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Problem-solving skills of futsal players with regard to some socio-demographic variables

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Abstract

The aim of this study is to evaluate problem-solving skills of female futsal teams that compete in the Futsal League of Turkish Universities Sports Federation in terms of some socio-demographic variables. In total, 144 students from female futsal teams of 10 universities competing in the Futsal League of Turkish Universities Sports Federation voluntarily took part in this study. In the study, "Problem-Solving Inventory" that was developed by Heppner & Petersen was used. With this inventory, such sub-dimensions of the participants as "reliance on problem-solving skill", "approach-avoidance" and "self-control" were analysed. In the statistical analysis of the obtained data during the research study, differences have been revealed by using one-way analysis of variance (One-Way ANOVA). And in the comparison of the averages of groups, Tukey HSD multiple comparison test was used. Research findings revealed that there are statistically significant differences between the points gained from the sub-dimensions of "reliance on problem-solving skill" and "approach-avoidance" with respect to the participants' sporting age and the attended school; "reliance on problem-solving skill" with regard to father's educational background; "approach-avoidance" with respect to income level ($P<0.05$). As a result, it is understood that such variables as sporting age, father's educational background, income level and the attended university have important effects on individuals, and it is seen that individual's level of solving problems increases as the sporting age increases. Within this scope, individuals are advised to start doing sports at early ages in order for them to develop their problem-solving skills.

Keywords: Futsal, futsal league, problem, problem-solving skills.

INTRODUCTION

An individual comes across various little or big problems under different circumstances during certain periods of his/her life. And the reactions towards these problems vary from person to person. Many people attempt to solve the same problem by using many different approach styles, and some fail while others succeed (8).

Problem can be generally explained as a challenge to be resolved or a question to be answered (4).

Problem-solving is a cognitive and behavioral process that requires high-level of consideration, and involves the determination of effective problem-solving ways, choosing proper solutions and deciding well (9).

Problem-solving skill helps individuals and groups adapt effectively to their environment. Solving problems need multi-disciplinary knowledge, multiple thinking and creativity (20).

In this sense, problem-solving skill is an inevitable quality that enables individuals to handle the challenges and to succeed. Therefore, problem-solving is one of the most important living skills of individuals. Hence, individual goes on his/her life more smoothly (7). Sport, undoubtedly, takes an important place in an individual's life with relation to other living spaces, and contributes much to their behavioral development. Within this scope, futsal, which developed as a special type of football, is a kind of sports that requires high-level technical and tactical capacity concerning the game and quick deciding. So, it is thought very important that players

have enough speed and coordination to make the truest choice during the game, and that they can conduct desired skills. In such competences in which game goes on with lightning speed as futsal, this situation becomes more important, and therefore individual skills and differences of the players come into prominence. As a matter of fact, players perform 146 tactical moves in a confined space during football game while this number reaches up to 536 in a futsal game (7). Therefore, duties and responsibilities of the players on the pitch happen faster according to game's needs.

When futsal is viewed from this perspective, it is thought that such problem-solving levels as "reliance on problem-solving skill", "approach-avoidance" and "self-control", which are sub-dimensions of problem-solving skill are important with regard to performance and success.

Within this framework, the aim of this study is to compare problem-solving skills of female futsal teams of the universities by correlating them to some personal variables in sub-dimension categories.

MATERIALS & METHODS

Research Model

This research has the characteristics of screening model, and presents a descriptive quality. Screening models is a research style aiming to describe a situation in the past or still present as it is. The incident, individual or object that are subject of the research are tried to be expressed under their own circumstances and as they are (15).

Participants

The players who play in the Futsal League of Turkish Universities Sports Federation constitute the population of the study; players of 10 universities in total 144 students that were chosen as cluster sampling within the universities having teams in aforesaid league. These are Afyon Kocatepe University (AKU, n=15), Atatürk University (AU, n=12), Dumlupınar University (DU, n=17), Gümüşhane University (GU, n=18), Giresun University (GU, n=11), Karabük University (KU, n=10), Karadeniz Technical University(KTU, n=15), Mehmet Akif Ersoy University (MAKU, n=15), Ondokuz Mayıs University (OMU, n=21), Ordu University (ODU, n=10) respectively.

Data Collection Tool

In the study, as data collection tool, "Problem-solving inventory" developed by Heppner and Petersen (12) was used and adapted into Turkish by Taylan (25), Savaşır & Şahin (23). Cronbach's Alpha reliability coefficient of thirty-five point inventory that involves positive and negative statements is 0.90, and items have response options that are suited for six rating grades. Varying points from 1 to 6 are given to the responses in the inventory. While grading the inventory, total point was calculated by reversing the negative statements. Because of inventory protocol 9th, 22nd, 29th and 32nd items were left out in evaluation process. Therefore, the lowest point is 31, and the highest one is 186. High-level of total points obtained from inventory shows that individual perceives himself/herself insufficient for problem-solving skills. There are three sub-dimensions in the inventory. Cronbach's Alpha reliability coefficient of 5th, 10th, 11th, 12th, 19th, 23rd, 24th, 27th, 33rd, 34th and 35th items constituting the sub-dimension of Reliance on Problem-Solving Skill (RPSA) is 0.85; Cronbach's Alpha reliability coefficient of 1st, 2nd, 4th, 6th, 7th, 8th, 13th, 15th, 16th, 17th, 18th, 20th, 21st, 23rd, 30th and 31st items constituting the sub-dimension of "Approach-Avoidance (AA)" is 0.84; and Cronbach's Alpha reliability coefficient of 3, 14, 25, 26 and 32nd items constituting the sub-dimension of "Self-Control (SC)" is 0,72. Cronbach's Alpha reliability coefficient of the inventory in total used in this study is 0.822; the coefficient of sub-dimension of reliance on problem-solving skill is 0.737; the coefficient of sub-dimension of approach-avoidance is 0,686 and the coefficient of sub-dimension of self-control was calculated as 0.643.

Statistical Analysis

Shapiro Wilk and Levene tests were first applied to data obtained from the study in order to control normality hypothesis and homogeneity hypothesis of variables. Therefore, in accordance with the purposes of the study, one-way variance analysis (One-Way ANOVA) and Tukey HSD multiple comparison tests were used. For all statistical calculations, SPSS 21.0 statistical package was used, and results were accepted to be significant on the level of ($p<0.05$).

RESULTS

As in Table 1 , it is confirmed that there is significant difference in the dimensions of "Total Point", "Reliance on Problem-Solving Skill" and "Approach-Avoidance" with respect to sporting age variable ($p<0.05$). In the dimension of "Self-Control", any statistically significant difference is not available ($p>0.05$).

Likewise, when Table 2 and Table 3 are examined, any significant difference were not statistically found in the sub-dimensions and total points in terms of "position" and "weekly training frequency" variables (p>0.05).

Table 1. Problem-solving skill in terms of sporting age.

Dimensions	Sporting Age	N	Mean	SD	Minimum	Maximum	p
Total Point	1-6	40	96.08 [a]	15.56	55.00	119.00	0.029*
	7-13	77	94.19 [ab]	17.21	52.00	122.00	
	14 and above	27	85.26 [b]	18.51	45.00	126.00	
	Total	144	93.04	17.33	45.00	126.00	
RPSA	1-6	40	30.53 [a]	7.79	12.00	47.00	0.051*
	7-13	77	29.70 [ab]	7.71	14.00	46.00	
	14 and above	27	26.11[b]	6.70	11.00	38.00	
	Total	144	29.26	7.66	11.00	47.00	
AA	1-6	40	51.25 [a]	7.63	29.00	62.00	0.040*
	7-13	77	50.39 [ab]	9.57	25.00	68.00	
	14 and above	27	45.63 [b]	10.99	25.00	75.00	
	Total	144	49.74	9.52	25.00	75.00	
SC	1-6	40	17.45	3.72	10.00	29.00	0.146
	7-13	77	17.39	4.15	6.00	28.00	
	14 and above	27	15.74	3.76	9.00	25.00	
	Total	144	17.10	3.99	6.00	29.00	

Table 2. Problem-solving skill with regard to positions.

Dimensions	Position	N	Mean	SD	Minimum	Maximum	p
Total Point	Forward	34	94.38	19.71	45.00	122.00	0.368
	Midfield	38	94.39	17.45	52.00	126.00	
	Defence	59	90.24	16.69	53.00	119.00	
	Goalkeeper	13	98.31	12.10	73.00	117.00	
RPSA	Forward	34	30.21	7.96	11.00	43.00	0.311
	Midfield	38	30.05	8.28	14.00	46.00	
	Defence	59	27.83	7.31	12.00	47.00	
	Goalkeeper	13	30.92	6.16	18.00	40.00	
AA	Forward	34	49.76	10.40	25.00	68.00	0.449
	Midfield	38	50.45	10.43	26.00	75.00	
	Defence	59	48.54	8.91	25.00	67.00	
	Goalkeeper	13	53.00	6.62	43.00	64.00	
SC	Forward	34	17.88	3.99	10.00	29.00	0.217
	Midfield	38	17.11	4.34	6.00	25.00	
	Defence	59	16.37	3.96	7.00	28.00	
	Goalkeeper	13	18.31	2.39	15.00	24.00	

Table 3. Problem-solving skill with regard to weekly training frequency.

Dimensions	Weekly Training Frequency	N	Mean	SD	Minimum	Maximum	p
Total Point	5 days	23	93.52	19.84	55.00	121.00	0.863
	4 days	40	91.70	16.56	52.00	115.00	
	3 days	61	92.65	17.86	45.00	122.00	
	2 days	17	97.23	11.34	76.00	114.00	
	1 day	3	91.33	31.34	65.00	126.00	
RPSA	5 days	23	29.52	8.92	11.00	42.00	0.598
	4 days	40	28.42	7.90	12.00	46.00	
	3 days	61	29.72	7.36	16.00	47.00	
	2 days	17	30.23	6.86	17.00	43.00	
	1 day	3	23.33	3.78	19.00	26.00	
AA	5 days	23	50.86	9.68	29.00	67.00	0.449
	4 days	40	49.25	9.51	25.00	65.00	
	3 days	61	48.57	9.69	25.00	68.00	
	2 days	17	53.23	5.41	44.00	61.00	
	1 day	3	51.33	21.50	33.00	75.00	
SC	5 days	23	17.26	4.25	11.00	28.00	0.907
	4 days	40	16.82	4.16	6.00	24.00	
	3 days	61	17.31	3.99	9.00	29.00	
	2 days	17	16.52	3.10	12.00	23.00	
	1 day	3	18.33	5.85	14.00	25.00	

Table 4. Problem-solving skill with respect to father's educational background.

Dimensions	Father's Educational Background	N	Mean	SD	Minimum	Maximum	p
Total Point	Literate	10	92.90 ^{ab}	18.43	65.00	119.00	0.031*
	Primary-Secondary School	74	89.25 ^{b}	17.15	45.00	117.00	
	High School	38	99.26 ^{a}	16.47	53.00	126.00	
	Higher Education and Above	22	95.09 ^{ab}	16.53	57.00	118.00	
RPSA	Literate	10	28.30 ^{ab}	8.21	16.00	44.00	0.025*
	Primary-Secondary School	74	27.60 ^{b}	7.62	12.00	46.00	
	High School	38	32.07 ^{a}	8.06	11.00	47.00	
	Higher Education and Above	22	30.36 ^{ab}	5.31	20.00	38.00	
AA	Literate	10	50.50	9.67	35.00	60.00	0.088
	Primary-Secondary School	74	48.00	9.37	25.00	67.00	
	High School	38	52.81	8.91	25.00	75.00	
	Higher Education and Above	22	49.90	10.17	25.00	62.00	
SC	Literate	10	16.80	4.84	7.00	24.00	0.503
	Primary-Secondary School	74	16.64	4.20	6.00	29.00	
	High School	38	17.65	3.67	9.00	25.00	
	Higher Education and Above	22	17.77	3.35	12.00	23.00	

In the research, while there is significant difference in the dimension of "reliance on problem-solving skill" and the averages of "total point" with regard to father's educational background ($p<0.05$), any differences aren't available for the dimensions of "approach-avoidance" and "self-control" ($p>0.05$).

Any significant difference was not statistically found in the averages of "total point" and sub-dimensions of "mother's educational background", variables of the research group ($p>0.05$).

According to the Table 6, with regard to the variable of income status of family, there is significant difference in the sub-dimensions "Total Point" and "Approach-Avoidance" ($p<0.05$). Any significant difference was not statistically found in the sub-dimensions "Reliance on Problem-Solving Skill" and "Self-Control" ($p>0.05$).

DISCUSSION

In this study which was conducted to determine the problem-solving skills of female futsal teams playing in the league of Turkish Universities Sports Federation with respect to some variables. "Reliance on Problem-Solving Skill", "Approach-Avoidance", "Self-Control" and "Total P Point" which are the sub-dimensions of problem-solving skill have been examined with respect to some variables, the gathered data have been discussed on the basis of literature. The low number of points gained from inventory has showed that participants' problem-solving skills are high, the reverse indicates that it is low.

It has been reported that there is significant relation between problem-solving skill and attendance in sportive activities in many studies which are in the literature Şah (22), Şenduran & Amman (24), Kuru & Karabulut, (19), Akandere et al. (2) Canan & Ataoğlu (6), Acar et al. (1).

When the sporting age variable is analysed in the study, there is significant difference in the sub-dimensions of "TP", "RPSA", and "AA" of the participants. There is no significant difference found in the sub-dimension of "SC". According to this finding, it is clear that problem-solving skills of participants increase as their sporting age rises (Table 1). But Gülşen (10) could not find any significant difference in the sporting age in the study on football players. This situation doesn't match up with the obtained results. On the other hand, it can be said that this difference is due to the distinction between indoor and outdoor football games. Actually indoor football requires making faster decision and more consideration than others. It means that mental process is higher in this play.

Table 5. Problem-solving skill with respect to mother's educational background.

Dimensions	Mother's Educational Background	N	Mean	SD	Minimum	Maximum	p
Total Point	Literate	22	90.00	16.80	53.00	119.00	0.201
	Primary Secondary School	84	91.89	17.54	45.00	122.00	
	High School	28	95.46	18.12	57.00	126.00	
	Higher Education and Above	10	102.60	11.59	83.00	118.00	
RPSA	Literate	22	28.27	7.73	17.00	44.00	0.371
	Primary-Secondary School	84	28.76	7.87	11.00	47.00	
	High School	28	30.32	7.53	16.00	43.00	
	Higher Education and Above	10	32.60	5.56	21.00	40.00	
AA	Literate	22	47.77	9.95	25.00	60.00	0.209
	Primary-Secondary School	84	49.19	9.20	25.00	68.00	
	High School	28	51.14	1.,80	25.00	75.00	
	Higher Education and Above	10	54.70	5.55	44.00	62.00	
SC	Literate	22	16.18	3.04	10.00	24.00	0.544
	Primary-Secondary School	84	17.11	4.39	6.00	29.00	
	High School	28	17.32	3.58	7.00	25.00	
	Higher Education and Above	10	18.30	3.26	12.00	23.00	

Table 6. Problem-solving skill with regard to income status.

Dimensions	Income Status (TL)	N	Mean	SD	Minimum	Maximum	p
Total Point	1000-1500	44	85.98[b]	17.49	45.00	119.00	0.011*
	1501-2000	35	97.43[a]	13.61	65.00	117.00	
	2001-2500	39	96.54[ab]	16.08	53.00	121.00	
	3001-3500	14	97.71[a]	19.79	52.00	126.00	
	3501 and above	12	89.33[ab]	20.83	57.00	118.00	
RPSA	1000-1500	44	26.84	7.11	11.00	44.00	0.084
	1501-2000	35	31.09	6.94	19.00	46.00	
	2001-2500	39	30.64	7.64	14.00	47.00	
	3001-3500	14	29.71	9.22	18.00	46.00	
	3501 and above	12	27.75	8.41	12.00	40.00	
AA	1000-1500	44	45.98[b]	9.51	25.00	62.00	0.019*
	1501-2000	35	52.14[a]	7.69	30.00	64,.00	
	2001-2500	39	51.13[ab]	8.69	25.00	65.00	
	3001-3500	14	52.71[a]	11.09	29.00	75.00	
	3501 and above	12	48.50[ab]	11.88	25.00	67.00	
SC	1000-1500	44	16.11	4.13	7.00	29.00	0.234
	1501-2000	35	17.29	3.76	9.00	28.00	
	2001-2500	39	17.85	3.12	10.00	23.00	
	3001-3500	14	18.21	5.71	6.00	25.00	
	3501 and above	12	16.42	4.01	10.00	23.00	

In the research study, when the problem-solving skill is analysed with respect to position during the game, which is another variable, there isn't any significant difference in the sub-dimensions of "TP", RPSA", "AA" and "SC" (Table 2). In the study of Gülşen (10), it is clear that the problem-solving skill of football players don't show any difference according to position of the players. But Gülşen (10) emphasizes that midfield players have higher level of problem-solving skills that other positions. In a study on basketball players who play in the away league, İnce and Şen (13) have reported that there isn't any statistically significant difference between positions and problem-solving skill. These findings are surprising. Because positions in futsal game aren't based on technic and tactics. These positions improve the mental process of the players, and also experienced players in these positions have different ways of thinking. On the other hand, there is not enough work on this situation. In this context, when the content and quality of this study is extended, it is thought that positions have important effect on problem-solving skill.

On the other hand, when the variable of weekly training frequency and problem-solving skill are evaluated together in the study, it has been found that there isn't any significant difference in the sub-dimensions of "TP", "RPSA", "AA" and "SC". Karabulut and Ulucan (14) has indicated in his study that sportive activities effect the problem-solving skill positively, and Karabulut and Ulucan (14) report that problem-solving skill of the children who stay in reformatory and doing sports actively has significant difference in the sub-dimensions "AA" in comparison with the children who don't do any sports. In another study related to this topic conducted by Şenduran and Amman (24), it has been stated that students doing sports are likely to use problem-solving approach more frequently and effectively than the other athletes. When this information in literature are evaluated, it can be thought that the quality, process and purpose of sports may have differences in individual's problem-solving skills.

When the variables of "Father's educational background" and "Mother's educational

background" are examined in the study, "Father's educational background" shows difference in only sub-dimensions of "TP" and "RPSA". There is no significant difference in "Mother's educational background" variable (Table 4-Table 5). In his study, Kırılmazkaya (17) compared social skills and problem-solving skills of teacher candidates of the departments Science Teaching and School Teaching; according to this research, while problem-solving skills don't differentiate with respect to "Mother's Educational Background", it has been determined the students whose father's educational level is primary school use "avoidant approach" more than the students whose father's educational level is higher education. Kenndy et al. (16) in their research reached the conclusion that the factors that affect the relations of teenagers within family and the criteria for academic success of them are effective on solving person-to-person cognitive and social problems. In a study by Gülşen (10) in which the relations between the learning styles of students and their problem-solving skills are analysed, any significance wasn't statistically found in the variables of parental educational background. Similarly, in another study by Korkut (18) in which problem-solving skills of high school students are examined, again there isn't any significant difference found in the variables of parental educational background. Based on all these research findings, it is non-negligible that parents are important factor in their children's problem-solving skills. Individuals often need parental help in order to solve complicated problems.

Within this scope, educational level of the parents who will provide help has an important effect in solving problems. Results are such as to support aforementioned situation.

As a matter of fact, it has been found that father's educational level has an important effect in problem-solving. But the same situation is out of question for mother's educational level; this situation can be said to result from

When the variable of "Income Status" that is thought to have an important effect on individuals' problem-solving skills, significance has been found in the sub-dimensions of "TP" and "AA" (Table 6). These results show that problem-solving skills grow positively as the income level of individual increases. But the sub-dimensions of "RPSA" and "SC" don't show such development. This situation can be associated with their attitude towards material things during individual's development of psycho-social behavioural process. In a study related to this subject by Akbaş (3), he examined social problem-solving skills of 6-years-old children who attend pre-school education, and found that problem-solving skills of the participants increases as the socio-economic level of them increases. In another study by Terzi (26), interpersonal sense of problem of the 6th grade students in the second level of primary education was studied; as a result, it has been found that their perception towards inter-personal problem-solving skills indicate significant differences with regard to their parent's attitude and socio-economic level. Regarding to all these findings, it can be said that socio-economic status plays an important role in every stage of an individual's development. In numerous studies, it is emphasized that children of the families of middle and upper-class attend social activities more frequently, and that these activities play an important role in their development. Therefore, economical factor is largely remarkable for an individual's problem-solving skill.

As a consequence, it is evident that level of problem-solving skills of individuals rises as the sporting age increases. In fact, it can be said that futsal game develops individual's problem-solving, quick deciding and reasoning skills. Therefore, it can be said that this type of sport that is adopted at early ages has a positive effect on individual's problem-solving skills. Also, it can be claimed that social environment that surrounds individuals has different effects on their problem-solving skills.

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