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Examining the Relationship between Cognitive Flexibility and Leisure Boredom in Students*

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Research Article
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Abstract

Cognitive flexibility studies are being handled and studied in a multidisciplinary manner day by day. In this study, cognitive flexibility levels and leisure boredom perceptions of university students who do sports were examined. The "leisure boredom scale" adapted to Turkish by Kara, Gürbüz and Öncü (2014) and the "Cognitive Flexibility Scale" adapted to Turkish by Altunkol (2011) were used as data collection tools. The universe of the study consists of the students of Atatürk University Faculty of Sports Sciences. Sample; it consists of 188 people, 100 men and 88 women, using simple random sampling technique. As a result of the normality tests, it was determined that the data (Skewness -1.5 and Kurtosis +1.1) showed a homogeneous distribution in the value ranges. Our findings show that students who are interested in team activities have more leisure time satisfaction than those who are interested in individual activities (p=.000). The increase in the rate of engaging in leisure time activities indicates that the scores of the students regarding the perception of leisure boredom decline. It is supported by our findings that high cognitive flexibility is also associated with leisure satisfaction (r=,514).
Keywords: Leisure, Boredom, Cognitive flexibility.

Öğrencilerde Bilişsel Esneklik ve Boş Zaman Sıkılma Arasındaki İlişkinin İncelenmesi

Öz

Bilişsel esneklik çalışmaları her geçen gün multidisipliner bir şekilde ele alınmakta ve incelenmektedir. Bu çalışmada, spor yapan üniversite öğrencilerinin bilişsel esneklik düzeyleri ve boş zaman can sıkıntısı algıları incelenmiştir. Veri toplama araçları olarak Kara, Gürbüz ve Öncü (2014) tarafından Türkçeye uyarlanan "Boş Zaman Sıkıntısı Ölçeği" ve Altunkol (2011) tarafından Türkçeye uyarlanan "Bilişsel Esneklik Ölçeği" kullanılmıştır. Araştırmanın evrenini Atatürk Üniversitesi Spor Bilimleri Fakültesi öğrencileri oluşturmaktadır. Örneklem; basit seçkisiz örnekleme tekniği kullanılarak 100 erkek ve 88 kadın olmak üzere 188 kişiden oluşmaktadır. Normallik testleri sonucu verilerin (Skewness -1,5 ve Kurtosis +1,1) değer aralıklarında homojen bir dağılım gösterdikleri tespit edilmiştir. Bulgularımız, takım etkinlikleriyle ilgilenen öğrencilerin bireysel etkinliklerle ilgilenen öğrencilere göre daha fazla boş zaman doyumuna sahip olduklarını göstermektedir (p=.000). Boş zaman etkinliklerine katılma oranındaki artış, öğrencilerin boş zaman sıkılma algısına ilişkin puanlarının düştüğünü göstermektedir. Yüksek bilişsel esnekliğin de boş zaman doyumu ile ilişkili olduğu bulgularımızla desteklenmektedir (r=,514).
Keywords: Boş Zaman, Sıkılma, Bilişsel esneklik.

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INTRODUCTION

We are all the wheels of a system based on working and producing. In our spare time, which is very little and we want to believe that it belongs to us, we are faced with boredom and have to overcome this problem. It is noteworthy that the decrease in interest in the activity and the difficulty in concentration are related to the boredom levels of the individuals (Li and Jia, 2022). The claim that boredom is caused by repetitive monotony can create the underlying reality of boredom of individuals doing the same activity (Bench and Lench, 2013). In this context, overcoming this monotony may again require cognitive multidimensional thinking. It is thought that making good use of free time will also reduce the perceived boredom in free time (Wang, 2019). Effective use of leisure time is a factor related to leisure management (Hickerson and Beggs 2007). A good time management can be achieved with good cognitive abilities (Marais et al., 2020). At the beginning of these cognitive abilities are attention control, cognitive flexibility, emotion regulation and behavioral flexibility (Marais et al., 2020). The relationship between the concept of boredom and leisure time attracts the attention of researchers more and more, as boredom is seen as a factor that threatens participation in leisure activities (Köktaş, 2004). It has been determined that the leisure time boredom perception is due to the fact that individuals have too much free time and do not have quality leisure time or, on the contrary, they do not have meaningful activities to participate in (Russell, 1996; Shaw, 1996). It has been defined by Iso-Ahola and Weissinger (1990) as "insufficient motivation, low arousal, unmotivated or personal perception of not being sufficient for current leisure experiences". In addition to these variables, which are thought to have an effect on the perception of boredom, it is thought that the cognitive, that is, internal processes of the individuals, may affect the perception of boredom (Leong and Schneller, 1993; Li and Jia, 2022). Piaget (1985), mentioned that in order for individuals to adapt to environmental stimuli in the best way, they must constantly adjust their cognitive structures according to these stimuli. Individuals should develop cognitive strategies to cope with the feeling of boredom. In the literature on the perception of boredom, it is seen that many definitions are made in different disciplines. It can be stated that it is a disturbing socio-psychological situation that occurs as a result of individuals continuing their lives in a monotonous way (O'hanlon, 1981). Therefore, the perception of boredom can be seen as a lack of motivation in participating in any activity, as well as a complicated situation that can be seen as a lack of value and meaning experienced by individuals regarding these activities (Smith, 1981). On the other hand, Iso-Ahola and Weissinger (1990) stated that boredom is a negative situation that is more likely to occur in people who do not know how to use their free time in a full and beneficial way (İskender and Güçer, 2018). It is not accidental that many psycho-social and physical problems arise as a result of the high perception of boredom. Although the debate about its precise definition continues, the perception of boredom is generally defined as an undesirable, temporary emotional state in which the persons feels a widespread lack of relevance and trouble concentrating on activities (Spruyt et al., 2018). Scientists focusing on the perception of boredom hypothesize that the perception is primarily caused by a mismatch between external stimuli and the self-interest of individuals (Vogel et al., 2012). It is mentioned that there are many components of the perception of boredom. It is generally stated that boredom is

associated with cognitive rigidity and personality traits. Studies of mental arousal provide explanations for the causes of boredom. Zuckerman (1978) theorized the theoretical structure of research on mental arousal. Although boredom is a problem for most individuals, very little work has been done on the psychological foundations of boredom, and there are almost no practical studies.

Cognitive flexibility can be expressed as persons's ability to adapt to the situation (Altunkol, 2011). Lazarus and Folkman (1984) stated in their research on stress that when the cognitive flexibility level of the individual decreases, they insist on a single way instead of multiple thinking. Cognitive flexibility allows the individual to see the stressful situation as a whole, not a single aspect, and to understand the differences of the problem with all its dimensions (Ekvall et al., 1999). Martin and Anderson (1998) stated that the more scenarios an individual has in mind, the more complex and flexible thought processes they can have. It can also be defined as the skill of persons to adapt to a specific situation, the ability to transform from one thought to another, or the ability to produce very different solutions to different problems (Stevens, 2009). Cognitive flexibility also includes useful situations such as the ability to control difficult situations and to find more than one way to solve problems that cause problems (Asıcı and İkiz, 2015).

In addition, individuals who are cognitively flexible have an alternative perspective on what they can do. Individuals with these characteristics tend to perceive more realistically, not always good, successful and positive. Being aware of options, which is one of the most important dimensions of cognitive flexibility, can be considered as the ability to evaluate current conditions well (Özcan, 2022). In this respect, it may mean that persons with high cognitive flexibility will better evaluate the current situation. Persons who are cognitively flexible are determined to follow new paths when faced with unfamiliar situations, therefore they can adapt to the conditions brought by the situation. The developments in the world day by day can create differences in the lives and emotional states of individuals. The adaptable person will better cope with the perception of boredom and experience lower levels of stress (Altunkol, 2011). Boredom and impulsivity are thought to be conceptually related (Leong and Schneller, 1993). Impulsivity, unlike cognitive flexibility, refers to how quickly and unhindered the person responds to internal or external stimuli. For example, it is mentioned that individuals with a tendency to boredom are depressed, lonely and have similar characteristics with attention problems (Farmer and Sundberg, 1986). Impulsivity, on the other hand, includes some specific features such as low self-control, excessive excitement seeking, and extroversion (Barratt, 1983). It is noteworthy that individuals with a tendency to boredom and impulsivity generally have similar related characteristics. The presence of impulsive features in individuals who do not have cognitive flexibility is remarkable. (Eliason, 2000). In individuals who act impulsively, depressive structures are usually mentioned. The main feature of the depressed individual is; is excessive rigidity in thought (Young et al., 2011)

Cognitive flexibility, which is an expression of adoption, can help people see situations from multiple perspectives, interpret them and overcome problems according to their characteristics (Dennis and Wal, 2010). Adapting to a new situation or solving a

problem requires individuals to be aware of their options in the face of the situation, to be able to apply these different behavioral options willingly, to feel competent in this regard, in other words, to cognitive flexibility (Altunkol, 2011).

In the studies conducted, attention was drawn to the internal and cognitive elements in explaining the tendency to boredom, as well as an ordinary environment and obstacles were determined (Fisher, 1993; Harris, 2000). In both cases, cognitive processes of individuals and constrained environments and barriers as external factors are particularly striking in the context of university students. It is stated that the perception of boredom in leisure time directs individuals to exhibit some risky behaviors (İskender and Güçer, 2018). Especially in university students, the emergence of such risky behaviors due to boredom is seen as a threat for young individuals. For example, in a study, it was determined that boredom is more common in adolescents who smoke compared to their non-smoking peers (Orcutt, 1984).

The possibility of the perception of boredom in leisure time in people who cannot use their leisure time in a full and useful way (Iso-Ahola & Weissinger, 1990) has led us to investigate the idea that individuals with the same time and opportunity cannot manage their time well due to individual differences. These individual differences draw attention to the internal and cognitive processes mentioned above that affect the perception of boredom (Kara and Ayverdi, 2018). Especially in university students, the perception of boredom, which triggers the emergence of risky behaviors, is seen as a product of cognitive flexibility, which is one of the cognitive skill. We have made detailed explanations about cognitive flexibility above.

When the literature is examined, the absence of a study that evaluates cognitive processes with a qualitative measurement tool in explaining the perception of boredom shows that in the perception of boredom, especially in studies conducted in the field of leisure and recreation, external elements are examined more and internal processes are neglected. After all these explanations and definitions, the main objective of the study is to examine the perception of boredom in university students within the scope of cognitive flexibility, which is one of the internal processes.

Also, boredom perceptions of university students who do sports during leisure activities were examined. In addition, the results were compared with the cognitive flexibility levels of the students. In this direction, an inverse correlation between cognitive flexibility and boredom is predicted in the study.

METHODS

Research Model

The research is a quantitative study in the general screening (survey) model. General screening models are research made on the whole universe or a group to be taken from the universe in order to make a general judgment about the universe in a universe consisting of many elements (Karasar, 2005).

Sample Group

While the population of the research consists of undergraduate students of Atatürk University Faculty of Sports Sciences in the spring semester of the 2021-2022 academic year, the sample group of the study consists of 188 individuals, 100 male and 88 female, studying at the same faculty. The sample group was determined by using simple random sampling, one of the random sampling methods (Büyüköztürk et al., 2018).

Data collection tools

In the study, the survey model was used to collect data from the sample. Survey model is a method of collecting data at a certain time in order to define the relationship between specific events and compare the relationship between variables in order to achieve certain goals (Cohen et al., 2000). In this context, the form consists of three parts. First "Personal Information Form" which is developed by the researchers; in order to collect information about the individuals who are the subject of the research, it consists of questions about the independent variables such as gender, department, sports branch, what kind of leisure activities the individual prefers and the frequency of participation in the activity. In the second and third sections, "Leisure Time Boredom" and "Cognitive Flexibility" scales were used as data collection tools.

The Scale of Perception of Boredom in Leisure Time: The scale of perception of boredom in leisure time, developed by Iso-Ahola and Weissinger (1990) and adapted to Turkish by Kara et al., (2014) is a 5-point Likert-type scale consisting of 10 items in total. The scale consists of two sub-dimensions: "satisfaction" and "boredom".

The Cognitive Flexibility Scale: The Cognitive Flexibility scale was developed by Martin and Rubin (1995) and adapted into Turkish by Altunkol (2011). In order to determine the cognitive flexibility level of the person, the scale consisting of a total of 11 items is handled in one dimension and the evaluation is made over the total score.

Research Ethics

Ethical compliance of the study was decided in meeting of Ataturk University, Faculty of Sport Sciences, sub-ethics committee, dated 18 February 2022.

Data Analysis

Statistical analyzes made within the scope of the research were carried out with the SPSS V.23 statistical package program. Skewness and Kurtosis and Levene tests were performed to see if the data met the prerequisites of parametric tests and it was seen that the

data showed a normal distribution. Cronbach Alpha coefficient was calculated to determine the reliability of the scales. According to the results of the analysis, the reliability of the Leisure Boredom Perception Scale was "*Boredom subdimension= .75 Satisfaction subdimension=.79*" and the reliability of the Cognitive Flexibility Scale was found to be .73. As a statistical method in the evaluation of data; frequency analysis, t test, anova and pearson correlation tests were used. The statistical significance level of the analyzes was taken as $p<0.05$ (*) and $p<0.01$ (**).

RESULTS

Demographic Findings

The demographic distribution of the data obtained in the study is as in Table 1.

Table 1. Frequency of demographic data

Gender	**N**	**%**
Female	88	46,8
Male	100	53,2
Department		
Teaching	40	21,3
Coaching	45	23,9
Recreation	71	37,8
Sports Management	32	17,0
What kind of activities do you like?		
Individual Events	90	47,9
Team Events	98	52,1
How would you describe yourself in general terms?		
Calm	48	25,5
Optimistic	87	46,3
Shy	11	5,9
Pessimistic	12	6,4
Furious	30	16
How often do you participate in recreational activities?	188	100.0
1-2 Times a Month	60	31,9
3-4 Times a Month	57	30,3
5-6 Times a Month	32	17,1
7+ Per Month	39	20,7
Total	188	100.0

Table 2. Comparison of participants' perception of leisure boredom scale and cognitive flexibility scale according to preferred activity type

			N	x̄	SD	t	p
Leisure Boredom Perception Scale	**Boredom**	**Individual**	90	2,60	,68	1,26	,00**
		Team	98	2,75	,62		
	Satisfaction	**Individual**	90	3,75	,94	-2,65	,08
		Team	98	3,42	,75		
Cognitive Flexibility		**Individual**	90	3,48	,68	-,89	,34
		Team	98	3,39	,62		

**p<0,01

According to Table 2, there was no significant difference in the cognitive flexibility and satisfaction sub-dimensions of individuals who prefer individual and team activities, while individuals who prefer team activities have a higher perception of boredom than those who prefer individual activities (p<0.01).

Table 3. Average calculations of the perception of leisure boredom scale and the cognitive flexibility scale by frequency of participation in recreational activities

		N	x̄	df	F	p	difference
Boredom	**A- 1- 2 Times a Month**	60	2,84	,87	4,35	,00**	D-A D-B D-C
	B- 3-4 Times a Month	57	2,80	,76			
	C- 5-6 Times a Month	32	2,66	,90			
	D- 7+ Per Month	39	2,27	,79			
Satisfaction	**A- 1- 2 Times a Month**	60	3,53	,82	1,03	,37	-
	B- 3-4 Times a Month	57	3,47	,85			
	C- 5-6 Times a Month	32	3,66	,81			
	D- 7+ Per Month	39	3,76	,95			
Cognitive Flexibility	**A- 1- 2 Times a Month**	60	3,51	,53	,85	,46	-
	B- 3-4 Times a Month	57	3,32	,63			
	C- 5-6 Times a Month	32	3,48	,92			
	D- 7+ Per Month	39	3,44	,59			

**p<0,01

According to Table 3, individuals who prefer seven or more recreational activities in a month have lower levels of boredom perception than individuals who prefer 1-2, 3-4 and 5-6 times a month (p<0.01).

Table 4. Perception of leisure boredom and cognitive flexibility scale pearson correlation analysis

		Boredom	Satisfaction	Cognitive Flexibility
Boredom	r	-		
	p			
Satisfaction	r	-,179*	-	
	p	,014		
Cognitive Flexibility	r	-,137	,514**	-
	p	,062	,000	

According to the results of the Pearson correlation analysis of the sub-dimensions of the perception of boredom in leisure time and the cognitive flexibility scale, it was determined that there is a positive correlation between cognitive flexibility and satisfaction. In addition, there is no significant difference between cognitive flexibility and boredom, but there is a negative correlation.

DISCUSSION AND CONCLUSION

In a study conducted with the aim of examining the boredom perception and cognitive flexibility levels of university students who do sports, it was found that high cognitive flexibility was associated with low boredom perception. In this study, while cognitive flexibility and leisure satisfaction are positively correlated, they have an inverse correlation on the perception of boredom. There are findings in the literature that overlap with the findings in our study. Üzümcü and Müezzin (2018), expressed in their study that be correlation between cognitive flexibility and leisure time satisfaction. Esra and Öge (2021), reported similar results in their study. In a study examining the perception of boredom in terms of cognitive arousal, it was mentioned that boredom is related to cognitive arousal, there must be an inverse relationship between boredom and emotions, so those who are easily aroused cognitively are less likely to be bored (Leong and Schneller, 1993). Farmer and Sundberg (1986), in their study on university students, talked about the relationships between boredom, depressive behaviors and negative life satisfaction. There are findings in the literature that overlap with the findings in our study. Many different studies have also mentioned the relationship between leisure satisfaction and happiness (Durmaz, 2020; Öztaş, 2018). One of the factors affecting leisure satisfaction, the determining role of individuals' perceptions of boredom in this time period is seen in this research, as in many other studies (Doğan et al., 2019; Durmaz, 2020; Yaşartürk et al., 2017). In addition, it is mentioned that undesirable psychological states negatively affect the cognitive flexibility of individuals (Lee and Orsillo, 2014). Studies with variables that are thought to predict the level of cognitive flexibility differ.

In the literature, the negative relationship between depression and cognitive flexibility is also indirectly addressed in some studies. Findings show that irrational beliefs and psychological symptoms are important in predicting cognitive flexibility (Dağ and Gülüm,

2012). According to the research findings, individuals with high cognitive flexibility scores have lower depression scores. Individuals who show cognitive flexibility are less likely to show symptoms of depression than those who do not (Özdemir, 2019). When the perception of boredom and cognitive flexibility scores according to the branch of sport in the study were examined, it was concluded that the perception of boredom was higher in individuals who were interested in team sports ($p< 0.01$). Studies in the literature show that individuals who engage in individual activities have a higher perception of boredom (Aydın, 2020; Kırandi, 2020; Yaşartürk et al., 2020). In this context, the findings of our study are not similar to the literature.

It is thought that individuals with high cognitive flexibility have the ability to be more productive and creative when they have it, and this will positively affect the satisfaction they get from their leisure time.

In the study, when the perception of boredom and cognitive flexibility scores were examined according to the frequency of participation in recreational activities, it was concluded that the perception of boredom of individuals decreased as the frequency of participation increased ($p=0.00$). In a study on academics, it was stated that as the frequency of participation in sports, which is a recreational activity, increases, the perception of boredom decreases (Doğan et al., 2019). In other studies, it is stated that recreational exercises have an effect that enables individuals to reach satisfaction in their free time and work life, and also reduces the perception of boredom (Bale et al., 2015; Gonzelez et al., 2016).

As a result; The results of the study confirm this ($r=514^{**}$). For this reason, the importance of leisure satisfaction on a general concept such as happiness should not be overlooked. However, although there are many ways to increase this satisfaction (activity variety, sensation seeking, activity type, participation frequency, etc.), the importance of cognitive flexibility should not be overlooked as well. Since the study creates a new perspective, it is important for leisure researchers to conduct more studies on cognitive flexibility. Although our study dealt with the role of cognitive flexibility on the perception of boredom, future studies are important in terms of examining the effects on the perception of boredom in other internal processes. In addition, the relationship between cognitive flexibility and leisure satisfaction is another finding of our study. In this context, the satisfaction that individuals get from their spare time and the activities they do in these free times is related to the cognitive flexibility level of the individual rather than the type of activity. When all variables are considered, providing cognitive flexibility will allow individuals to earning in many areas. The relationships between cognitive flexibility and stress have been mentioned a lot in previous studies (Altunkol, 2011). The relationships between the perception of boredom in relation to stress and cognitive flexibility may be valuable for further research.

In line with the findings of the study, high cognitive flexibility is associated with low boredom perception. Cognitive flexibility emerges as one of the executive function features, which is a neuro-psychological concept (İnal, 2019; Özcan, 2022). In this context, it is

thought that better executive function scores will result in higher cognitive flexibility and a good cognitive flexibility will reduce the perception of boredom as it will facilitate adaptation to different situations in individuals. The importance of cognitive exercises, in which individuals can improve their cognitive capacities in many ways, is also important in terms of the perception of boredom.

Conflict of Interest: There is no personal or financial conflict of interest within the scope of the study.

Author Contributions: Research design FB, LÖ; Statistical analysis FB, LÖ; Preparation of the article FB, OM; Data collection LÖ.

Ethics Committee Approval

Committee Name: Ataturk University, Faculty of Sport Sciences, Sub-ethics Committee, Erzurum.

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