of the player and that of the team. As can be understood from here, sorting out the problems to be faced during the matches effectively and properly has a significant influence on the performance. This condition, described as detecting, identifying and sorting out the problem, is a process of producing a solution for challenges faced on the path to achieving goals. In this process, athletes with high problem solving skills can solve the problems they face properly. In other words, with a fairly large area and many players, football is a kind of game which includes lots of variables. Therefore, the athlete can even face the problem of which friend to pass the ball. An athlete should be able to decide which friend to pass to, at what speed to pass and how to pass, besides, he/she should also be able to think about how to occupy the most suitable position despite the his/her opponents. Solving this problem out as quickly and properly as possible will lead the athlete and hence the team to success (3).

Non-functional attitudes are negative beliefs, resulting from communication with others and developed by the individual towards himself/herself, other people and the world in which he/she lives (6).

It is a known fact that when non-functional attitudes and cognitive disorders interact with depressive elements, they occasionally accompany aggressive behaviours. The literature suggests that there is a relation between aggressive behaviours and despot behaviours. Despotism is identified as a kind of behaviour which stems from a dominant child's tendency to establish control over others who are weak or to damage them. This often accompanies physical and psychological aggression. Typically, despotism is the use of imbalanced power, which is repetitive and requires education (14). Non-functional attitudes are fairly unalterable and are persistent features which arise in childhood and develop throughout life. Here are some examples of non-functional attitudes; no matter what he/she is doing, the individual needs the approval of others in order to feel better, he/she feels obliged to be successful in every field in order to regard him/herself successful or he/she believes that everything in life can be controlled. Non-functional attitudes are not realistic but strict and generalised on the edges. They prevent individuals from presenting their real performances. They also cause intensive emotions and do not change through daily life experiences (5).

In light of this information the aim of this study is to research the problem solving skills and non-functional attitudes of children who train for football.

MATERIAL & METHOD

Aiming to study the problem solving skills and non-functional attitudes of children who get training for football, this study covers 60 students in the 11-14 age group, who train for football at the Summer Sports School, conducted by Konya/Selçuklu Municipality, and another 60 students in the 11-14 age group who are students at Konya/Selçuklu İsmail Hakkı Tonguç Elementary School and who do not do sports regularly. This study involves a total of 120 experimental subjects who either do football exercises or do not. Their average age is 12 ± 0.823. A ten week 'football exercise program' was applied to the Experimental group. The Control group, however, was not included in any work outs for football training. The weekly football exercise program was scheduled for three days; Monday, Wednesday, and Friday. The exercise program covered basic football training which is suitable for the age group. The exercises were held on a turf football field. Each exercise program lasted 90 minutes on average. The experimental group was requested to warm up (Running, arm-circling, waist-circling) for 10 minutes prior to the training program and to cool-down with such activities as jogging, and stretching for 10 minutes following the training program. In order to gather data for the study, personal information form, the Problem Solving Scale (PSS) and the Non-functional Attitudes Scale (NFAS) were used. These scales were applied to the experimental and control groups twice- one prior to and one following the ten week football exercise program.

Regarding such problem solving stages as 'general tendency', 'identifying the problem', 'producing alternatives', 'decision making', and 'assessment', the Problem Solving Scale (PSS) developed by Heppner and Petersen (10) measures how individuals perceive their capabilities to solve problems as well as determines the extent of their problem solving methods. The scale was translated

into Turkish by Taylan, Savaşır and Şahin (10,17). PSS is a Likert type scale which consists of 35 items and is scored between 1and 6. The scale consists of (1) I always behave so, (2) I usually behave so, (3) I often behave so, (4) I rarely behave so, (5) I scarcely behave so, (6) I never behave so. The answers obtained are given scores between 1 and 6. The 1st, 2nd, 3rd, 4th, 11th, 13th, 14th, 15th, 17th, 21st, 25th, 26th, 30th and 34th items are counted inversely. While scoring these items, they are inverted as 1=6, 5=2, 4=3, 2=5, and 6=1. These items are supposed to represent enough problem solving skills. The score range gathered from the scale is 32-192. The low scores show efficiency in problem solving and higher ones show inefficiency in finding effective solutions for problems (10,11).

The non-functional Attitudes Scale (NFAS): was developed in 1978 by Wissman and Beck in order to measure the recurrence frequency of non-functional depression related attitudes. It was adapted into Turkish by Şahin and Şahin (16). This scale, applied to adolescents and adults, is comprised of 40 items and is scored between 1 and 7. In the reliability research of the original scale it can be seen that the Cronbach Alpha reliability coefficients change between .87 and .92, and that item correlation changes between .20 and .50. Test-retest reliability coefficients change between .54 and .84. In the availability research, the correlation of the scale with Beck Depression Inventory is between .30 and .65, and with the Automatic Thought Scale, it is between .43 and .64 (17). In the study of adaptation into Turkish, which was carried out by Şahin and Şahin (13), the Cronbach Alpha reliability coefficient was .79 and the average of total score correlation was .34. In the reliability research, the correlation with the Beck Depression Inventory was found to be .19, and the correlation with the Automatic Thought Scale was .29. In the study of structure reliability it was seen that 12 out of 40 items in the scale could distinguish the two groups of far edges. The study of adapting the scale for adolescents was conducted by Şahin and Şahin (16) who also adapted the scale into Turkish. Firstly, all of the sub-dimension and item related statements of the Scale Development Experts were examined in order to determine whether the items in the scale were suitable for adolescents. It was decided to conduct a pre-testing trial in order to provide item and test validity based on experts' views. A trial session was conducted on a group which was equal to the research sample in order to quantitatively standardize the scale. The trial group of the scale was comprised of 498 students in the first, second and third years of high school. As the scale involves four sub-scales, the Cronbach Alpha coefficient regarding the whole scale and each sub-dimension were calculated and on the item basis item-test correlations were calculated. The items numbered 11, 18, 19, 21, 29, 30, 31, 33, 36 and 40 were removed from the scale because their total item correlations were below .20. Calculated based on item analysis, the Cronbach Alpha internal consistency coefficient for reliability of the scale was .78, for sub-dimension of need for approval was .68, for sub-dimension of independent attitude was .60 and for sub-dimension of variable attitudes was .50.

SPSS 16.0 statistical package program has been used to assess the data and to find the calculated values. The data has been summarised by including averages and standard deviation. Independent t test has been applied to present the difference between groups. Paired sample t test has been conducted to detect the difference between pre and post- test. Level of error in this study has been considered as 0.05.

RESULTS

Analysing the Table 2, it has been detected that there is a statistically meaningful difference in problem solving skills between the pre-test and post-test of experimental group ($p>0.05$). Pre-test average value for experimental group has been established as 97.55 while post-test average value is 91.05. It can be seen that as average score values of experimental subjects have decreased, their problem solving skills have increased and they have become more effective in problem solving, which shows that there is an inverse proportion between them. Therefore, it can be said that problem solving skills of experimental group have increased based on exercise. In comparison of problem solving skills in terms of control group, it has been observed that there is no statistically meaningful difference between pre-test and post-test scores ($p>0.05$).

Analysing the Table 3 it has been detected that there is no statistically meaningful difference between the pre-test and post-test scores regarding problem solving skills of experimental and control groups ($p>0.05$).

When the non-functional attitudes were compared in terms of experimental group, it was found out that there is a statistically meaningful difference between their pre-test and post-test scores

($p<0.05$). In this comparison, post-test scores for non-functional attitudes were observed to be meaningfully higher than pre-test scores. On the other hand, when the non-functional attitudes were compared in terms of control group, no statistically meaningful differences were observed between the scores of pre-test and post-test ($p>0.05$; table 4).

Table 1. The frequency and percentage distribution of the experimental and the control groups regarding demographic information.

Variables		Experimental Group		Control Group	
		Frequency	%	Frequency	%
Education Level of Father	Primary School	18	30.0	29	48.3
	Secondary School	12	20.0	7	11.7
	High School	16	26.7	15	25.0
	Associate's Degree	4	6.7	0	0
	Academy	10	16.7	9	15.0
Education Level of Mother	Primary School	37	61.7	40	66.7
	Secondary School	9	15.0	4	6.7
	High School	7	11.7	10	16.7
	Associate's Degree	3	5.0	2	3.3
	Academy	4	6.7	4	6.7
Father's Occupation	Unemployed	4	6.7	1	1.7
	Civil-servant	8	13.3	13	21.7
	Tradesman	16	26.7	18	30.0
	Worker	23	38.3	21	35.0
	Seasonal Worker	1	1.7	7	11.7
	Employed in Private Sector	8	13.3	0	0
Mother's Occupation	Unemployed	46	76.6	51	85.0
	Civil-servant	4	6.7	3	5.0
	Tradesman	3	5.0	1	1.7
	Worker	1	1.7	2	3.3
	Seasonal Worker	1	1.7	0	0
	Employed in Private Sector	5	8.3	3	5.0
Health Insurance	None	3	5.0	6	10.0
	Green Card	3	5.0	7	11.7
	Social Security	14	23.3	6	10.0
	SSI	36	60.0	40	66.7
	Retirement Fund	4	6.7	1	1.7

Table 2. Comparison of the experimental and the control groups according to pre-test and post-test results for problem solving skills.

Groups		N	Mean	SD	t	P
Experimental	Pre-test	60	97.55	16.492	-2.511	0.015*
	Post- test	60	91.05	18.188		
Control	Pre- test	60	95.75	20.034	-1.048	0.299
	Post- test	60	98.95	17.766		

* P<0.05

Table 3. Comparison of the experimental and control groups regarding the data about problem solving skills of experimental subjects who have been involved in the research.

	Groups	N	Mean	SD	t	p
Pre- test	Experimental	60	97.55	16.492	-1.398	0.165
	Control	60	95.75	20.034		
Post- test	Experimental	60	91.07	18.188	-0.427	0.671
	Control	60	98.95	17.766		

Table 4. Assessment of pre-test and post-test scores of non-functional attitudes of experimental subjects who have been involved in the research in terms of experimental and control groups.

Groups		N	Mean	SD	t	P
Experimental	Pre- test	60	147.50	29.067	-2.120	0.038*
	Post- test	60	155.77	21.396		
Control	Pre-test	60	157.23	19.909	0.344	0.742
	Post- test	60	156.28	20.528		

* P<0.05

Table 5. Comparison of the data about experimental subjects, who have been involved in the study, in terms of non-functional attitudes and control group.

	Groups	N	Mean	SD	t	P
Pre-test	Experimental	60	147,50	29,067	-2,140	0,034*
	Control	60	157,23	19,909		
Post-test	Experimental	60	155,77	21,396	-0,135	0,893
	Control	60	156,28	20,528		

* P<0,05

When the pre-test scores related to non-functional attitudes were compared in terms of experimental and control groups, a statistically meaningful difference was detected between the two groups ($p<0.05$). When the post-test scores related to non-functional attitudes were compared in terms of experimental and control groups, it was established that there is no statistically meaningful difference between experimental and control groups ($p>0.05$; table 5).

DISCUSSION

In this study where problem solving skills and non-functional attitudes of children who get training for football have been examined;

Regarding the variable of parental education levels of children who have been involved in the study and do football exercises (experimental group) and those who do not do any regular exercises (control group), it has been established that being primary school graduate is higher than the other levels of education. Regarding the parental occupation variable, it has been observed that the majority of children whose fathers are workers make up the ones whose mothers are unemployed. Moreover, regarding the health insurance variable, it can be seen that of the children involved in the study, those who do football exercises (experimental group) and who do not do any regular exercises (control group) make up the majority of the ones whose health insurance is SSI (Table 1).

While pre-test mean value of problem solving skills of experimental group was 97.55, post-test mean value was found to be 91.05. As the value of means scores of experimental subjects decrease, problem solving skills increase, which makes them more efficient in problem solving. There is an inverse proportion between them. Therefore, it can be said that the problem solving skills of experimental group increase based on exercises. When the problem solving skills were compared in terms of control group, it has been established that there is no statistically meaningful difference between their scores of pre-test and post-test (Table 2).

In his study on problem solving, Akandere et al. (1) have examined the problem solving skills levels of university students based on dance exercises and stated that problem solving skills of individuals who do dance exercises are higher in comparison those who do not. These findings support our study. In an another study conducted for problem solving skill, it has been researched whether the problem solving skill perceptions of Cadets at Turkish Military Academy differ from their styles of problem solving approach in terms of class variable, and no meaningful difference has been detected (9).

It has been observed in the research that the non-functional attitude levels of students involved in the football exercise program showed a positive development after the study. No changes have been observed in non-functional attitude levels of students who did not participate in the exercise program (Table 4). When the non-functional attitude levels of the students who participated in football exercise in the research and who did not have been analysed, it can be seen that the students who did not take part in exercise program before the study have higher non-functional attitude levels than the ones who did take part in it. However, after the study the two groups can be seen to have an equal level. This situation is thought to be stemming from the positive effects that the exercise program applied has on non-functional attitude levels of students in the experimental group (Table 5).

Since non-functional attitudes scale is one which mostly refers to negative and depressive feelings, in the study that conducted on exercise and depressive feelings, Aylaz et al. (2) stated that the aerobic exercises applied are effective in decreasing depression scores. Baştug et al. (4) examined the feelings of 12-15 aged adolescents in terms game variable and found out that the depression levels of children who share time for games after school are

lower than those who do not. In a research carried out by Canan and Ataoglu (7) regular sporting was found to have a positive effect on anxiety. It can also be said that doing regular sports, particularly team sports, have positive effects on depression and problem solving skills. Considering the benefits of exercise for children, these studies seem to be supporting our study.

In conclusion, in this study, where the effect of problem solving skills and non-functional attitudes has been researched; the pre-test average score of problem solving skills in the experimental group has been established as 97.55, while post-test average score is 91.05. It can be said that as the average score values of experimental subjects decrease, they become more effective in problem solving which means that problem solving skills of experimental group increase depending on football exercises. However, when the problem solving skills have been compared in terms of control group, it has been detected that there is no statistically meaningful difference between the scores of pre-test and post-test. Moreover, it has been observed that the exercise program which was applied has positively influenced students' non-functional attitudes. It is considered that the football exercise, applied during the study, has affected problem solving skills and non-functional attitudes of students positively.

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