

Examining Decision-making Levels of Athletes of Various Branches in Team Environments in Terms of Socio-demographic Variables

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ABSTRACT The purpose of the present research is examining decision-making levels of athletes of various branches in team environments in terms of socio-demographic variables. Research group consisted of 128 female, 178 male; a total of 306 athletes who play various sports. In order to collect data, 4-question "Personal Information Form" and "Melbourne Decision-making Scale" developed by Mann et al. (1998) were used. Collected data were analysed in SPSS (Statistical Package for Social Sciences) for Windows 21.0 packaged software. Research findings revealed that decision-making styles of athletes differed significantly across sports branches they played, their genders, and sport ages. The limited number of researches on the subject matter in Turkey increases the importance of the present research.

INTRODUCTION

Decision-making in Sports

Human being is a social being that lives together with other humans. The purpose of living together is meeting basic needs through interaction, communication and sharing with others. They cannot accommodate themselves to their environment automatically. They start observing their environment from infancy. They create their own behaviour patterns with what they learn from their environment as they grow, and accommodate to their environments and societies. Learned behaviour patterns substitute instinctual behaviour patterns in time (Köknal 1988). Humans always want something, aspire after something, and follow an objective. Every individual has many options while they shape their lives. They choose some of these options in order to attain their objectives, and they move forward. Doing so, they use the information they learn from their environments. They develop a mental structure by following the changes and

developments in their environments, and gain a decision-making skill by combining this structure with their knowledge. Behaviour patterns in a society change, lose their effect, and even disappear in time (Deniz 2002). Human beings are thinking beings. They use this equipment in order to attain pre-specified objectives. Voluntarily or involuntarily, they have to make decisions in cases they encounter. As a mental process, decision-making is one of the most important living skills of humans. Individuals make use of some values while adapting to the society they live in. Environmental perceptions play an important part in the formation of these values. Values are the resource of human decisions and behaviours. They guide the ways to attain goals, and determine the tools for humans while they shape their lives. Values are means used in making judgements and decisions. Environmental factors play an important role in developing decision-making skills (Deniz 2002). Education the individuals get as of birth, environmental conditions, their intelligence level, and personalities all affect decision-making processes. Constantly changing expectations of individuals cause conflicts in applying decision-making strategies. In this case, individuals either face or avoid conflicts. Human beings need to learn certain behaviour patterns and put these into practice in order to accommodate to the societies they live in, and communicate with the other members of

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the society. Every individual becomes a member of some social groups to attain their goals and objectives, and get economic and social satisfaction (Reevesi 1970). Communication plays an important part in forming group behaviours. Individuals who live in the same societies need communication to convey their feelings and ideas. Some individuals are more successful in establishing and maintaining social communication. And some have difficulties in expressing themselves. Communication is the unavoidable way to influence others. Social skills are of utmost importance for the adaptation of individuals to society. Social skills are learned behaviours that enable communication with other people and are accepted socially (Reevesi 1970).

Individuals communicate with other individuals in the environment they live in due to these social skills. Social skills involve not only establishing and maintaining this communication, but also attaining successful results in accordance with the objectives of the established communication. The more developed the social skills of an individual are; the more likely they fit into society and are successful (Napoli et al. 1996). Different researches on decision-makings refer to different approaches. For instance, as from late 1940s, decision-making has been studied by many different branches such as mathematics, sociology, medicine, political sciences, geography, engineering, administrative sciences, and psychology. Sport is considered to be the most appropriate field for decision-making researches since it is considered as a potential laboratory where cognitive structures related to human decision-making are studied (Bar-Eli and Raab 2006). Physiological, psychological, and technical-tactical work cannot be enough for sportive achievement, but mental factors are also effective. Decision-making skills, as a dimension have an important place in sportive achievement. How people think in sports environments, how they analyse present conditions, and how they make judgements are important issues that can be studied under laboratory conditions (Bar-Eli and Raab 2006).

All sportive activities are important for individuals in terms of self-development and expressing oneself. When individuals participate in such kind of activities, they communicate with other individuals and express their feelings and ideas. Sportive activities are one of the most effective methods for socialization of individuals. Well-

organized sportive activities are important for establishing and maintaining inter-personal relationships.

Sports have an important place in individuals' gaining social skills. For this reason, Schools of Physical Education and Sports, in some way, are effective for individuals who can establish and maintain healthy relationships. Because students who study at these schools are responsible for transferring their knowledge, and social skills they learn here to next generations in their professional lives. These schools are laboratories where sporting individuals' decision-making strategies related to their decisions and decision-making processes are studied (Williams and Davids 1995). Mere physiological, psychological, and technical-tactical work is not enough for sportive achievement, but mental factors are also effective. Decision-making skills, as a dimension have an important place in sportive achievement. How individuals act, how they study their situations, and what kinds of conclusions they reach at are issues that should be studied (Williams and Davids 1995).

Decision-making in sports cannot occur with pre-learned knowledge. Athletes decide according to positions during game, and they act. Decisions made during game are made under time pressure. Time is limited and an immediate decision and act are required. Some sports branches don't include time pressure or limitation. However, ball games, team games, and combat sports require instant decision-making. In sport environments, decisions are generally made in complicated time pressure, and are solution-oriented. Memory, perception ability, concentration, experience, and mental images are effective in making decisions. In a certain game act, two athletes may make different decisions. This is about their knowledge base and perception of environmental knowledge. It is natural that inexperienced and experienced athletes make different decisions for the same circumstances. Experienced athletes use not only their skills, but also their knowledge index, so they make different decisions. This shows that attention, concentration, mental images, and experience lead to correct sportive decisions when used properly (Baker et al. 2003).

Athletes have to create an accumulation of knowledge to use in sportive competitions. Decisions made during games are generally dynamic. Athletes may not be able to use their accumulation of knowledge, or may need irrelevant

knowledge during games. Gigerenzer and Selten (2001), claim that decision-making in sports occurs in three phases. They base this on “bounded rationality” coined by Simon (1955). First phase is deciding whether data collection and problem solving are required. For instance, the footballer carrying the ball in football visualizes his knowledge about the position in order to pass the ball accurately. Then, he understands that he has to make a decision and, makes a plan. He reviews the options, and makes a situation assessment. For the last phase, there are simple decision rules. He combines the simple decision rule with the tactic determined before the game and makes the decision.

Burnett et al. (1989) studied the relationship between career decisions and decision-making styles among freshman and sophomore university students. They found that both decision-making styles and self-esteem were effective in decision-making for students. They also found that, there was a positive relationship between vigilance decision-making style and career choices and subject choice. According to their findings, students with high self-esteem preferred vigilance decision-making style, there was a positive relationship between career-choice, and there wasn't a relationship between career choice and students who used other decision-making styles.

As can be seen from that research, there is a significant difference between self-esteem levels and self-levels in decision-making and productivity levels. In addition, there is a significant positive relationship between decision-making self-esteem and self-esteem levels among university students.

Just physiological, psychological, and technical-tactical work is not enough for sportive achievement, but mental factors are also effective. Decision-making skills have an important place in sportive achievement (Egesoy et al. 1999).

McPherson (1999) conducted an experiment on decision-making during games. The experiment studied accurate decision-making skills during game among experienced table tennis players at the age of 10-13, and inexperienced university students. The game between primary school students who have many records and inexperienced university students who had just started table tennis classes was video recorded. No significant relationship was found between

the ages of tennis players and game score. However, inexperienced university students made more accurate decisions during the game and serves than experienced tennis players.

There is no certain style of decision-making in sports, but we can mention some characteristics. The key feature of decision-making in sports is that it is natural. Potential number of options during many tasks and for many players is the same. For instance, if a football player wants to be free in his responsibility, creativity, and decision when he is on field, he doesn't do that according to pre-learned tactics. On the contrary, he has to make decisions in unexpected situations that he didn't prepare for before the game. Second, the decisions made in sports environments are dynamic. In other words, sports environments have external dynamics that change in time. Athletes need the ability to create knowledge because of this dynamic structure. Dynamic situations that athletes encounter during games are complex and they sometimes may need irrelevant knowledge, or they may not use the relevant knowledge during the game because of some obstacles and need to turn to different knowledge. And third, decisions in sportive activities are made as apparent behaviours and under a great time pressure. This is about the dynamism of decision-making in sportive activities. Many acts by athletes during the game are presented as part of the game (Johnson 2006).

METHODOLOGY

“Survey” method is adopted in the present research that examines decision-making levels of athletes of various sports branched in terms of socio-demographic variables.

Universe and Sample Selection

The universe of the present research consisted of Konya, Kilis, Kirsehir, Gaziantep, and Karaman provinces; and the sample consisted of athletes playing Football, Basketball, Volleyball, Wrestling, Arm Wrestling, Badminton, and Athleticism in these provinces.

Data Collection Tools

Data collection tools of the present research are “Personal Information Form”, and “Mel-

bourne Decision-making Questionnaire” (Deniz 2004; Sanders 2008; Gacar 2011).

Personal Information Form

Personal Information Form developed by the researcher of the present research consisted of 4 items about the personal features of the participants (age, gender, branch, sport age).

Melbourne Decision-making Questionnaire

The original form of Melbourne Decision-making Questionnaire was developed by Mann et al. (1998), and it was adapted to Turkish by Deniz (2004) who also conducted validity and reliability studies (Yarmali 2000; Deniz 2004; Gacar 2011).

Melbourne Decision-making Questionnaire consists of two parts. 1st part is about self-esteem in decision-making. There are four sub-factors in this part. These are (Deniz 2004; Gacar 2011).

Careful Decision-making Style: In this case, individuals make their decisions after searching for the necessary information, evaluating the alternatives carefully.

Avoidant Decision-making Style: In this case, individuals avoid making decisions, by expecting others to make the decisions, and so they try to assign the responsibility to others.

Suspensive Decision-making Style: In this case, individuals postpone decision-making without a valid reason, and suspend the decision.

Panic Decision-making Style: In this case, individuals feel time pressure and try to make a hasty decision to reach at a quick conclusion.

Reliability of Melbourne Decision-making Questionnaire

Reliability of Melbourne Decision-making Questionnaire (MDMQ I-II) was tested twice with test-retest and internal consistency meth-

ods (Yarmali 2000). With test-retest method, MDMQ I-II was conducted twice on 56 university students in three weeks period, and reliability coefficients ranged between $r=.68$ and $r=.87$ (Deniz 2004; Gacar 2011).

Statistical Analyses

Data collected in the present research were analysed on SPSS (Statistical Package for Social Sciences) for Windows 21.0 packaged software. Descriptive statistics (number, percentage, mean, standard deviation) were conducted on the data. To compare quantitative data, differences between two groups were tested through t-test, inter-group comparisons of parameters of more than two groups were tested with Kruskal Wallis test, and Mann Whitney-U test was conducted to determine the groups causing the differences. Findings obtained in the present research, were analysed in 95 percent confidence interval and at 5 percent significance level.

FINDINGS

The athletes participated in the present research distributed as; 178 (58.2%) male, and 128 (41.8%) female according to gender; 88 (28.8%) 1.00, 43 (14.1%) 2.00, 80 (26.1%) 3.00, 25 (8.2%) 4.00, 22 (7.2%) 5.00, 22 (7.2%) 6.00, and 26 (8.5%) 7.00 according to branch variable; and as 67 (21.9%) 1-3 years, 210 (68.6%) 4-6 years, and 29 (9.5%) 7-9 years according to sport age variable.

As can be seen from Table 1, “self-esteem in decision-making” score of participants is (7.794 ± 1.964) ; “careful decision-making” score is (5.281 ± 2.570) ; “avoidant decision-making” score is (6.654 ± 2.348) ; “suspensive decision-making” score is (5.105 ± 2.007) ; and “panic decision-making” score is (5.533 ± 2.038) .

Kruskal Wallis H-Test was conducted on the data in order to find whether there was a significant difference between participants’ avoidant decision-making scores according to branch variable; and it was found that the difference be-

Table 1: Distribution of decision-making scores

	<i>N</i>	<i>Mean</i>	<i>Sd</i>	<i>Min.</i>	<i>Max.</i>
Self-esteem in decision-making	306	7.794	1.964	0.000	12.000
Careful decision-making	306	5.281	2.570	0.000	12.000
Avoidant decision-making	306	6.654	2.348	0.000	12.000
Suspensive decision-making	306	5.105	2.007	0.000	10.000
Panic decision-making	306	5.533	2.038	0.000	10.000

tween the groups was significant (KW=13.312; $p=0.038<0.05$) (Table 2). Mann Whitney U test was conducted in order to determine which group caused the difference. Accordingly, avoidant decision-making scores of participants in branch 5.00 (7.682 ± 2.626), were higher than avoidant decision-making scores of participants in branch 1.00 (6.375 ± 1.902); avoidant decision-making scores of participants in branch 3.00 (6.813 ± 2.460), were higher than (6.813 ± 2.460), avoidant decision-making scores of participants in branch 4.00 (5.640 ± 1.912); avoidant decision-making scores of participants in branch 5.00 (7.682 ± 2.626) were higher than avoidant decision-making scores of participants in branch 4.00 (5.640 ± 1.912); avoidant decision-making scores of participants in branch 6.00 (7.455 ± 2.940), were higher than avoidant decision-making scores of participants in branch 4.00 (5.640 ± 1.912); and avoidant decision-making scores of participants

in branch 7.00 (7.115 ± 2.389), were higher than avoidant decision-making scores of participants in branch 4.00 (5.640 ± 1.912).

Kruskal Wallis H-test was conducted in order to find out whether there were significant differences between participants' self-esteem in decision-making, careful decision-making, suspensive decision-making, and panic decision-making scores, and no significant differences were detected between group averages ($p>0.05$) (Table 3).

t-test was conducted in order to find out whether there were significant differences between participants' self-esteem in decision-making scores according to gender. Accordingly, there was a statistically significant difference between group averages ($t=2.845$; $p=0.005<0.05$). Self-esteem in decision-making scores of male participants ($x=8.062$), were significantly higher

Table 2: Distribution of decision-making scores according to branch

	Group	N	Mean	Sd	KW	p	Difference
<i>Self-esteem in Decision-making</i>	Football	88	7.977	1.924	10.413	0.108	
	Basketball	43	7.442	1.856			
	Volleyball	80	7.700	2.184			
	Wrestling	25	7.920	2.344			
	Arm Wrestling	22	7.909	1.601			
	Badminton	22	8.546	1.565			
<i>Careful Decision-making</i>	Athleticism	26	7.192	1.600			
	Football	88	5.523	2.319	6.807	0.339	
	Basketball	43	5.674	2.792			
	Volleyball	80	5.250	2.655			
	Wrestling	25	5.280	1.838			
	Arm Wrestling	22	4.318	3.442			
<i>Avoidant Decision-making</i>	Badminton	22	5.136	2.678			
	Athleticism	26	4.846	2.395			
	Football	88	6.375	1.902	13.312	0.038	5 > 1
	Basketball	43	6.302	2.435			3 > 4
	Volleyball	80	6.813	2.460			5 > 4
	Wrestling	25	5.640	1.912			6 > 4
<i>Suspensive Decision-making</i>	Arm Wrestling	22	7.682	2.626			7 > 4
	Badminton	22	7.455	2.940			
	Athleticism	26	7.115	2.389			
	Football	88	4.989	1.885	3.963	0.682	
	Basketball	43	5.326	2.032			
	Volleyball	80	5.075	2.180			
<i>Panic Decision-making</i>	Wrestling	25	5.160	1.546			
	Arm Wrestling	22	5.227	2.707			
	Badminton	22	4.636	2.060			
	Athleticism	26	5.462	1.529			
	Football	88	5.386	1.979	4.045	0.671	
	Basketball	43	5.512	2.364			
	Volleyball	80	5.700	2.172			
	Wrestling	25	5.160	1.491			
	Arm Wrestling	22	5.909	2.223			
	Badminton	22	5.864	1.859			
	Athleticism	26	5.308	1.715			

Table 3: Distribution of decision-making scores according to sport age

	Group	N	Mean	Sd	KW	p
<i>Self-esteem in Decision-making</i>	1-3 Years	67	7.746	1.812	0.570	0.752
	4-6 Years	210	7.771	2.025		
	7-9 Years	29	8.069	1.889		
<i>Careful Decision-making</i>	1-3 Years	67	5.343	2.739	0.082	0.960
	4-6 Years	210	5.291	2.495		
	7-9 Years	29	5.069	2.777		
<i>Avoidant Decision-making</i>	1-3 Years	67	7.090	2.592	4.726	0.094
	4-6 Years	210	6.629	2.217		
	7-9 Years	29	5.828	2.522		
<i>Suspensive Decision-making</i>	1-3 Years	67	5.328	2.077	0.469	0.791
	4-6 Years	210	5.043	1.940		
	7-9 Years	29	5.035	2.337		
<i>Panic Decision-making</i>	1-3 Years	67	5.672	2.084	1.471	0.479
	4-6 Years	210	5.562	1.976		
	7-9 Years	29	5.000	2.345		

Kruskal Wallis H-test was conducted in order to find out whether there were significant differences between participants' self-esteem in decision-making, careful decision-making, avoidant decision-making, suspensive decision-making, and panic decision-making scores according to sport age. No significant differences were detected between group averages ($p > 0.05$).

Table 4: Distribution of decision-making scores according to gender

	Group	N	Mean	Sd	KW	p
<i>Self-esteem in Decision-making</i>	Male	178	8.062	1.860	2.845	0.005
	Female	128	7.422	2.049		
<i>Careful Decision-making</i>	Male	178	5.079	2.543	-1.629	0.104
	Female	128	5.563	2.589		
<i>Avoidant Decision-making</i>	Male	178	6.556	2.309	-0.856	0.393
	Female	128	6.789	2.403		
<i>Suspensive Decision-making</i>	Male	178	5.219	1.955	1.178	0.240
	Female	128	4.945	2.075		
<i>Panic Decision-making</i>	Male	178	5.472	2.045	-0.615	0.539
	Female	128	5.617	2.032		

than self-esteem in decision-making scores of female participants ($x = 7.422$) (Table 4).

t-test was conducted in order to find out whether there were significant differences between participants' careful decision-making, avoidant decision-making, suspensive decision-making, and panic decision-making scores according to gender. There were no statistically significant differences between group averages ($p > 0.05$).

DISCUSSION

The purpose of the present research was examining decision-making levels in sports environments of athletes of various sports branches according to socio-demographic variables. Melbourne Decision-making Questionnaire was used in order to collect data.

Sports branches of the participants of the present research are football, basketball, volleyball, wrestling, arm wrestling, badminton, and athleticism. Consequently, the researcher found that there were significant differences between participants' decision-making styles according to sport branches. Studies in the related literature suggest that attitudes and behaviours of athletes can be observed clearly during the game (Johnson 2006). On the other hand, it is stated that the sport played affects decision-making directly due to differences in reaction time and type. For instance, there is no time limitation in sports such as golf, and sailing, but time is limited in ball games such as football and basketball; or team sports and combat sports (Seiler 1997). Therefore, the researcher can claim that his findings are in agreement with related literature.

Another hypothesis that gender is affective in decision-making was confirmed as well in the present research. In other words, there was a significant difference between male and female participants in terms of decision-making styles. There are some conflicting findings in the literature related to gender and decision-making. Many researches in the literature stress the effect of gender in decision-making (Hatala and Case 2000; Hawkins and Power 1999; Wood 1990; Venkatesh et al. 2000). They suggest that, women can be affected from environmental factors more easily, they are more knowledge-oriented, and extend the process (Gill et al. 1987). Similarly, men are more objective, realistic and, dominant. However, there are some researches that claim there are no significant differences across genders (Avsaroglu 2007; Tasdelen 2002; Köse 2002). These conflicting findings show that more researches are required in the subject field.

Related studies also express the importance of experience in decision-making. Accordingly, we can claim that age is an important factor. In the present research, we developed a hypothesis about the effect of sport age (experience) in decision-making, and found that there were significant differences between participants' decision-making styles according to their sport ages. Related researches in the literature also emphasize the importance of experience in decision-making (Gardner et al. 1989; Dror et al. 1998; Starkes et al. 1996; Young and Salmela 2001).

There has been an increase in the number of researches on decision-making in sports in the last decade (Araujo et al. 2006). This is also the case for Turkey, which suggests that sports should be studied scientifically. What can be noticed about these studies in the literature is that, they adopted various theoretical perspectives and methodologies (Davids and Araújo 2010; Correia and Araújo 2009; Williams and Abernethy 2012).

CONCLUSION

An important and unique feature of sport is that it enables individuals adopt many roles. Probably, the trainer, the player, and the referee of a sport branch share a common knowledge ground. Most of the time, these people are responsible for different tasks. In accordance with the objectives of individuals, what decision they make is directly related with their general perfor-

mance and knowledge. For example, the role of a coach is to train athletes, and develop performance-related strategies and tactics. The decision he made is expected to shape accordingly. On the other hand, the role of an athlete requires physical, and mental-cognitive training and performance. This may vary for different sport branches. Still, they need to be physically fit, and make complicated decisions related to the implementation of rules during the game. Concordantly, it is natural that decision-making in sports vary at significant levels in terms of socio-demographic factors.

RECOMMENDATIONS

Studies on decision-making should be increased. Studies on decision-making should be made in all areas and levels of decision-making should be compared with the athletes. Athletes should try to recognize all aspects and psychological aspects that are important in display performance should not forget the importance of taking into account the. It should benefit from the results of the coach and the coaches made the problem-solving research and should work in this way.

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