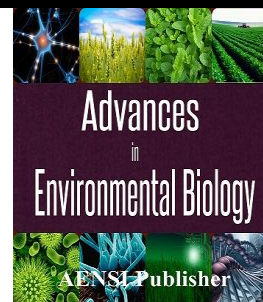




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## Examination On Problem Solving Skills Of The Individuals Who Attend To The University Gym

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### ABSTRACT

**Background:** It is referred there are numerous factors which affect the sportive efficiency level at the present time. It is evaluated some of them are environmental factors and some are intrinsic factors. Eliminating these factors depends upon individuals' problem solving skills. **Objective:** Based upon this, in our study we aim to examine the problem solving skills of the individuals who do exercise at the gym of Elazığ Firat University. Research sample consists of 58 male and 32 female, in total, 90 volunteers who exercise at the gym of Elazığ Firat University in 2014. **Results:** An assessment instrument that comprises 2 parts was used to acquire data. At the first part, demographic data of the participants were gathered; at the second part, the Problem Solving Inventory, developed by Heppner and Petersen, which consists of 35-item was used to analyse participants' perception and approach to problem solving. In analyzing the acquired data, SPSS was used and the statistically data were analyzed in level of  $p < 0.05$ . **Conclusion:** Consequently, in our study it has found out general problem solving levels are above average while it has been observed significant differences in subscales of problem solving "Impulsive Style, Reflective Style, Avoidant Style, Monitoring, Problem-Solving Confidence, Planfulness Style".

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## INTRODUCTION

Problem solving is a cognitive and behavioral process that comprises creating efficient options to overcome difficulties and choosing one and performing it. Many people think they are born equipped with problem solving skills. However, there are very few people who have training on this matter or comprehend the significance of problem solving [19,14].

Not only individuals' background but also the way they perceive what they confront in their life are determinant factors in problem solving [15]. Problem solving can begin only when individual comprehend s/he is to react in some way. Furthermore, individuals need to have a goal so they can struggle to achieve their goals [27]. In other words, problem solving is a process of finding a way to deal with difficulties that individuals meet while reaching their goals. Upon literature review on problem and problem solving notions, it is seen that several definitions are provided for problem solving.

Dewey defines problem as anything confuses human mind, challenges people and obscure belief [11]. For Bingham, problem is an obstacle that confronts all power an individual gathers to accomplish her/his goals [6]. Morgan defines problem as a conflict individuals experience while reaching their goals [20].

Athelets feel stressed when they face high expectations and they get the feeling that they cannot meet these expectations or see themselves away from covering them [7,22,24]. Problem solving practices against stress either are not performed due to inaccurate expectations and prejudices or are ended up inefficient owing to improper practices. In order that sports psychology practices succeed, primarily the right things to do are to be found and improper practices are to be corrected. Individuals encounter several situations towards solving problems in their daily life [18].

Problem solving is a thinking and problem overcoming process which an individual experiences from the time s/he perceives difficulties in achieving his/her goals to s/he finds a solution to these problems [29].

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In this context, athletes who can efficiently use their creativity and problem solving skills after beginning to do exercises can solve problems they encounter both at work and at gym easily and effectually. Due to these factors, this study gains importance. In our study which is believed to form a source for other studies, it is aimed to analyse problem solving skills of individuals who work out at Elazig Firat University gym in terms of specific variables.

#### *Method:*

In our study, it is aimed to analyse problem solving skills of individuals who work out at Elazig Firat University gym. Research sample consists of 58 male and 32 female, in total, 90 volunteers who exercise at the gym of Elazig Firat University in 2014.

#### *Data Acquisition Instruments:*

An assessment instrument that comprises 2 parts was used to acquire data. At the first part, demographic data of the participants were gathered; at the second part, the Problem Solving Inventory which includes participants' perception and approach to problem solving and also problem analyzation. The inventories were conducted face to face with the participants.

#### *Problem Solving Inventory:*

Problem Solving Inventory which was used to analyse individuals' perception of their problem solving ability and attitude towards problem solving and the problem evaluation; and consists of 35 items and is prepared as 6 point likert scale was developed by Heppner and Petersen in 1982 and adapted to Turkish by Şahin, Şahin and Heppner [25]. There are 6 factors in the Turkish language adaptation of this scale [25].

"*Impulsive Style*" (composed of nine items: 13, 14, 15, 17, 21, 25, 26, 30 and 32),

"*Reflective Style*" (composed of five items: 18, 20, 31, 33 and 35),

"*Avoidant Style*" (composed of four items: 1, 2, 3 and 4),

"*Monitoring*" (composed of three items: 6, 7 and 8),

"*Problem-Solving Confidence*" (composed of six items: 5, 23, 24, 27, 28 and 34),

"*Planfulness*" (composed of four items: 10, 12, 16, 19) [23].

Interpretation: If an individual gets a high point in total, it means s/he sees herself/himself insufficient in problem solving.

The skills regarding the subscales of the Problem-Solving Inventory are explained as follows:

*Impulsive Style:* Impulsive Style reflects whether an individual tends to do the first thing s/he can think of to solve it without thinking upon it when s/he confronts with a problem. In addition, that style shows individual disregards different factors and solutions regarding the problem.

*Reflective Style:* Reflective Style reflects when making a decision, individual weighs the consequences of each alternative and compares them against each other. Reflective style evaluates if an individual tries to understand and reviews the situation and take into consideration all kind of information regarding the problem.

*Avoidant Style:* Avoidant Style assesses if an individual plans to acquire detailed data for the solution of the problem and begins to suspect s/he can overcome the problem when her/his solution is unsuccessful, and also if s/he examines what works and what does not work for the solution of the problem after s/he solves it.

*Monitoring:* This style measures whether a person has compared the results which reveal after he/she has tried out a certain method with the results which he/she has thought on his/her own on solving a problem, he/she has tried to think of all the methods which he/she will adopt in the presence of problem and he/she has examined his/her feelings to understand what he/she feels or not.

*Problem-Solving Confidence:* This approach states person's self confidence on problem solving. The individual measures whether he/she finds himself/herself sufficient on putting in effort to solve problem or not.

*Planfulness:* It measures whether the individual only focuses on that problem and come to a solution by evaluating available datas in a planned way about problem solving or not. This also includes whether he/she thinks that he/she is skillful on problem solving or not [10,31].

#### *Data Analysis:*

In the study, SPSS statistical package programme was used in analyzing of acquired datas. Frequency distribution, arithmetic mean, percentages, t-test and One-Way Anova by means of SPSS were used and Tukey test results were used in results which had significant difference to determine between which groups difference was. The margin of error was taken as ( $p < 0,05$ ).

#### *Results:*

58 males and 32 females, total 90 volunteer participants, who did sports at the university gym which was active in Elazig in 2014 were research sample.

**Table 1:** Distribution Function Values of the Subjects Pursuant to Gender Variables.

GENDER	N	%
Female	32	35,6
Male	58	64,4
Total	90	100,0

**Table 2:** t Test Distribution Function Values of Problem Solving and Problem Solving Factors Scale Points Regarding Gender Variables.

	GENDER	N	$\bar{X}$	Ss	t	p
Problem Solving	Female	32	69,96	16,05	0,79	0,43
	Male	58	67,50	13,03		
Impulsive Style	Female	32	44,87	3,12	1,65	0,10
	Male	58	43,67	3,38		
Reflective Style	Female	32	7,84	4,09	1,28	0,20
	Male	58	6,91	2,74		
Planfulness	Female	32	10,81	3,82	1,64	0,10
	Male	58	9,67	2,71		
Monitoring	Female	32	13,40	4,15	0,97	0,33
	Male	58	12,63	3,19		
Avoidant Style	Female	32	22,25	1,367	1,59	0,11
	Male	58	21,67	1,78		
Problem-Solving Confident	Female	32	13,84	5,13	0,79	0,42
	Male	58	13,13	3,23		

**Table 3:** Analysis of Variance Distribution Function Values of Problem Solving and Problem Solving Factors Scale Points Regarding Age Variables Through N,  $\bar{X}$ , Ss.

	AGE	N	$\bar{X}$	Ss	F	p
Problem Solving	18-21 Years	33	72,18	15,18	1,90	0,13
	22-24 Years	26	68,15	14,07		
	25-27 Years	11	67,63	18,12		
	28 Years and over	20	62,80	7,55		
	Total	90	68,37	14,14		
Impulsive Style	18-21 Years	33	43,39	3,51	2,27	0,08
	22-24 Years	26	43,53	2,76		
	25-27 Years	11	45,00	3,60		
	28 Years and over	20	45,50	3,23		
	Total	90	44,10	3,33		
Reflective Style	18-21 Years	33	7,63	2,95	1,13	0,33
	22-24 Years	26	7,50	3,87		
	25-27 Years	11	7,63	4,10		
	28 Years and over	20	6,05	2,39		
	Total	90	7,24	3,29		
Planfulness	18-21 Years	33	10,84	3,36	1,09	0,35
	22-24 Years	26	9,61	3,16		
	25-27 Years	11	10,00	3,74		
	28 Years and over	20	9,45	2,43		
	Total	90	10,07	3,17		
Monitoring	18-21 Years	33	13,42	3,97	0,83	0,48
	22-24 Years	26	13,07	3,41		
	25-27 Years	11	12,90	5,08		
	28 Years and over	20	11,85	1,49		
	Total	90	12,91	3,56		
Avoidant Style	18-21 Years	33	21,12*	1,83	6,35	0,00*
	22-24 Years	26	21,88	1,30		
	25-27 Years	11	22,09	1,75		
	28 Years and over	20	23,00*	1,02		
	Total	90	21,87	1,66		
Problem-Solving Confident	18-21 Years	33	13,54	3,81	0,27	0,84
	22-24 Years	26	12,92	3,04		
	25-27 Years	11	14,18	6,67		
	28 Years and over	20	13,30	3,75		
	Total	90	13,38	4,00		

In Table 2, when the analysis results as to the points of problem solving skills scale was examined with respect to variables of individuals gender who did sports at the gym, it was found out that there was not significant differentiation in terms of variable of gender which is from sub-dimension of general-problem solving (I. part) and problem solving skills factors. ( $p < 0,05$ ).

In Table 3, , when the analysis results as to the points of problem solving skills scale was examined with respect to variables of individuals' age who did sports at the gym, it was stated that there was not significant

differentiation between the factors of impulsive, reflective, planfulness, monitoring, problem-solving confident style which are from sub-dimension of general-problem solving and problem solving skills in terms of variable of age ( $p < 0.05$ ). Besides, it was found out that there was significant difference between 11-21 years old and aged 29 and over in avoidant style sub-factor.

**Table 4:** t Test Distribution Function Values of Problem Solving and Problem Solving Factors Scale Points Regarding Education Variables.

	EDUCATION	N	$\bar{X}$	Ss	t	P
Problem Solving	Undergraduate	69	70,10	14,25	2,13	0,03*
	Graduate Postgraduate	21	62,71	12,45		
Impulsive Style	Undergraduate	69	43,49	3,11	-3,30	0,00*
	Graduate Postgraduate	21	46,09	3,31		
Reflective Style	Undergraduate	69	7,56	3,23	1,68	0,09
	Graduate Postgraduate	21	6,19	3,35		
Planfulness	Undergraduate	69	10,17	3,21	0,51	0,60
	Graduate Postgraduate	21	9,76	3,11		
Monitoring	Undergraduate	69	13,08	3,66	0,84	0,39
	Graduate Postgraduate	21	12,33	3,21		
Avoidant Style	Undergraduate	69	21,44	1,60	-4,9	0,00*
	Graduate Postgraduate	21	23,28	0,90		
Problem-Solving Confident	Undergraduate	69	13,33	3,67	-0,23	0,81
	Graduate Postgraduate	21	13,57	5,03		

In Table 4, when the analysis results as to the points of problem solving skills scale was examined with respect to variables of individuals' level of education who did sports at the gym, it was stated that there was not significant differentiation between planfulness, monitoring, problem-solving confident factors from sub-scales in terms of variable of level of education ( $p < 0.05$ ). In addition to this, it was found out significant difference on sub-factor of impulsive, reflective, avoidant style which is from sub-dimensions of general-problem solving and problem solving skills factors.

**Table 5:** t Test Distribution Function Values of Problem Solving and Problem Solving Factors Scale Points Regarding Occupation Variables.

	Participant	N	$\bar{X}$	Ss	t	p
Problem Solving	Staff	20	64,05	9,28	-1,56	0,12
	Student	70	69,61	15,07		
Impulsive Style	Staff	20	45,35	3,42	1,93	0,05
	Student	70	43,74	3,24		
Reflective Style	Staff	20	6,10	2,51	-1,78	0,07
	Student	70	7,57	3,43		
Planfulness	Staff	20	9,65	2,47	-0,68	0,49
	Student	70	10,20	3,35		
Monitoring	Staff	20	12,10	1,74	-1,15	0,25
	Student	70	13,14	3,91		
Avoidant Style	Staff	20	22,80	1,36	2,93	0,00
	Student	70	21,61	1,65		
Problem-Solving Confident	Staff	20	13,55	3,69	0,20	0,84
	Student	70	13,34	4,11		

In Table 5, when the analysis results as to the points of problem solving skills scale was examined with respect to variables of individuals' job who did sports at the gym, it was stated that there was not significant differentiation between planfulness, monitoring, problem-solving confident style factors which are from sub-dimensions of general-problem solving and problem solving factors in terms of variable of job ( $p < 0.05$ ). Besides, it was pointed out there was significant difference between sub-factor of avoidant style.

In Table 6, when the analysis results as to the points of problem solving skills scale was examined with respect to variables of individuals' year of sport who did sports at the gym, it was stated that there was not significant differentiation between planfulness, monitoring, problem-solving confident factors which are from sub-dimensions of general-problem solving and problem solving factors in terms of variable of year of school ( $p < 0.05$ ). In addition, it was pointed out there was significant difference between sub-factor of avoidant style.

**Table 6:** Analysis of Variance Distribution Function Values of Problem Solving and Problem Solving Factors Scale Points Regarding Year of Sport Variables Through N,  $\bar{X}$ , Ss.

	YEAR OF SPORT	N	$\bar{X}$	Ss	F	p
Problem Solving	1-2 Years	36	69,08	16,23	1,88	0,15
	3-5 Years	29	71,27	13,65		
	6 Years and over	25	64,00	10,43		
	Total	90	68,37	14,14		
Impulsive Style	1-2 Years	36	44,08	3,29	2,19	0,11
	3-5 Years	29	43,24	3,04		
	6 Years and over	25	45,12	3,53		
	Total	90	44,10	3,33		
Reflective Style	1-2 Years	36	7,22	3,269	,447	,64
	3-5 Years	29	7,65	3,55		
	6 Years and over	25	6,80	3,09		
	Total	90	7,24	3,29		
Planfulness	1-2 Years	36	10,13	3,61	1,09	0,35
	3-5 Years	29	10,24	2,95		
	6 Years and over	25	9,80	2,84		
	Total	90	10,07	3,17		
Monitoring	1-2 Years	36	13,19	4,31	0,83	0,48
	3-5 Years	29	13,48	3,51		
	6 Years and over	25	11,84	1,97		
	Total	90	12,91	3,56		
Avoidant Style	1-2 Years	36	21,77*	1,79	6,35	0,00*
	3-5 Years	29	21,65	1,63		
	6 Years and over	25	22,28*	1,48		
	Total	90	21,87	1,66		
Problem-Solving Confident	1-2 Years	36	13,47	4,41	0,27	0,84
	3-5 Years	29	13,86	4,04		
	6 Years and over	25	12,72	3,34		
	Total	90	13,38	4,00		

*Discussion And Conclusion:*

In this part, the findings relevant problem solving skills of the individuals who did sports at the gym and were the research sample and whether sub-dimensions of problem solving skills factors in terms of some variables differed from or not was discussed and interpreted.

When the analysis results as to the points of problem solving skills scale was examined with respect to variables of individuals' gender who did sports at the gym, it was found out that there was not significant differentiation in terms of variable of gender which is from sub-dimension of general-problem solving (I. part) and problem solving skills factors. ( $p < 0.05$ ) [27,5,28,26] could not find significant difference between problem solving skills and gender [27,5,28,26]. These studies supports our study by showing parallelism with it.

When the analysis results as to the points of problem solving skills scale was examined with respect to variables of individuals' age, it was stated that there was not significant differentiation between the factors of impulsive, reflective, planfulness, monitoring, problem-solving confident style which are from sub-dimension of general-problem solving and problem solving skills in terms of variable of age ( $p < 0.05$ ). Besides, it was found out that there was significant difference between 11-21 years old and aged 29 and over in avoidant style sub-factor. Similarly to this research; the studies of Güçlü [13], Arin [4] and Albayrak [2], Cinko [8], Agcayazi Altuntas E. supports our study by showing parallelism with it.

When the analysis results as to the points of problem solving skills scale was examined with respect to variables of individuals' level of education who did sports at the gym, it was stated that there was not significant differentiation between planfulness, monitoring, problem-solving confident style factors from sub-scales in terms of variable of level of education ( $p < 0.05$ ) In addition to this, it was found out significant difference on sub-factor of impulsive, reflective, avoidant style which are from sub-dimensions of general-problem solving and problem solving skills factors. The findings by Ustun and Bozkurt [30], Arin [4], Öztürk and others [21] supports the study. On the other hand, the researches made by Albayrak [2], Izgar and others [16] do not support the findings of the study.

When the analysis results as to the points of problem solving skills scale was examined with respect to variables of being a university student or staff who did sports at the gym, it was stated that there was not significant differentiation between planfulness, monitoring, problem-solving confident style factors which are from sub-dimensions of general-problem solving and problem solving factors in terms of variable of job. ( $p < 0.05$ ) Besides, it was pointed out there was significant difference between sub-factor of avoidant style. Similarly to this study, Üstün&Bozkurt [30] and Agcayazi Altuntas E. came up with the findings similar to our research in their studies.

When the analysis results as to the points of problem solving skills scale was examined with respect to variables of individuals' year of sport who did sports at the gym, it was stated that there was not significant differentiation between planfulness, monitoring, problem-solving confident style factors which are from sub-dimensions of general-problem solving and problem solving factors in terms of variable of year of school. ( $p < 0.05$ ) In addition, it was pointed out there was significant difference between sub-factor of avoidant style. It can be said that athletes act more self-confidently while solving the problems as the time passes and seniority increases. Kanbay, A. and Bozok, D., Germi and Sunay 2006, Gülsen 2008, Efe and his friends 2008, found out that experience had a positive effect on problem solving skills in his studies conducted with different groups. Acquired datas do not support the research findings [12,14,9,22,17].

It was observed that general problem-solving skills of the students and staff who did sports in university gym were high-level. It was observed that the levels of reflectiveplanfulness, monitoring, problem-solving confident style which are from sub-scales of problem solving skills were high-level while the level of impulsive and avoidant style were low-level.

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