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The investigation of problem solving skill of the mountaineers in terms of demographic variables

Burak Gürer

Gaziantep University, School of Physical Education and Sports, Gaziantep, Turkey.

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The aim of this research is to investigate problem solving skills of the individuals involved in mountaineering. 315 volunteers participated in the study. The research data were collected by problem solving scale developed by Heppner and Peterson and the Turkish version of which was conducted by Şahin et al. There are totally 35 items and only 3 items are not scored. The scale adapted to Turkey consists of six items. These are hasty approach, thinking approach, avoidant approach and evaluator approach, self-confident approach and planned approach. The data collected were analyzed through statistical package program (SPSS 16.0) and the results were interpreted. In our study, Cronbach's Alpha Value of the scale was calculated to be 0.61. In the evaluation of research data, One Way Anova and T-test were used. As a result, in planned approach sub-dimension due to gender variable, significant variables were found. As a result, significant relations in planned approach sub-dimension due to gender variable, in avoidant approach and hasty approach due to age variable. The most striking relationship was found in experience variable. A relationship was found between experience and avoidant, self-confident, planned and thinking approach sub-dimensions. No significant relationship was found in the variables of marital status and education status. Making the activities increasing the experience is thought to be effective on problem-solving skill.

Key words: Mountaineering, problem solving, nature sports, sportsmen.

INTRODUCTION

It is clear that nature and mountain sports that are presented to the tastes of large masses who are in search of alternative tourism do not comply with some rules and if it is done unconsciously they can threaten many lives (Ülker, 1992:5). There are many activities done in nature. Of these activities, some are very popular, have high risk or require advanced technics with adventure content (Kalkan, 2012:70). Nature sports include many sports and activities being performed in natural area such as rock climbing, mountaineering, speleology, etc. (Broadhurst, 2001). The most preferred ones among the nature sports are mountaineering and climbing sports (Attarian, 2002), because mountaineering is the one of the branches of nature sports that requires perhaps high struggle, risks and challenges. Graydon and Hanson (2010) emphasize that mountaineering is not suitable for everybody while describing this feature of mountaineering; they added that the ones hagridden by

E-mail: burakgurer27@gmail.com

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mountains may find the mountains as impressive, attractive, sometimes disappointing and even deadly. Due to these risks and dangerous factors, problem-solving has an important role. According to Johson-Laird, problem solving is only being processed of only logic rules (quoted by Tougne et al., 2008:4). Some sportsmen have an interest in this sport for physical and mental struggle. This interest improves physical development as well as increases the qualifications mentally (Attarian, 2002). Many researchers mention the dangers of mountaineering. In this case, mountaineering is considered as a sport including immediate decisions and requiring problem solving skill.

Mountaineering and nature sports are among the sport branches having injury or death risk. Sports branches such as mountaineering, parachuting and rock climbing have an intensive enthusiasm factor. In this case, the skills and ability of the people dealing with this sport have become important. Mountaineering sport is an activity in which risk is extremely felt. In a research, Bisson (1999:208) emphasized the importance of problem solving in adventure experience and examined the effect of adventure experience on problem-solving skill. He mentions effective problem-solving. Outdoor activities are the activities in which the individuals or groups participate at their own request, leisure time or teaching skills, problem solving, providing group and individual security; making judgment and in which the participants facilitate philosophical, ethical and aesthetical growth (Hayashi and Ewert, 2006). Nature sports give motivation to the participants to join in the activities by offering necessary environments and activities in order to improve making judgment, team work, communication among the individuals and problem solving skills (Wagner and Campbell, 1994).

In nature sports and mountaineering, among the features correlated with effective leadership process, there are some attractive features such as self-confidence, problem-solving skills, competence, honesty, sincerity, self-highlighting, with high individual awareness, having dominant character, objective and providing emotional control (Dinç, 2006; Dubrin, 1995). Priest and Gass (1997) mentioned that nature leaders are competent in twelve fields. Effective leaders must have suitable know-how, security, environment, making organization, educative, facilitating, problem solving, decision making, judgment based on experience and communication skills (quoted by: Bymer, 2006).

Being educated and having problem solving skills are important in terms of developing mountaineering sports. This development will enlighten the development of mountaineering in the country. Considering that mountaineering is a risky and life threatening sport, knowing the individual limits and the importance of experience is necessary.

Since mountaineering includes a process performed under difficult conditions and a continuing stress process, it is important to know how to behave under difficult circumstances. The results of the study are expected to provide guidance to officers and directors. In the literature, it is seen that there is not a sufficient number of research about high-risk sports. In this context, it is important to analyze problem-solving behavior of those dealing with mountaineering and give information about the current situation in terms of the results to be revealed. This would be a source for important statements and future research.

METHOD

Considering the geographical location of Turkey, nature sport is emerging as an extremely popular sport. It is done in different regions of Turkey. Therefore, besides the surveys distributed by hand, online survey method was used. A total of 206 questionnaires were distributed on the camps and by hand; 188 questionnaires were returned. In order to expand the participation and to increase data collection easiness, online survey was conducted with those doing mountaineering regularly in the research; 127 participations were provided. A total of 315 sports from different region and clubs participated in the research. The study includes relational model of problem solving behaviors in terms of examining the relationship with some demographic variables.

Population and sample

The ones dealing with mountaineering in Turkey form the universe of the research. Considering the difficulty of reaching to those doing mountaineering, the research is limited to the sportsmen dealing with mountaineering regularly and actively. The scales obtained by hand were applied before climbing by the researchers going to camping and climbing. The sample of the study consisted of those dealing with mountaineering actively and regularly. 245 of the participants were males (77.8%), 70 of them (22.2%) were women. Research group consisted of 28 high schools (8.9%), 197 universities (62.5%), and 86 postgraduates (27.3%). The oldest age group in the study consisted of 33-40 age group (93 people / 29.5%), followed by 26-32 (21%) age group and 48 years and older (19%) age group. 52.1% of the sample consisted of singles.

Data collection tool

Problem Solving Inventory used in the research was developed by Heppner and Peterson (1982), and its adaptation to Turkish was conducted by Şahin et al. (1993). High scores taken from the scale was interpreted as being low of problem solving perception and the low score is interpreted as being high of the problem solving skill. There are totally 35 items in the scale and only 3 items cannot be scored. The scale adapted to Turkish consists of six factors. These are hasty approach, thinking approach, avoidant approach, evaluator approach, self-confident approach and planned approach (Akyüz, 2012).

Data collection

On the head of the questionnaires used in the research, there is

Table 1. Problem solving average of the sportsmen based on gender variable.

	Gender	N	Mean	Std. deviation	t	P
Avoidant Approach	Female	70	4.9173	.80378	1.307	.19
	Male	245	4.7643	.88043		
Evaluator Approach	Female	70	2.5211	.93121	1.917	.058
	Male	245	2.3000	.82659		
Self Confident	Female	70	2.5837	.51495	-1.366	.17
	Male	245	2.6881	.57730		
Planned Approach	Female	70	2.1153	.67274	-2.146	**.03***
	Male	245	2.3143	.68721		
Thinking Approach	Female	70	2.0808	.69883	-1.724	.08
	Male	245	2.2343	.64424		
Hasty Approach	Female	70	3.8385	.52986	-.554	.58
	Male	245	3.8762	.49240		

P<0.05*

some information such as for what purpose the research was conducted, how the questionnaire is marked and while marking, what are the points taken into account by the participant, the name and surname of the person conducting the study and the advisor, title, the institution they work. The data were collected between the dates of 20 November 2013 and 17 February 2014. The scale was conducted to the volunteers participated in the research during the research and in education camps. Besides, it was applied to the climbers as online survey via web from 20 January – 17 February 2014.

Reliability and validity analysis of data collection tool

For general security, Cronbach's Alpha coefficient was calculated. The methods developed for evaluating the reliability of the tests are called reliability analysis and the investigation of the questions in this test is called item analysis. The most method used to examine the reliability is Cronbach's Alpha Coefficient. In our study, Cronbach's Alpha value of the scale was calculated to be 0.61. The results were evaluated in the reliability range of 95%; the significance was evaluated as two way at the level of $p<0.05$ and $p<0.01$.

Data evaluation

The data collected by problem solving scale and demographic information survey were analyzed via statistical package program (SPSS 16.0) and the results were interpreted. First, in order to ensure demographic information and to acquire an idea about the questions, descriptive statistics including arithmetic average, standard deviation, frequency and percentage distributions were submitted. The data had a normal and homogenous distribution. The relationship between problem solving behavior of the sportsmen and demographic variables, independent samples (Independent samples) t test was used in intergroup comparison in the case of two groups in comparison of quantitative data (Independent Samples). In the case of more than two groups in comparison of the parameters among the groups, unidirectional (One way) Anova test was used and in the detection of the group causing differences, Tukey and LSD tests were used.

FINDINGS

In planned approach dimension, no significant relationship was found. Men show more planned approach compared to women (Table 1).

No significant relationship was found due to marital status (Table 2). In Tukey analysis conducted, in avoidant approach sub-dimension, a correlation was found between the mountaineers of 18 to 25 years old (X=4,67) and the mountaineers at the age of 48 and more (X=5,15). In hasty approach sub-dimension, a correlation was found between the mountaineers of 18 to 25 years old (X=3,67) and the mountaineers of 41 to years old (X=3,91) (Table 3).

In Tukey analyses conducted, a correlation was found between the mountaineers having experience from 1 to 3 years and those having 11 years and more experience in avoidant approach sub-dimension and between the mountaineers having experience from 1 to 3 years and those having 11 years and more experience in self-confident approach, between the mountaineers having experience from 1 to 3 years and those having 11 years and more experience in planned approach sub-dimension and between the mountaineers having experience from 1 to 3 years and those having 11 years and more experience in thinking approach (Table 4).

Table 2. Problem solving average of the sportsmen based on marital status variable.

	Marital status	N	Mean	Std. dev.	t	P
Avoidant Approach	Single	164	4.8659	.82261	-.393	.69
	Married	151	4.9023	.82461		
Evaluator Approach	Single	164	2.4228	.89465	-.996	.32
	Married	151	2.5254	.93130		
Self Confident	Single	164	2.5742	.54649	-1.144	.25
	Married	151	2.6424	.51150		
Planned Approach	Single	164	2.1463	.68334	-.358	.72
	Married	151	2.1738	.67823		
Thinking Approach	Single	164	2.0939	.66992	-.562	.57
	Married	151	2.1377	.71075		
Hasty Approach	Single	164	3.8476	.54268	.023	.98
	Married	151	3.8462	.49870		

Table 3. Problem solving average of the sportsmen based on age variable.

	Age	N	Mean	Std. deviation	f	P
Avoidant Approach	18-25	45	4.6722	.79205	2.928	**.02***
	26-32	66	4.8485	.69459		
	33-40	93	4.7903	.87794		
	41-47	51	4.9608	.96225		
	48 and more	60	5.1583	.69497		
Evaluator Approach	18-25	45	2.5481	.98769	.699	.59
	26-32	66	2.5859	.79970		
	33-40	93	2.4624	.96062		
	41-47	51	2.4379	.99441		
	48 and more	60	2.3333	.82567		
Self Confident	18-25	45	2.5296	.63989	.497	.73
	26-32	66	2.6515	.45548		
	33-40	93	2.5878	.55690		
	41-47	51	2.6569	.53168		
	48 and more	60	2.6028	.47942		
Planned Approach	18-25	45	2.0944	.65991	1.960	.10
	26-32	66	2.3409	.63796		
	33-40	93	2.1828	.75644		
	41-47	51	2.0784	.72541		
	48 and more	60	2.0417	.53711		

Table 3. Contd.

Thinking Approach	18-25	45	2.1200	.74639	.909	.45
	26-32	66	2.2545	.60209		
	33-40	93	2.0667	.66681		
	41-47	51	2.0745	.75042		
	48 and more	60	2.0667	.71560		
Hasty Approach	18-25	45	3.6790	.53193	2.459	**.04***
	26-32	66	3.7811	.51381		
	33-40	93	3.8626	.52434		
	41-47	51	3.9673	.45774		
	48 and more	60	3.9185	.54158		

P<0.05*

Table 4. Problem solving average of the sportsmen due to experience variable.

	Experience	N	Mean	Std. deviation	f	P
Avoidant Approach	1-3 years	86	4.7006	.90815	3.013	**.03***
	4-7 years	83	4.9458	.73465		
	8-11 years	48	4.7865	.84895		
	11 years and more	98	5.0383	.77439		
Evaluator Approach	1-3 years	86	2.4845	1.06600	1.143	.33
	4-7 years	83	2.6145	.84341		
	8-11 years	48	2.3958	.98369		
	11 years and more	98	2.3776	.77421		
Self Confident	1-3 years	86	2.7422	.67913	3.114	.02*
	4-7 years	83	2.6084	.47884		
	8-11 years	48	2.5000	.36709		
	11 years and more	98	2.5391	.46946		
Planned Approach	1-3 years	86	2.3517	.80108	3.317	.02*
	4-7 years	83	2.1175	.63479		
	8-11 years	48	2.0573	.57943		
	11 years and more	98	2.0765	.62012		
Thinking Approach	1-3 years	86	2.2419	.76273	3.445	.01*
	4-7 years	83	2.1470	.66486		
	8-11 years	48	2.1917	.58340		
	11 years and more	98	1.9388	.66265		
Hasty Approach	1-3 years	86	3.7726	.55120	2.107	.09
	4-7 years	83	3.8086	.58905		
	8-11 years	48	3.8310	.42325		
	11 years and more	98	3.9524	.46433		

P<0.05*.

Table 5. Problem solving average of the sportsmen due to educational status variable.

	Age	N	Mean	Std. dev.	f	P
Avoidant Approach	Primary school	3	5.0833	.80364	.110	.97
	High School	28	4.8661	.92417		
	License	197	4.8782	.85960		
	Postgraduate	87	4.8937	.70776		
Evaluator Approach	Primary school	3	2.7778	2.50185	.168	.95
	High School	28	2.4881	1.07528		
	License	197	2.4873	.89499		
	Postgraduate	87	2.4215	.83598		
Self Confident	Primary school	3	2.8889	1.26198	1.178	.32
	High School	28	2.7321	.57438		
	License	197	2.6210	.54596		
	Postgraduate	87	2.5249	.43767		
Planned Approach	Primary school	3	1.9167	1.01036	.284	.88
	High School	28	2.1607	.66393		
	License	197	2.1624	.69226		
	Postgraduate	87	2.1609	.65700		
Thinking Approach	Primary school	3	1.9333	1.13725	.195	.94
	High School	28	2.1786	.72692		
	License	197	2.1259	.72562		
	Postgraduate	87	2.0759	.57728		
Hasty Approach	Primary school	3	4.2593	.70565	1.445	.21
	High School	28	3.6905	.56280		
	License	197	3.8359	.50714		
	Postgraduate	87	3.9080	.52615		

No significant relationship was found based on educational status (Table 5).

DISCUSSION

Considering that mountaineering is a sport having risk, danger and excitement, how the individuals behave against the problems in climbing has gained an important dimension. In risky sports like mountaineering, the research is important in terms of overcoming the problems and revealing how to behave in these situations. Problem status created by immediate environmental changes in nature sports activities often emerge (Hanson, 2010:342). In our research, how the mountaineers behave against problems is investigated.

When the risks of mountaineering are taken over, it is thought that problem solving skill comes to the fore. When Table 1 is examined, different results have come out due to the variable of gender. In terms of point averages obtained from problem solving inventory, no correlation was found in the sub-dimensions of avoidant approach, evaluator approach, self-confident approach, planned approach, thinking approach and hasty approach. A correlation was found between gender variable and the planned approach from the sub-dimensions of problem solving behaviors. It was conducted that men displayed more planned behavior than women ($p<0,05$). This situation can be correlated with that the number of men dealing with mountaineering is more (77.8%). According to their study, Jack and Ronan (1998) state that the people participating in

various high-risky sportive activities especially the mountaineers and parachutists have higher tendency of looking for general and various excitement than the ones participating in certain lower risky sports. It can be thought that men having more experience lie behind planned approach of men to problem solving. By virtue of social roles, it is known that men deal with nature more. For this reason, men have more experience in mountaineering activities. Due to gender, the investigation of the risks in mountaineering sport will contribute to the findings of the research. Tougne et al. (2008) concluded in a study in which they simulated high altitude climbing and examined anxiety and problem solving that as the altitude increases, situational anxiety increases simultaneously, individual problem solving skill decreases and problem solving skill has little effect on collective study. Based on this, it can be concluded that especially high altitude has an effect on problem solving. Huey et al. (2007) investigated age and gender factors in the research on mountaineering. They say that the death rates of men and women are close to each other in high mountains. That is to say on high mountains, gender does not emerge as an effective variable. This situation can be correlated with the approach of men and women mountaineers to the situations causing problem or risk perception. Since problem solving has a crucial importance in mountaineering, the importance of our research emerges. In mountaineering, men display more planned approach against problems than women.

Another finding in our study is that marital status has no effect on problem solving skill. Looking at problem solving point means that there are no big differences among means. Some researchers have shown how problem is solved within a group. Some research has been conducted on how to solve problem as individual or group. In a simulated mountaineering research, Tougne et al. (2008) stated that altitude had an effect on problem solving skill. As altitude increases, problem solving skill reduces. Our research has revealed that whether the mountaineers are married or single does not display any attitude in problem solving. The factors such as how the mountaineers pass their daily life, their group of friends, climbing partners and their business life are thought to be effective on this variable.

The problems experienced in social life, at home or business life are known to affect stress. From this perspective, we can say that married or single mountaineers are happy in their daily life. The people turning to different sports choose the sports branches that give them pleasure, enjoy them and force their limits. The situations such as wild nature, adventure, being close to nature, physical exercises, natural view, the desire of being alone, socialization, taking risks, challenging, looking for enjoyment and indefinites attract the mountaineers (Gürer et al., 2007:164). Home environment of the people or their circle of friends may trigger the desire of going to nature. That a married mountaineer and a single mountaineer remote from the stress while in nature does not affect their approach to problem solving. The silence of nature or struggling with nature may provide this balance. According to Anzieu and Martin (2003), it is very important to reach the target with small climbing team, their dynamics, group formations and problem solving process (Quoted by Tougne et al., 2008). That is to say, if reaching to the summit wanted to be climbed is an aim, intergroup dynamics and problem solving skills are very important. According to our research, marital status does not affect these dynamics. In our research, no significant correlation was found between marital status and problem solving skill.

One of the variables that a significant correlation was found in our research is age (Table 3). In nature sports, there are known studies about age. It is know that mountaineering is a risky sport. Problem solving includes many transition processes. Problem solving comes to the fore as an important skill in many areas. It is mentioned in the researches that the ones dealing with risky sports have strong personalities. These personalities are thought to be correlated with age. Considering age related mean scores, a significant association was found between avoidant approach and hasty approach sub-dimensions. In Tukey analysis conducted, a correlation was found between the mountaineers of 18 to 25 years old and those 48 years old and older in avoidant approach sub-dimension ($p<0.05$). Accordingly, the older mountaineers display more avoidant approach compared to the younger mountaineers. The reason of the fact that older mountaineers display more avoidant approach may be the reduction of their physical properties. In their research, Huey et al. (2007) revealed the result that the chance of being reached to the summit by the mountaineers older than 40 years old is less. They stressed that younger mountaineers make the summit more. This is a result revealing the importance of age in mountaineering. In the sub-dimension of hasty approach, a correlation was found between the mountaineers of 18 to 25 years old and those of 41 to 47 years old. Looking at the results, the older mountaineers display hastier attitude than the younger ones. This situation may be correlated with the reduction of self-confidence with increasing age. Considering that mountaineering is a difficult and risky sport, age offers disadvantage in many situations. Age factor is known to be important in many nature sports. In his study performed on nature, Tanesen (2008) said that education, communication, motivation, problem-solving, duty and responsibility, team work, reliability, decision-making and evaluation are important. According to our results, the older mountaineers avoid the problematic situations, as well as they display a hasty attitude in a problematic situation.

The most obvious and outstanding result in our study is that experience has an impact on problem-solving skills. It is known that nature sports people are strong and tough e with personal discipline (Kuru, 2000). In the researches performed on nature sports the risk factors and experience were investigated. The importance of experience in many nature sports has been stressed. Experience in mountaineering has a crucial importance. In his study, Çelebi (2002) observed reliability, risk-taking, team work and problem-solving skills of leadership skills and being in nature plays an effective role in the development of these skills. Rosnet and Heuze (2003) emphasized that important decisions in high altitudes must be taken alone in the acceptance of a situation in which the group plays a role in decision making. Likewise, he mentions experience in problem solving. In our study, looking at the point averages of experience variables (Table 4), significant variables were found between the sub-dimensions of avoidant approach, self-confident approach, planned approach and thinking approach and mountaineering experience ($p<0.05$). In Tukey analyses conducted, a correlation was found between the mountaineers having experience from 1 to 3 years and those having 11 years and more experience in avoidant approach sub-dimension and between the mountaineers having experience from 1 to 3 years and those having 11 years and more experience in self-confident approach, between the mountaineers having experience from 1 to 3 years and those having 11 years and more experience in planned approach sub-dimension and between the mountaineers having experience from 1 to 3 years and those having 11 years and more experience in thinking approach. As it is understood from the results, the mountaineers having high experience in problem solving avoid problematic situations more than the mountaineers with less experience. This situation may be correlated with the development of experienced based foresight skill of the mountaineers. An important result that will create difference in our study is that the mountaineers with less experience display self-confident, planned and thinking approach on the contrary to the expected. This situation may result from the fact that the time passed on the mountains and climbing and it is not encountered with many problems. Experience may be due to several factors. Risk in mountaineering may be associated with an environmental, individual and group-based activity. Mountaineers may be affected in a positive and negative way due to the altitude, climate, the exposure rate of altitude and the illness status of teammates and this probably increases the risk level (Gürer et al., 2007). Not being experienced of such kind of situations by the mountaineers affects their problem solving skills depending on the lack of experience. Anxiety situations resulted from the environment may be effective on the fact that the mountaineers having less experience display more self-confident, planning and thinking approach. Some researchers (Kocowski, 1964; Thurner and Wennehorst, 1972) stress that the high state anxiety increases the awareness of the participants in limited times and it has a positive effect on problem solving performance (Quoted by: Tougne et al., 2008:6). Besides, in his research, Goldenberg (2001) included the problem solving in comprehension skill of the sportsmen. This situation reveals the importance of problem-solving. Nevertheless, experience is a knowledge that increases with time and it affects problem-solving.

In our research, problem solving skill and education status variable were also examined. In the analysis conducted, no significant correlation was found (Table 5). Looking at the education status, it is seen that most of the mountaineers (N=197) have graduated from university or studying in university (62.5%). It is seen that education graduates are more than university graduates (N=87;27.3%). As it is understood from the data, most of the mountaineers who participated in the research are people with high education status. In other researches, various results about education status variable are seen. Lack of correlation in education status variable may result from the fact that most of the participants take higher education. Priest and Dixon (1991) mention the importance of the individual competence in their research on nature leaders. Individual competence may be associated with high education level. Looking at the averages, it is seen that the values are close to each other. Mountaineers display similar approaches against the problems. Although there is no significant correlation, it is possible to say that high education level makes positive contribution to problem solving degree.

As a result, the sports branches performed within mountaineering activities require problem solving skill both by the participant and the specialist, because mountaineering sport includes risk and danger. Besides, the responsibility of individual and group increase these risks. The reason of this is the presence of the dangers encountered very often in the activities. In mountaineering, the striking approaches in problem solving were concluded to be planned approach and avoidant approach. Besides, it can be said that self-confident approach and thing approach are also striking in experience variable. Increasing the experience and depending on this keeping away from the dangers can only be developed by going to the mountains and integrating with nature. Canan and Ataoğlu (2010) have found in their research that as time passes with the sport getting increased, depression and anxiety findings are decreased, and there is a linear relationship between time and problem solving skill perception. Therefore, it is possible to say that dealing with mountaineering regularly contributes to problem solving skill. Depending on the experience, it is thought to develop some skills such as

taking risk, decision making, evaluating and making judgment. The mountaineers with high experience are recommended to take more risks in a group. So, the rate to exposure risks and dangers will reduce. Our research is important in terms of throwing more light on the new studies to be conducted. The investigation of problem solving skill will enrich the literature for different nature sports.

Conflict of Interests

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

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