

Full Length Research Paper

Investigation of problem solving ability of students in school of physical education and sports(Kafkas University Sample)

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The aim of this research is to examine the problem solving abilities of School of Physical Education and Sports students. To achieve this aim, in the academic year 2013 – 2014, a research group did a study of 433 students of the School of Physical Education and Sports, Kafkas University. This sample consisted of 184 female and 249 male students. Within the research model in this study, the Problem Solving Inventory (PSI) was used to measure the students' problem solving abilities. The scale was developed by Heppner and Peterson (1982) and its Turkish version was prepared by Şahin, Şahin and Heppner (1993). The SPSS 14.0 packaged software was used for data analysis and interpretation. The only sample Kolmogorov-Smirnov Test was used to determine if the data is normally distributed and it was determined that they are not distributed normally and then instead of the t test, the Mann-Whitney U test and instead of one way ANOVA test, the Kruskal-Wallis Test was used, and also frequency test was used. This study showed that the students of the School of Physical Education and Sports have problem-solving abilities, and there are no t test factors in terms of gender, department, type of learning and type of school they graduated from. However, there is a significant difference between the class factor and problem-solving abilities.

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Key Words. Physical education, student, problem solving.

INTRODUCTION

A human being is sociable. He is always in a relationship and interacts with other persons in society. These relationships and interactions sometimes persist, and can sometimes cause problems. Love, anger, jealousy, victory, pain of loss, shame, revenge, missing, ambitions etc. are emotions that have been revealed as a result of a relationship and interaction with others. So, the human

being has a psychological existence as well as a social one. An individual seeks for an effective and fast way out of any problems that might come up. This affects him when it remains a problem unsolved. From this point of view, an ability to solve problems will reveal individual differences.

There are many notions about problems when a search

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of the literature is undertaken. Among these notions, according to Baykul (1999), defines a problem as that which perplexes a human being, challenges him and makes him indistinct beliefs. According to Bingham (2004), a problem is an obstacle which confront a human being in achieving his aims. Güçlü (2003) defines a problem as a quarrel that exists as a result of inhibition when a human being achieves his aim. Heppner and Krauskopf (1987) define a problem as a difficulty that occurs in daily life and leads to a psychological breakdown.

A problem is defined as a difference between solving a problem, it involves making an effort in order to remove this difference (Kneeland, 2001). Solving a problem can be defined as a process that follows cognitive-behavioural steps (Kalaycı, 2001). According to Pesen (2003), solving a problem involves releasing the resultant relationships involved in a new event or situation, and making new relationships in order to achieve an aim.

Solving a problem is a learnable ability; therefore, the most important point in terms of an individual and organizational problem solving is knowing the problem solving process (Güçlü, 2003). Solving a problem involves developing abilities to understand the nature of the problem, setting a suitable course for solving the problem and interpreting the results. When this aim occurs, a person tends to have the habit of explaining the events around him in order to solve the problem (Altun, 2002). Problem solving ability is an art that develops by means of repeating opportunities, which have great importance by individuals who solve problems (Bingham, 2004).

A problem-solving ability helps people to deal with the environment in which he lives, therefore, humanity has to learn how to solve problems (Senemoğlu, 2001).

Sonmaz (2002) deals with solving a problem in three ways: cognitive, sentimental and social, based on all these notions. The cognitive dimension is a process that involves a person identifying a problem, presenting the basic problem, seeking various way out and deciding on a suitable way out. The sentimental dimension involves emphasizing with others' emotions in solving a problem and developing suitable reactions to them. Besides, when an individual hopes to solve a problem, he must cope with the stress that arises when he faces obstacles (Sonmaz, 2002).

The ability to solve a problem is one of the main factor in terms of the existence of humanity. Modern education aims to raise people who can cope with problems, because they don't know what problems they will come across in society or what needs will arise. A person who has developed a problem solving ability can use that knowledge effectively. For this reason, solving a problem and hence educating people in the process, are important (Altun, 2002).

The process of solving a problem is more important than solving a problem in educational terms. Unless we can identify the process and have a knowledge of this process generally, it is hard to solve a defined problem. Solving problem is a part of effective education and

developing individual experiences. A student who is encouraged to seek solutions for the problems that he faces, has an opportunity to use his knowledge, skill and needs when he tries to deal with current problems (Bingham, 2004).

Studies of problem solving abilities, especially learning how to solve a problem and how to use it among adults, must emphasize how solving a problem is taught to children, and how children can develop this ability. Within the family, parents and in class, the teacher, are all important. Especially in early period of our lives, knowledge comes from those two sources. They can help children to gain problem-solving abilities in terms of the cognitive, sentimental and behavioural process, use them effectively and make a habit of using them in their daily routines (Yıldız, 2006).

In view of such information, the aim of this study is to analyze the problem-solving ability of students of Physical Education and Sports at Kafkas University with regard to different factors.

METHOD

In this section, the study model, the study group, the collection of data and the analysis of data are described.

Model of study

In conducting the study, a relational scanning method was used. According to Karasar (2009) the relational scanning method is a study model that aims to determine the existence and/or change in rank between two or more variables. He defined a scanning model as an approach that aims to describe a condition that exists in the past and present as existing and emphasizing that event, individual or object that is the subject of the study. It tries to describe the existing conditions; any changing or affecting effort was not made.

Study Group

The study group consistent of physical education and sport instructors, sport management and coaching education department students who study at Kafkas University Physical Education and Sport High School in the 2013-2014 academic year. 184 of them are women, 249 of them are men - 433 students in total. 17 of 450 pieces of data were excluded from the assessment due to incomplete and/or incorrect scoring.

Data Collection and Tools

During data collection, the students were asked to complete a Personal Information Form and a Problem Solving Inventory. In the Personal Information Form they were asked about variables such as gender, department of study, type of education, class and type of school they graduated from.

In order to evaluate their problem solving skills, the Problem Solving Inventory (PSI) was used. This scale was developed by Heppner and Peterson (1982) (transferred by Savaşır and Şahin, 1997). The Turkish version was developed by Şahin et al. (1993). In a reliability study of the scale, the internal coefficient of consistency was calculated to be 88 in a study of 244 university students in

Table 1. One-Sample Kolmogorov-Smirnov Test which shows problem solving skills of students educated at the Physical Education and Sport High School.

		Total	Hasty Approach	Thinking Approach	Avoident Approach	Evaluator Approach	Confident Approach	Planned Approach
N		433	433	433	433	433	433	433
Normal Parameters	Mean	135,664	33,3995	23,7298	15,1524	13,2933	31,4226	18,6697
	Std. Deviation	16,2965	6,4657	3,8907	3,6356	2,8826	5,6367	3,5283
Most Extreme Differences	Absolute	0,051	0,080	0,112	0,119	0,093	0,060	0,104
	Positive	0,051	0,037	0,054	0,064	0,076	0,031	0,065
	Negative	-0,029	-0,080	-0,112	-0,119	-0,093	-0,060	-0,104
Kolmogorov-Smirnov Z		1,070	1,674	2,330	2,471	1,943	1,239	2,158
Asymp. Sig. (2-tailed)		0,022	,007	0,000	0,000	0,001	0,043	0,000

Table 2. Gender variable results: the Mann-Whitney U Test which shows problem solving skills of students educated at the Physical Education and Sport High School.

		N	Rank Average	Rank Total	U	Z	P
Total problem solving skill	Woman	184	210,14	38665,00	21645,000	-0,981	0,326
	Man	249	222,07	55296,00			

total. The coefficient of correlation found in reliability study of splitting test in two equal parts was found to be 81.

PSI is a Likert-type scale which is scored between 1-6 and consists of 35 items. Possible replies were "I always act in this way", "I mostly act in this way", "I often act in this way", "I sometimes act in this way", "I rarely act in this way". The total points which could be added from the scale that ranged between 32-192.

As a result of factor analysis, it was seen that the scale consisted of six factors in the form of "hasty approach" ($\alpha=.78$), "thinking approach" ($\alpha=.76$), "avoidance approach" ($\alpha=.74$), "evaluator approach" ($\alpha=.69$), "self-confident approach" ($\alpha=.59$) (transferred by Savaşır and Şahin, 1997).

Data Analysis

The data collected in the study was analyzed using SPSS 15.0 software. In analysing and interpreting the data, before examining the problem-solving skills of students studying at Physical Education and Sport High School in terms of several variables, the data of the study was examined to see if it was normally distributed and could be determined using the Kolmogorov-Smirnov Test (Table 1). As presented in this table, it was found that the distributions were not normal. Consequently, instead of a t test, the Mann-Whitney U Test was used. Instead of a one way ANOVA test, the Kruskal-Wallis Test and also a frequency test were used (Table 1 to 6).

FINDINGS

As can be seen in Table 1, $P<0.05$. This shows us that

the data is not normally distributed.

In Table 2 in terms of the gender variable difference between total points of students educated at the Physical Education and Sport High School was determined that it is not meaningful. [U variable=21645.000 $P=0.326>.05$].

According to the class variable, there is a difference in total problem solving level of students educated at the Physical Education and Sport High School [X^2 variable =11.684 $P=0.009<.05$].

In Table 4 in terms of the department variable difference between the total points of students educated at the Physical Education and Sport High School was determined that it is not meaningful.

According to type of education variable, it is determined that there is a difference in the total problem solving points of students educated at the Physical Education and Sport High School [U değeri =12855.500 $P=0.211>.05$].

According to type of school-graduated variable, it is determined that there is no meaningful difference between the total problem solving levels of students educated at the Physical Education and Sport High School [X^2 variable=5.768 $P=0.329>.05$].

RESULT AND DISCUSSION

It is determined that there isn't any difference between

Table 3. Class variable results: the Kruskal-Wallis Test which shows problem solving skills of students educated at the Physical Education and Sport High School

		N	Rank Average	Sd	X ²	P	Meaningful Difference
Total problem solving skill point	1th class	148	243,06	3	11,684	0,009	1-2
	2nd class	149	202,94				1-3
	3rd class	87	192,89				
	4th class	49	223,87				

Table 4 Department variable: the Kruskal-Wallis Test showing problem solving skills of students educated at the Physical Education and Sport High School

			N	Rank Average	Sd	X ²	P	Meaningful Difference
Total problem solving skill point	Physical Education and Sport Instructor		176	213,47	2	2,135	0,344	No
	Sport Management		198	218,28				
	Coaching Education		59	223,21				

Table 5. Education type variable: the Mann-Whitney Test results of students educated at the Physical Education and Sport High School

			N	Rank Average	Rank Total	U	Z	P
Total problem solving skill point	Daytime Education		353	214,21	75614,50	12855,500	-1,251	0,211
	Evening Education		80	229,33	18346,50			

Table 6, Graduated school variable results: the Kruskal-Wallis Test showing problem solving skills of students educated at the Physical Education and Sport High School

		N	Rank Average	Sd	X ²	P	Meaningful Difference
Total problem solving skill point	General High School	340	219,45	5	5,768	0,329	No
	Vocational High School	51	207,32				
	Anatolian High School	22	189,64				
	Science High School	3	241,33				
	Sport Hig School	2	369,25				
	Others	15	209,30				

problem solving ability in terms of gender. In conclusion, a student's gender doesn't have any effect on problem-solving. The studies by Üstündağ and Beşoluk (2012), Saracaoğlu and Kanmaz (2007), Dünder (2009), Berkant and Eren (2013), Çam (1997) and Güngör (2012) support this conclusion. We can say that students' individual differences are revealed when they solve a problem instead of their gender. However, the studies by Yalçın et al. (2010), Brems and Johnson (1988), D'Zurilla et al. (1998) and Germi and Sunay (2006) shows the opposite. In these studies, there is support of males in terms of problem-solving. It can be considered that these differences arise from sample group differences.

There is a difference among the Physical Education and Sports students according to the grade factor. As a result of these differences, first grade students are better than second and third grade student in terms of solving problems. In the literature scanning, the studies by Ferreira and Palhares (2008), Tekin and Karasu (2008) and Kantek et al. (2010) support this. In this study, we started out with these results; we can say that students in the first grade face the different problems of getting used to a new school and a new environment, and they solve their problems by themselves. In addition, they have a higher problem-solving ability. Besides, in the literature, the studies of Yıldız et al. (2011) and Dünder (2009) don't

have similar results. A reason for this difference may be students' relationships with each other, their social surroundings and taking part in undergraduate education.

It is determined that the department factor does not offer a significant difference among the students of Physical Education and Sports in terms of problem-solving. It can be said that the Physical Education and Sports study students, the Physical Education Teachers, and those in Sports Management and the Department of Coaching Training, deal with similar problems and their solutions are similar. Whenever similar research has been analysed, this study is similar to Hoxha (2011) and Öztürk et al. (2009), but it is different from that of Genç and Kalafat (2010). It can be said that the reason for this difference is that university students study in different departments and sciences. Consequently, different departments bring different problems.

It was determined that the difference between total problem solving abilities point and type of education factor is not meaningful. For this reason, students in normal or evening education haven't got different problem solving skills. This is because the type of education is usually the student's choice, and they don't all join the same department and this can be thought of as normal. When researching a similar study, Aslan and Uluçınar (2012), Üstündağ and Beşoluk (2012) and Genç and Kalafat (2010) obtained results that supported it.

In terms of the school from which the students graduated, there isn't a significant difference. There isn't any effect with regard to the students' high school in terms of the ability to solve a problem. This is because, in high school, when students face problems, they resort to their parents or teachers. Consequently, it isn't important which school they graduated from when it comes to solving problems. Similar studies by Tekin et al., (2007) Berkant and Eren (2013) and Aslan and Uluçınar (2012) support this aspect.

In conclusion, with regard to the problem solving activities of students of Physical Education and Sports, there aren't any significant differences in terms of gender, type of education and graduated school. However, in terms of the grade factor and problem-solving ability, there are significant differences.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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