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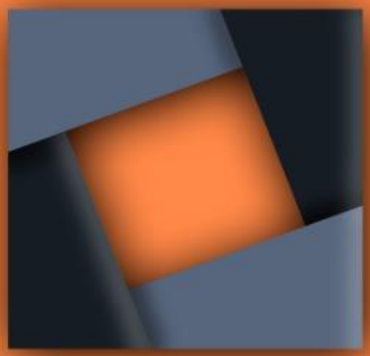

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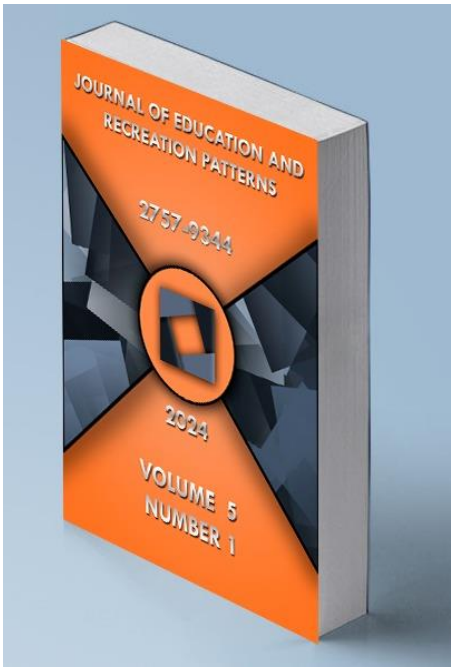

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Determination of the Institutional Image of the University According to the Opinions of Students Receiving Sports Education*

Gökhan SABANCI[1], Havva DEMİREL[2]

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***This article is based on the findings from a specific section of the doctoral thesis titled "Examination of the Relationship Between University Image and Reputation Management According to the Opinions of Students Who Take Sports Education," authored by Gökhan SABANCI and supervised by Assoc. Prof. Dr. Havva DEMİREL. The thesis was accepted in 2023 by the Sports Management Department of the Health Sciences Institute at Selçuk University.**

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Determination of the Institutional Image of the University According to the Opinions of Students Receiving Sports Education

Gökhan Sabancı[1], Havva Demirel[2]

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ABSTRACT

This research was conducted to determine the institutional image of the university they study according to the opinions of the students receiving sports education and to determine whether the institutional image of the university they study differs according to demographic variables. The normality of the data obtained in the study was tested with Kolmogorov-Smirnov and Shapiro-Wilk tests; since the data did not show normal as a result of the test, Mann-Whitney U Test was used for pairwise comparisons and Kruskal-Wallis Analysis of Variance was used for multiple comparisons. In cases where a significant difference was found as a result of Kruskal-Wallis Analysis of Variance in multiple comparisons, Mann-Whitney U Test was applied to determine between which groups this difference originated. In all statistical calculations, the basic significance level was accepted as 0.05. As a result of the research; it was determined that the perceptions of the students receiving sports education towards the image of the universities they study are high / positive. It was determined that students' perceptions of the corporate image of their universities in all dimensions (employees, management quality, social responsibility, working environment, product and service quality, communication activities) differed significantly according to gender, age and the department they studied. Again, it was determined that students' perceptions of their universities' corporate image dimensions of employees, management quality, social responsibility, product and service quality, communication activities differed significantly according to the class variable, and their perceptions of product and service quality and communication activities corporate image dimensions differed significantly according to the sport branch variable. It was determined that the perceptions of the students towards the corporate image dimension of the working environment of the universities they studied according to the class variable; the perceptions of the students towards the dimensions of employees, management quality, social responsibility, working environment corporate image did not differ significantly according to the sport branch variable.

Keywords: Education, Institutional image, Student, University

INTRODUCTION

Visual elements and advertisements are the tools that organizations try to create and improve their corporate image in the new era. Increasing the corporate image with the use of these tools is important in terms of increasing the loyalty and preference of the institutions. At the same time, ensuring loyalty provides a guarantee for organizations to maintain their existence in the long term. At this point, corporate image is the most important factor that ensures the continuity of organizations (Kargün et al., 2017).

The number of universities in Turkey and in the world is increasing day by day and state and foundation universities are being established. Although the number of universities and quotas are constantly increasing in Turkey and in the world, the demand cannot be met, especially the occupancy rates in the quotas in foundation universities do not reach the desired levels. The ability of universities, which are in intense competition, to fill their quotas varies depending on their image as well as the opportunities they offer to students. However, although the establishment of new universities is not considered sufficient, newly established universities should offer certain opportunities to students and be able to compete with state and foundation universities. In addition, in order to attract students, it would be a strategic move to analyse the internal and external target audience correctly, to plan their activities in a way that will give them an advantage, and to know their competitors very well (Marangoz & Aslan, 2015). In our world where information is rapidly increasing and renewed, in recent years, research in the field of education has brought great changes in the perspective of education and the individual (Çağlayan & Sezen, 2007).

It is important for organizations to have a positive image in the eyes of the target audience. However, the sector in which the institution operates requires the institution to give more importance to corporate image. For example, the prerequisite for universities in the service sector to increase their preferability is to create a positive image and make a name for themselves. In this direction, the concept of corporate image in universities has gained importance recently. Studies show that the perception of the institutional image of the university is an important criterion that affects students' decision-making in choosing the university. Students who will choose a school for undergraduate and graduate education make their preferences according to the image of that university, faculty or even department (Nguyen & Leblanc, 2001).

The fact that students around the world see the brand as an identity card, perceive it as a means of status in society, and tend to use this brand in their social relations has an extremely important place for many institutions and organizations (Sarıipek, 2023). Oxford University, which has made a name for itself especially with its success in numerical fields, offers university education in scientific fields such as genetics, physics and mathematics. In addition, universities such as Stanford, Cambridge and Harvard have come to the fore with their quality of education. So much so that scientists who have made a name for themselves in many fields have been trained in these universities. Universities with a positive image perception are educational institutions that manage to fulfil important criteria such as quality of education, expert academic staff, location of the education campus, community service function, maximum student capacity (Ürkmez, 2021). The dynamism of the sports industry and its potential to reach large masses offer many opportunities to strengthen and expand the corporate image and build a brand. In many recent scientific studies, it has been shown that brand building and brand recognition is one of the most important factors in maintaining a company's commercial existence (Barsbuga et al., 2018). While sport was in a relatively low-value position, today it has become a highly valued institution at the center of universities (Çağlayan & Fişekçioğlu, 2004).

As seen in the examples given above, both in the world and in our country, universities carry out various studies in order to influence their potential students and increase their preferability by contributing to their image. In an effort to create a positive image perception, universities primarily work with academic staff who are experts in their fields in order to provide quality education and impress their target audience with various quality certificates. Today, in addition to quality education, universities invest in their image by increasing their motivation and contributing to their personal development through social activities offered to their students.

In the light of this information, the aim of the study is to determine the corporate images of the universities they study according to the opinions of the student's receiving sports education and to determine whether the corporate images of the universities they study differ according to demographic variables.

METHOD

Research Design

In the research, a descriptive survey method aiming to reveal the current situation was used. Survey models are research approaches that aim to describe a past or current situation as it exists. The event, individual or object that is the subject of the research is tried to be defined in its own conditions and as it is. No effort is made to change or influence them in any way (Karasar, 2008).

Universe and Sample

The population of the study was formed according to the 2018 Higher Education Institutions Examination (YKS) Higher Education Programs and Quotas Guide (OSYM. 2018), according to Table 4 (Higher Education Undergraduate Programs Taking Students with Central Placement) and Table 5 (Higher Education Programs Taking Students According to the Results of Special Talent Examination), 8 Sports Sciences Faculty, 5 Physical Education and Sports School, 2 Physical Education and Sports Teaching Department of Education Faculties, 1 School of Sports Sciences and Technology and 1 Faculty of Health Sciences Sports Sciences affiliated to state universities in Turkey. The names of the institutions constituting the population of the study are given in Table 1.

Table 1

The Names of the Universities and Units in the Central Anatolia Region, which constitute the population of the study, Providing Sports Education/Receiving Students

	University	Unit
1	Aksaray University	Faculty of Sport Sciences
2	Ankara University	Faculty of Sport Sciences
3	Erciyes University (Kayseri)	Faculty of Sport Sciences
4	Eskişehir Technical University	Faculty of Sport Sciences
5	Gazi University (Ankara)	Faculty of Sport Sciences
6	Hacettepe University (Ankara)	Faculty of Sport Sciences
7	Kırıkkale Üniversitesi	Faculty of Sport Sciences
8	Selçuk University (Konya)	Faculty of Sport Sciences
1	Karamanoğlu Mehmetbey University (Karaman)	School of Physical Education and Sports
2	Kırşehir Ahi Evran University	School of Physical Education and Sports
3	Niğde Ömer Halisdemir University	School of Physical Education and Sports
4	Sivas Cumhuriyet University	School of Physical Education and Sports

5	Yozgat Bozok University	School of Physical Education and Sports
1	Necmettin Erbakan University (Konya)	Ahmet Keleşoğlu Faculty of Education Physical Education and Sports Teaching
2	Nevşehir Hacı Bektaş Veli University	Faculty of Education Physical Education and Sports Teaching
1	Nevşehir Hacı Bektaş Veli University	School of Sport Sciences and Technology
1	Ankara Yıldırım Beyazıt University	Faculty of Health Sciences Sports Sciences

The sample of the study was selected by random sampling method from the institutions providing sports education/receiving students in the Central Anatolia Region according to the 2018 Higher Education Institutions Examination (YKS) Higher Education Programs and Quotas Guide (OSYM, 2018), Table 4 (Higher Education Undergraduate Programs Receiving Students with Central Placement) and Table 5 (Higher Education Programs Receiving Students According to the Results of Special Ability Examination) in 5 Sports Sciences Faculties affiliated to state universities in Turkey [Aksaray University Faculty of Sports Sciences, Erciyes University Faculty of Sport Sciences, Eskişehir Technical University Faculty of Sport Sciences, Gazi University (Ankara) Faculty of Sport Sciences, Selçuk University (Konya) Faculty of Sport Sciences] and 4 Physical Education and Sports Schools [Karamanoğlu Mehmetbey University (Karaman) School of Physical Education and Sports, Niğde Ömer Halisdemir University School of Physical Education and Sports, Sivas Cumhuriyet University School of Physical Education and Sports, Yozgat Bozok University School of Physical Education and Sports].

According to 2021 Higher Education Institutions Examination (YKS) Higher Education Programs and Quotas Guide (OSYM, 2021), Table 4 (Higher Education Undergraduate Programs Receiving Students by Central Placement) and Table 5 (Higher Education Programs Receiving Students According to the Results of Special Talent Examination); After the period when the research data were collected, 4 Physical Education and Sports Schools (Karamanoğlu Mehmetbey University (Karaman), Niğde Ömer Halisdemir University, Sivas Cumhuriyet University, Yozgat Bozok University Physical Education and Sports School), which constituted the sample of the research, were closed with the Presidential Decrees published in the Official Gazette and transformed into the Faculty of Sports Sciences.

The findings of the research are given based on the current names of the 2021 Higher Education Institutions Examination (YKS) Higher Education Programs and Quotas Guide (OSYM, 2021), Table 4 (Higher Education Undergraduate Programs Receiving Students by Central Placement) and Table 5 (Higher Education Programs Receiving Students According to the Results of Special Ability Examination).

The scales were tried to be applied to all students in the sample group, but the scales were not applied to the students who were not present at the time of the application and the students who did not want to participate in the survey. At the end of this process, it was determined that the students studying at 9 Sport Sciences Faculties (n=1207) affiliated to state universities in Turkey, which were selected by random sampling method from the institutions providing sports education/receiving students in the Central Anatolia Region, which constituted the sample of the research based on their current names, participated in the data collection process of the research. The percentage and frequency distributions of the students who participated in the data collection process of the research according to their universities are shown in Table 2.

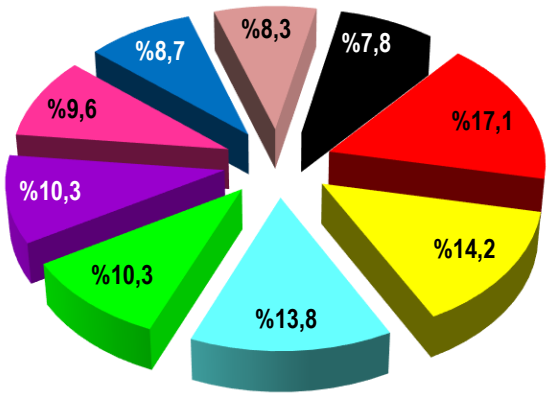
Table 2

Percentage and Frequency Distributions of the Students Who Participated in the Data Collection Process of the Research according to Their Universities of Study

	University	Unit	*n*	%
1	Selçuk University (Konya)	Faculty of Sport Sciences	207	17,1
2	Gazi University	Faculty of Sport Sciences	171	14,2
3	Eskişehir Technical University	Faculty of Sport Sciences	166	13,8
4	Niğde Ömer Halisdemir University	Faculty of Sport Sciences	124	10,3
5	Sivas Republic University	Faculty of Sport Sciences	124	10,3
6	Erciyes University (Kayseri)	Faculty of Sport Sciences	116	9,6
7	Yozgat Bozok University	Faculty of Sport Sciences	105	8,7
8	Karamanoğlu Mehmetbey University (Karaman)	Faculty of Sport Sciences	100	8,3
9	Aksaray University	Faculty of Sport Sciences	94	7,8
	Total		1207	100,0

Figure 1

Percentage and Frequency Distributions of the Students Who Participated in the Data Collection Process of the Research according to Their Universities of Study



As seen in Table 2 and Figure 1, the distribution of the students who participated in the data collection process of the research according to their universities; 17,1% (n=207) at Selçuk University (Konya) Faculty of Sport Sciences, 14,2% (n=171) at Gazi University (Ankara) Faculty of Sport Sciences, 13,8% (n=166) at Eskişehir Technical University Faculty of Sport Sciences, 10,3% (n=124) at Niğde Ömer Halisdemir University Faculty of Sport Sciences, 10,3% (n=124) at Sivas Cumhuriyet University Faculty of Sport Sciences, It was observed that 9.6% (n=116) of the participants studied at Erciyes University (Kayseri) Faculty of Sport Sciences, 8.7% (n=105) at Yozgat Bozok University Faculty of Sport Sciences, 8.3% (n=100) at Karamanoğlu Mehmetbey University (Karaman) Faculty of Sport Sciences, and 7.8% (n=94) at Aksaray University Faculty of Sport Sciences.

Data Collection Tools & Process

Corporate Image Scale: "Yaşar University Corporate Image Scale" developed by Taner Uluçay (2012) was used as a data collection tool in the study. In order to develop the data collection tool, Taner Uluçay (2012) analyzed the corporate image and reputation scales in the literature as well as domestic and foreign research on the subject.

In addition to the corporate reputation scale developed by Fombrum et al (2000) and the corporate image scale developed exclusively for educational institutions by Harris-Interactive, which conducts the most reputable reputation research such as America's most admired companies, the "Corporate Personality Scale" developed by Davies et al. (2003) to determine corporate image was taken as a model (Taner Uluçay, 2012).

The scale created in the light of all these studies was collected in a single scale form under the title of "Yaşar University Corporate Image Scale". Accordingly, "Yaşar University Corporate Image Scale" consists of corporate image and corporate personality sections. In this study, the corporate image section of the scale was used.

Taner Uluçay (2012) determined the dimensions found appropriate to be included in the corporate image section as communication activities, management quality, working environment, employees, product and service quality, and social responsibility. The questions that can question each category under these six headings were created first for the internal stakeholder group and then for the external stakeholder groups. The majority of the questions considered for the two groups are identical. In this study, the questionnaire form of the corporate image section of the scale for internal stakeholders (students) was used.

In the first stage of the scale developed by Taner Uluçay (2012), the most appropriate items for the purpose of the study were selected from the items of the corporate image section for internal stakeholders consisting of 6 factors and 64 items. After the process of selecting the items of the corporate image section, the scale of 49 items under 7 factors developed by Davies et al. (2003) was examined in depth and the opinions of the lecturers who conducted research on the subject were consulted and the adjectives with high representation quality were determined. The corporate image scale for internal stakeholders was reduced to 6 factors and 43 items (Taner Uluçay 2012).

The resulting data collection tool was applied to a total of 398 participants consisting of internal and external stakeholder groups for pilot study. At the end of the pilot study, it was aimed to finalise the data collection tool and to bring it to a healthy state in terms of validity and reliability. As a result of the application, the overall internal consistency coefficient of the data collection tool was found to be 0.946 (Taner Uluçay, 2012).

In order to determine the weak items in terms of reliability, the items with corrected item-total correlation values of 0.30 and below were eliminated and 3 items in the scale were removed because they negatively affected the overall reliability of the scale. After the factor analysis, it was decided to exclude one more item from the study since its factor load was below 0.30. As a result of the reliability analysis performed again, the overall reliability of 39 items was found to be quite high as 0.948. Factor analysis revealed 6 factors with a total variance of 60.44%. It was decided that the explained variance was at an ideal level according to different sources (Taner Uluçay, 2012).

In this way, the "Corporate Image Scale" for internal stakeholders developed by Taner Uluçay (2012) consists of 39 items gathered in 6 sub-dimensions: employees, management quality, social responsibility, working environment, product and service quality and communication activities. The scale is a 5-point Likert-type data collection tool and item options range from "1=strongly disagree" to "5=strongly agree". The 9th, 16th, 23rd, and 33rd items in the scale are negative and are scored in reverse order. The number of items and question items that make up the factors of the Corporate Image Scale, where the averages of the items in the sub-dimension give the scores for each dimension and the evaluations are made on the basis of each sub-dimension, are shown in Table 3.

Table 3

Number of Items Constituting the Factors of the Corporate Image Scale and Question Items

Corporate Image Scale Factors	Article Count	Question Items Forming the Factors
Employees	10	20, 21, 22, 24, 25, 26, 28, 29, 30, 31
Management Quality	9	1, 2, 5, 6, 7, 8, 10, 11, 27
Social Responsibility	5	4, 34, 35, 36, 37
Working Environment	7	12, 13, 14, 15, 17, 18, 19
Product and Service Quality	4	3, 32, 38, 39
Communication Activities	4	9, 16, 23, 33

Within the scope of this research, reliability analyses were performed for the overall scale and its factors and Cronbach alpha values were calculated. Reliability analyses for the overall scale and its factors are given in Table 4.

Table 4

Reliability Analysis of the Corporate Image Scale

Factors of Corporate Image Scale	Cronbach Alpha	Item Number
Employees	0,917	10
Management Quality	0,902	9
Social Responsibility	0,854	5
Working Environment	0,898	7
Product and Service Quality	0,750	4
Communication Activities	0,666	4
Corporate Image Scale Total	0,959	39

The evaluation criterion used in the evaluation of Cronbach's alpha coefficient is as follows: $0,00 \leq \alpha < 0,40$ means that the scale is not reliable, $0,40 \leq \alpha < 0,60$ means that the scale is low reliable, $0,60 \leq \alpha < 0,80$ means that the scale is highly reliable, $0,80 \leq \alpha < 1,00$ means that the scale is highly reliable (Özdamar, 2004).

As seen in Table 4, the results of 0.917 obtained in the "Employees" dimension, 0.902 obtained in the "Management Quality" dimension, 0.854 obtained in the "Social Responsibility" dimension, 0.898 obtained in the "Working Environment" dimension and 0.959 cronbach alpha coefficient obtained from the overall scale show that the overall scale and four sub-dimensions are highly reliable; The results of 0,750 cronbach alpha coefficient obtained in the "Product and Service Quality" dimension and 0,666 cronbach alpha coefficient obtained in the "Communication Activities" dimension showed that the two sub-dimensions of the scale were highly reliable.

Data Analysis

The data collected from the students participating in the study with Personal Information Form and Corporate Image Scale were analysed with SPSS 23.0 software. Before analysing the collected data, it was checked by Exploratory Data Analysis (EDA) whether they were within the specified limits and whether they were missing or contained errors that could not be used in statistical analyses. Afterwards, the normality distributions of the scale scores were examined in order to decide which statistical techniques to use in order to determine the institutional images of the universities where students studying sports education and to determine whether the institutional images of the universities they study differ according to demographic variables. Normality distributions were tested with Kolmogorov-Smirnov test and Shapiro-Wilk test. As can be seen from the test results in Table 5, the results were significant in all variables ($p<0.05$). In other words, it was seen that all variables did not show normal distribution.

For this reason, it was tested with nonparametric tests whether the institutional image of the universities where the student's studying sports differed according to demographic variables. Mann-Whitney U Test was used for pairwise comparisons and Kruskal-Wallis Analysis of Variance was used for multiple comparisons. In cases where a significant difference was found as a result of Kruskal-Whitney Analysis of Variance in multiple comparisons, Mann-Whitney U Test was applied to determine between which groups this difference originated. In all statistical calculations, the basic significance level was accepted as 0.05.

Table 5

Kolmogorov Smirnov Test and Shapiro Wilk Test Results for the Institutional Image Scale of Students in Higher Education Institutions Receiving Sports Education

		Kolmogorov-Smirnov Tests			Shapiro-Wilk Tests		
		Statistic	***df***	***Sig.***	***Statistic***	***df***	***Sig.***
CORPORATE IMAGE SCALE	Employees	0,125	1207	**0,000***	0,941	1207	**0,000***
	Management Quality	0,148	1207	**0,000***	0,922	1207	**0,000***
	Social Responsibility	0,157	1207	**0,000***	0,933	1207	**0,000***
	Working Environment	0,140	1207	**0,000***	0,954	1207	**0,000***
	Product and Service Quality	0,142	1207	**0,000***	0,945	1207	**0,000***
	Communication Activities	0,113	1207	**0,000***	0,979	1207	**0,000***

Note. *p<0.1.

FINDINGS

The findings pertaining to the data collected for this study are presented in this section.

Table 6

Percentage and Frequency Distributions of Students in Higher Education Institutions Receiving Sports Education According to Personal Variables

Variables	Subcategories	*n*	*%*	Total
Gender	Male	657	54,4	**1207 - %100,0**
	Female	550	45,6	
Age	16-19 years old	125	10,4	**1207 - %100,0**
	20-24 years old	811	67,2	
	25-29 years old	180	14,9	
	30 years and older	91	7,5	
Department	Physical Education and Sports Teaching	289	23,9	**1207 - %100,0**
	Sport Management	492	40,8	
	Coaching Education	382	31,6	
	Recreation	44	3,6	
Classroom	1st class	141	11,7	**1207 - %100,0**
	2st class	353	29,2	
	3st class	541	44,8	
	4st class	172	14,3	
Sport Branch	Individual Sports	494	40,9	**1207 - %100,0**
	Team Sports	601	49,8	
	No Branch	112	9,3	

As seen in Table 6; 54,4% (n=657) of the students participating in the study were male, 45,6% (n=550) were female; 23,9% (n=289) were studying in Physical Education and Sports Teaching, 40,8% (n=492) in Sports Management, 31,6% (n=382) in Coaching Education, 3,6% (n=44) in Recreation; 10,4% (n=125) were in the 16-19 age group, 67,2% (n=811) were in the

20-24 age group, 14,9% (n=180) were in the 25-29 age group, 7,5% (n=91) were in the 30 and above age group; 11,7% (n=141) were in the 1st grade, 29,2% (n=141) were in the 1st Grade, 29.2% (n=353) 2nd Grade, 44.8% (n=541) 3rd Grade, and 14.3% (n=172) 4th Grade students; 40.9% (n=494) of the participants played individual sports, 49.8% (n=601) played team sports, and 9.3% (n=112) did not have an active sports branch.

Table 7

Mann Whitney U Test Results Showing the Comparison of institutional image levels of Students in Higher Education Institutions Receiving Sports Education According to Gender Variable

	Gender	***n***	$\overline{X}$	***Rank Mean***	***Row Total***	***U***	***p***
Employees	Male	657	3,68	575,37	378020,00	161867,000	**0,002***
	Female	550	3,77	638,20	351008,00		
Management Quality	Male	657	3,63	564,97	371187,00	155034,000	**0,000***
	Female	550	3,77	650,62	357841,00		
Social Responsibility	Male	657	3,58	565,99	371855,50	155702,500	**0,000***
	Female	550	3,72	649,40	357172,50		
Working Environment	Male	657	3,42	580,02	381073,00	164920,000	**0,009***
	Female	550	3,56	632,65	347955,00		
Product and Service Quality	Male	657	3,41	580,61	381462,50	165309,500	**0,010***
	Female	550	3,49	631,94	347565,50		
Communication Activities	Male	657	3,10	548,03	360052,50	143899,500	**0,000***
	Female	550	3,41	670,86	368975,50		

Note. *p<0,05

Table 7 shows the Mann Whitney U test results showing the comparison of the mean scores of the sub-dimensions of the Corporate Image Scale according to the gender variable. These results show that students' mean scores on the Corporate Image Scale sub-dimensions of employees (U=161867,000; p<0.05), management quality (U=155034,000; P<0.05), social responsibility (U=155702,500; p<0.05), working environment (U=164920,000; p<0,05), product and service quality (U=165309,500; P<0,05) and communication activities (U=143899,500; p<0,05) sub-dimensions differed significantly in favor of female students in gender variable. According to this result; the perceptions of female students studying sports in all dimensions (employees, management quality, social responsibility working environment, product and service quality, communication activities) towards the corporate image of the universities they study are significantly higher than male students.

Table 8

Kruskal Wallis-H Test Results Showing the Comparison of Institutional Image Levels of Students in Higher Education Institutions Receiving Sports Education according to Age Variable

	Age	***n***	$\bar{X}$	***Rank Mean***	***Sd***	X^2	***p***	***Significant Difference***
Employees	16-19 years old[a]	125	3,96	714,88	3	38,882	**0,000***	a>b c>b d>b
	20-24 years old[b]	811	3,67	561,71				
	25-29 years old[c]	180	3,78	695,51				
	30 years and older[d]	91	3,80	647,54				
Management Quality	16-19 years old[a]	125	3,95	719,39	3	36,205	**0,000***	a>b c>b d>b
	20-24 years old[b]	811	3,63	563,12				
	25-29 years old[c]	180	3,74	667,99				
	30 years and older[d]	91	3,81	683,20				
Social Responsibility	16-19 years old[a]	125	3,98	737,66	3	66,269	**0,000***	a>b c>b d>b
	20-24 years old[b]	811	3,54	547,92				
	25-29 years old[c]	180	3,76	710,26				
	30 years and older[d]	91	3,88	710,03				
Working Environment	16-19 years old[a]	125	3,61	658,46	3	57,100	**0,000***	a>b, c>b, d>a, d>b d>c
	20-24 years old[b]	811	3,38	554,20				
	25-29 years old[c]	180	3,68	702,63				
	30 years and older[d]	91	3,84	777,88				
Product and Service Quality	16-19 years old[a]	125	3,72	725,44	3	36,632	**0,000***	a>b a>d c>b c>d
	20-24 years old[b]	811	3,38	565,81				
	25-29 years old[c]	180	3,55	690,16				
	30 years and older[d]	91	3,46	607,09				
Communication Activities	16-19 years old[a]	125	3,16	574,75	3	20,115	**0,000***	c>a c>b d>b
	20-24 years old[b]	811	3,19	580,83				
	25-29 years old[c]	180	3,44	692,72				
	30 years and older[d]	91	3,42	675,22				

Note. *p<0,05

Table 8 shows the results of the Kruskal Wallis-H test showing the comparison of the mean scores of the sub-dimensions of the Corporate Image Scale according to the age variable. These results show that students' mean scores on the Corporate Image Scale sub-dimensions of employees [X^2(3)=38,882; p<0,05], management quality [X^2(3)=36,205; p<0,05], social responsibility [X^2(3)=66,269; p<0,05], working environment [X^2(3)=57,100; p<0.05], product and service quality [X^2(3)=36.632; p<0.05] and communication activities [X^2(3)=20.115; p<0.05] sub-dimensions significantly differed according to age variable.

Table 9

Kruskal Wallis-H Test Results Showing the Comparison of Institutional Image Levels of Students in Higher Education Institutions Receiving Sports Education according to the Department They Study

	Department	***n***	$\bar{X}$	***Rank Mean***	***Sd***	X^2	***p***	***Significant Difference***
Employees	Physical Education and Sports Teaching[a]	289	3,65	587,50	3	24,494	**0,000***	b>a b>c d>c
	Sport Management[b]	492	3,82	656,13				
	Coaching Education[c]	382	3,64	543,35				
	Recreation[d]	44	3,83	655,99				
Management Quality	Physical Education and Sports Teaching[a]	289	3,66	591,38	3	36,352	**0,000***	b>a, b>c d>a, d>b d>c a>c
	Sport Management[b]	492	3,79	649,42				
	Coaching Education[c]	382	3,57	534,30				
	Recreation[d]	44	3,93	784,18				
Social Responsibility	Physical Education and Sports Teaching[a]	289	3,61	594,62	3	42,282	**0,000***	b>a b>c a>c
	Sport Management[b]	492	3,77	674,53				
	Coaching Education[c]	382	3,50	523,06				
	Recreation[d]	44	3,62	579,59				
Working Environment	Physical Education and Sports Teaching[a]	289	3,51	625,54	3	72,236	**0,000***	b>a b>c a>c d>c
	Sport Management[b]	492	3,67	679,63				
	Coaching Education[c]	382	3,21	483,06				
	Recreation[d]	44	3,65	666,82				
Product and Service Quality	Physical Education and Sports Teaching[a]	289	3,33	555,96	3	31,875	**0,000***	b>a b>c
	Sport Management[b]	492	3,60	671,60				
	Coaching Education[c]	382	3,35	558,80				
	Recreation[d]	44	3,35	556,15				
Communication Activities	Physical Education and Sports Teaching[a]	289	3,17	573,20	3	19,918	**0,000***	b>a b>c d>a d>c
	Sport Management[b]	492	3,31	637,37				
	Coaching Education[c]	382	3,16	566,60				
	Recreation[d]	44	3,64	757,82				

Note. *p<0,05

Table 9 shows the results of the Kruskal Wallis-H test showing the comparison of the mean scores of the sub-dimensions of the Organizational Image Scale according to the department of study variable. These results show that students' mean scores on the Corporate Image Scale sub-dimensions of employees [X^2(3)=24,494;p<0,05], management quality [X^2(3)=36,352; p<0,05], social responsibility [X^2(3)=42,282; P<0,05], working environment [X^2(3)=72,236; p<0.05], product and service quality [X^2(3)=31.875; p<0.05] and communication activities [X^2(3)=19.918; p<0.05] sub-dimensions significantly differed according to the department they studied.

Table 10

Kruskal Wallis-H Test Results Showing the Comparison of Institutional Image Levels of Students in Higher Education Institutions Receiving Sports Education According to the Class Variable

	Classroom	***n***	$\overline{X}$	***Row Mean***	***Sd***	X^2	***p***	***Significant Difference***
Employees	1st class[a]	141	3,78	635,43	3	20,241	**0,000***	a>d b>d c>d
	2st class[b]	353	3,80	634,95				
	3st class[c]	541	3,73	609,34				
	4st class[d]	172	3,49	497,90				
Management Quality	1st class[a]	141	3,82	671,55	3	26,882	**0,000***	a>c, a>d b>c, b>d c>d
	2st class[b]	353	3,78	646,89				
	3st class[c]	541	3,69	591,22				
	4st class[d]	172	3,41	500,79				
Social Responsibility	1st class[a]	141	3,74	652,24	3	29,707	**0,000***	a>d b>c b>d c>d
	2st class[b]	353	3,77	657,55				
	3st class[c]	541	3,61	591,53				
	4st class[d]	172	3,41	493,78				
Working Environment	1st class[a]	141	3,45	595,19	3	6,471	0,091	---
	2st class[b]	353	3,56	630,52				
	3st class[c]	541	3,50	606,44				
	4st class[d]	172	3,30	549,13				
Product and Service Quality	1st class[a]	141	3,62	687,71	3	58,479	**0,000***	a>c, a>d b>c, b>d c>d
	2st class[b]	353	3,61	684,57				
	3st class[c]	541	3,41	572,67				
	4st class[d]	172	3,06	468,56				
Communication Activities	1st class[a]	141	3,29	632,44	3	17,567	**0,001***	a>b c>b c>d
	2st class[b]	353	3,09	550,13				
	3st class[c]	541	3,35	642,20				
	4st class[d]	172	3,17	571,10				

Note. *p<0,05

Table 10 shows the results of the Kruskal Wallis-H test showing the comparison of the students' mean scores of the sub-dimensions of the Organizational Image Scale according to the class variable. These results show that the students' mean scores of the Corporate Image Scale working environment [X^2(3)=6,471; p>0,05] sub-dimension do not differ significantly according to the class variable; employees [X^2(3)=20,241; p<0,05], management quality [X^2(3)=26,882; p<0.05], social responsibility [X^2(3)=29.707; p<0.05], product and service quality [X^2(3)=58.479; p<0.05] and communication activities [X^2(3)=17.567; p<0.05] sub-dimensions differed significantly according to the class variable.

Table 11

Kruskal Wallis-H Test Results Showing the Comparison of Institutional Image Levels of Students in Higher Education Institutions Receiving Sports Education according to the Sport Branch Variable

	Sport Branch	***n***	$\bar{X}$	***Row Mean***	***Sd***	X^2	***p***	***Significant Difference***
Employees	Individual Sports[a]	494	3,70	591,24	2	3,382	0,184	---
	Team Sports[b]	601	3,72	604,45				
	No Branch[c]	112	3,84	657,90				
Management Quality	Individual Sports[a]	494	3,69	600,75	2	0,367	0,832	---
	Team Sports[b]	601	3,70	609,28				
	No Branch[c]	112	3,69	590,00				
Social Responsibility	Individual Sports[a]	494	3,61	590,47	2	3,954	0,138	---
	Team Sports[b]	601	3,64	604,31				
	No Branch[c]	112	3,77	662,04				
Working Environment	Individual Sports[a]	494	3,47	599,41	2	0,785	0,675	---
	Team Sports[b]	601	3,49	611,67				
	No Branch[c]	112	3,49	583,10				
Product and Service Quality	Individual Sports[a]	494	3,36	575,09	2	11,706	**0,003***	c>a c>b
	Team Sports[b]	601	3,48	610,54				
	No Branch[c]	112	3,64	696,38				
Communication Activities	Individual Sports[a]	494	3,24	596,15	2	36,757	**0,000***	b>a b>c a>c
	Team Sports[b]	601	3,33	643,24				
	No Branch[c]	112	2,82	428,04				

Note. *p<0,05

Table 11 shows the results of the Kruskal Wallis-H test showing the comparison of the students' mean scores of the sub-dimensions of the Organizational Image Scale according to the sport branch variable. These results show that the students' mean scores of the Corporate Image Scale sub-dimensions of employees [$X^2(2)=3,382$; $p>0,05$], management quality [$X^2(2)=0,367$; $p>0,05$], social responsibility [$X^2(2)=3,954$; $p>0,05$], working environment [$X^2(2)=0,785$; $p>0,05$] do not differ significantly according to the sport branch variable; The mean scores of product and service quality [$X^2(2)=11,706$; $p<0,05$] and communication activities [$X^2(2)=36,757$; $p<0,05$] sub-dimensions differed significantly according to the sport branch variable.

DISCUSSION & CONCLUSION

The mean scores obtained from the sub-dimensions of the Corporate Image Scale by students studying sports reveal interesting insights. In the "Employees" dimension, students scored 3.72±0.65, indicating a positive perception of the employees within the corporate image. Similarly, in the "Management Quality" dimension, students scored 3.69±0.67, reflecting a favorable view of the management quality. The "Social Responsibility" dimension received a score of 3.64±0.72, suggesting that students value social responsibility in a corporate image. In contrast, the "Work Environment" dimension scored 3.48±0.84, and the "Product and Service Quality" dimension scored 3.44±0.72, indicating slightly lower perceptions in these areas. The lowest score was in the "Communication Activities" dimension, with a score of 3.24±0.82, highlighting a potential area for improvement in communication efforts within the corporate image (Ko et al., 2008). Research by found that students engaged in sports activities tend to have higher mean scores across various dimensions compared to those who do not participate in sports. This suggests a positive correlation between sports involvement and certain aspects of student perceptions, which could align with the higher scores observed in the Corporate

Image Scale sub-dimensions for students studying sports (Tozoğlu et al., 2022). Furthermore, the study by emphasized the impact of regular sports participation on various aspects of individuals, including tolerance development and passion. This could potentially influence the differences observed in the mean scores of students engaged in sports activities compared to those who are not, particularly in dimensions related to corporate image (Güvendi & Abanoz, 2019). These findings collectively suggest that students involved in sports activities may exhibit more positive perceptions in dimensions such as employees, management quality, and social responsibility within the corporate image scale.

In the analysis conducted to interpret the mean scores obtained from the sub-dimensions of the Corporate Image Scale, it was determined that the level of participation of the students studying sports in the statements that constitute the corporate image dimensions of "Employees", "Management Quality", "Social Responsibility", "Working Environment" and "Product and Service Quality" of the universities they study covers the "agree" option, while the level of participation in the statements that constitute the corporate image dimension of "Communication Activities" covers the "undecided" option. This result can be interpreted as high/positive perceptions of sports education students towards the institutional image of their universities.

A comparison of the results with similar studies in the literature shows that the results reflected in this study may have both similar and different results in the light of the same methodology. In 2012, in a similar study conducted on Yaşar University, the overall average of the internal stakeholder group's responses to the corporate image scale was 3.60 and the overall average of the external stakeholders' responses to the corporate image scale was 3.86, while the average of the internal stakeholders' responses to the corporate personality scale was 3.54 and the average of the external stakeholders' responses to the corporate personality scale was 3.92. The results above the threshold value of 3.14 indicate that internal and external stakeholders view Yaşar University's corporate image positively. However, another study published by Deniz Sezgin was conducted with the participation of 1671 people and the employees' perspective on the institution's corporate image was interpreted as negative. In the studies of Kazoleas et al. (2001), İbicioğlu (2005), Cerit (2006), Polat (2011), Cankurtaran and Özbek (2012), students made evaluations about the image of their institutions and as a result, an average image perception was encountered. However, it was observed that the results obtained did not overlap with the results of other studies.

It was determined that the perceptions of the students of higher education institutions receiving sports education on all dimensions (employees, management quality, social responsibility, working environment, product and service quality, communication activities) of the corporate image of their universities differed significantly in favor of female students in gender variable (Table 7). According to this result; the perceptions of female students studying sports in all dimensions (employees, management quality, social responsibility, working environment, product and service quality, communication activities) towards the corporate image of the universities they study are significantly higher than male students.

In similar studies conducted on the subject in the related literature, Koçak (2014) stated that male students in SBF were at a higher level than females in the institutional image dimension of their schools. Although Şişli and Köse (2013) reached the same conclusion in the study organized by Şişli and Köse (2013) to determine the corporate culture and corporate image of state universities and foundation universities, Cerit (2006) and Cankurtaran and Özbek (2012) concluded that corporate image did not change according to gender in their studies. At the same time, in the studies conducted by Polat (2011) and İbicioğlu (2005) at Kocaeli and Süleyman Demirel Universities, it was seen that female students found the university's corporate image higher than male students and the results of the research overlapped.

It was determined that the perceptions of students in higher education institutions receiving sports education towards all corporate image dimensions (employees, management quality, social responsibility, working environment, product and service quality, communication activities) of their universities differed significantly according to the age variable (Table 8). In the analysis made over the binary combination of age variables in all dimensions of corporate image;

It was determined that the perceptions of students aged 16-19, 25-29 and 30 years and above on the dimensions of employees, management quality, social responsibility and corporate image of their universities were significantly higher than those of students aged 20-24. Again, it was determined that the perceptions of the students between the ages of 16-19 and 25-29 towards the institutional image dimension of the working environment of the universities they studied were significantly higher than the students between the ages of 20-24; and the perceptions of the students aged 30 and over towards the institutional image dimension of the working environment of the universities they studied were significantly higher than the students between the ages of 16-19, 20-24 and 25-29. It was also found that the perceptions of the students aged 16-19 and 25-29 on the institutional image dimension of the product and service quality of the universities they studied were significantly higher than those of the students aged 20-24 and 30+.

This suggests that age plays a crucial role in shaping how students perceive the corporate image of their universities (Ali et al., 2016). The study by Ali et al. (2016) emphasizes the importance of student satisfaction in influencing institutional image. Satisfied students are more likely to have positive perceptions of the institutional image, highlighting the significance of addressing factors such as service quality to enhance student satisfaction and, consequently, institutional image (Ali et al., 2016). Furthermore, the research by Clemes et al. (2008) indicates that students' perceptions of constructs such as service quality and satisfaction are influenced by demographic factors like ethnicity and year of study. This underscores the need to consider various demographic variables, including age, when analyzing student perceptions within higher education institutions, particularly in the context of sports education programs (Clemes et al., 2008). The findings from these studies collectively suggest that age is a significant factor that influences how students in higher education institutions receiving sports education perceive different dimensions of corporate image. Also, in the study on the Perception of Yaşar University's Corporate Image by Different Stakeholder Groups conducted by Uluçay (2012), when internal stakeholders were evaluated according to the age variable, positive evaluations were made for all sub-dimensions except product and service quality and communication activities, while the 20-29 age group made negative evaluations in the field of Product and Service Quality. At the same time, the age group below 19 and the age group between 20-29 made negative evaluations regarding the Communication Activities sub-dimension. It is concluded that there is a significant difference in all sub-dimensions except management quality and product service quality according to age variable. While the over 50 age group has the most positive evaluations, the 20-29 age group has the lowest average score evaluations.

It was found that the perceptions of students in higher education institutions receiving sports education towards all corporate image dimensions (employees, management quality, social responsibility, working environment, product and service quality, communication activities) of their universities differed significantly according to the department of study variable (Table 9). In the analysis made over the binary combination of the department of study variable in all dimensions of corporate image; It was determined that the perceptions of the students studying in the department of sport management were significantly higher than the students studying in the departments of physical education and sport teaching and coaching education, and the perceptions of the students studying in the department of recreation were significantly higher than the students studying in the department of coaching education towards

the corporate image dimension of the employees of the universities they studied. It was determined that the perceptions of the students studying in the department of sport management were significantly higher than the students studying in the departments of physical education and sport teaching and coaching education; the perceptions of the students studying in the department of recreation were significantly higher than the students studying in the departments of physical education and sport teaching, sport management and coaching education; and the perceptions of the students studying in the department of physical education and sport teaching were significantly higher than the students studying in the department of coaching education towards the institutional image dimension of the management quality of the universities they studied.

It was determined that the perceptions of the students studying in the department of sport management were significantly higher than the students studying in the departments of physical education and sport teaching and coaching education, and the perceptions of the students studying in the department of physical education and sport teaching were significantly higher than the students studying in the department of coaching education towards the social responsibility corporate image dimension of their universities. It was determined that the perceptions of the students studying in the department of sport management were significantly higher than the students studying in the departments of physical education and sport teaching and coaching education; the perceptions of the students studying in the department of physical education and sport teaching were significantly higher than the students studying in the department of coaching education; and the perceptions of the students studying in the department of recreation were significantly higher than the students studying in the department of coaching education towards the institutional image dimension of the working environment of their universities. It has been determined that the perceptions of the students studying in the department of sports management towards the product and service quality institutional image dimension of the universities they study are significantly higher than the students studying in the departments of physical education and sports teaching and coaching education. It was determined that the perceptions of the students studying in the departments of sports management and recreation were significantly higher than the students studying in the departments of physical education and sports teaching and coaching education towards the institutional image dimension of the communication activities of their universities. In the study of Organizational Image Perceptions of University Students conducted by Karacabey et al (2016) at Ömer Halisdemir University, it was concluded that agricultural sciences students perceive the university image more positively due to the fact that they have higher perception averages than students studying in engineering sciences. Uluçay (2012), in the study of Yaşar University's Organizational Image by the University by different stakeholders, there is a significant difference in the perception changes according to departments, while the Faculty of Law and the School of Foreign Languages in the dimension of management quality and working environment, in the sub-dimension of product and service quality by the participants of the Faculty of Law, the School of Communication and the School of Foreign Languages in the sub-dimension of product and service quality, in the dimension of communication activities by the students of the Faculty of Law, the School of Communication, the Vocational School and the Faculty of Architecture. Also, the study by Alves & Raposo (2010) delves into the influence of university image on student behavior, emphasizing the specific impacts of image on student satisfaction and loyalty. This underscores the importance of understanding how different factors, such as the department of study, can influence student perceptions of corporate image within higher education institutions. Moreover, the research by Alhaza et al. (2021) focuses on factors affecting university image among undergraduate students, highlighting the significance of considering various elements that contribute to the overall perception of universities. The department of study variable could be one of the key factors influencing how students perceive different dimensions of corporate image within their respective institutions.

These findings collectively suggest that the department of study variable plays a significant role in shaping students' perceptions of corporate image dimensions within higher education institutions offering sports education programs.

It was determined that the perceptions of the students in higher education institutions receiving sports education towards the corporate image dimension of the working environment of their universities did not differ significantly according to the class variable, while their perceptions towards the corporate image dimensions of employees, management quality, social responsibility, product and service quality, and communication activities differed significantly according to the class variable (Table 10). In the analysis made over the binary combination of the class variable in the dimensions of employees, management quality, social responsibility, product and service quality, and communication activities of corporate image; It has been determined that the perceptions of the students studying in the 2nd, 2nd and 3rd grades towards the corporate image dimension of the employees of the universities they study are significantly higher than the students studying in the 4th grade. 1st and 2nd grade students have significantly higher perceptions of the management quality corporate image dimension of their universities than 3rd and 4th grade students, and 3rd grade students have significantly higher perceptions of the management quality corporate image dimension of their universities than 4th grade students. 1st, 2nd and 3rd grade students' perceptions towards the social responsibility corporate image dimension of their universities are significantly higher than 4th grade students; 2nd grade students' perceptions towards the social responsibility corporate image dimension of their universities are significantly higher than 3rd grade students. It has been determined that 1st and 2nd grade students' perceptions towards the product and service quality corporate image dimension of their universities are significantly higher than 3rd and 4th grade students; and 3rd grade students' perceptions towards the product and service quality corporate image dimension of their universities are significantly higher than 4th grade students. It has been determined that 1st and 3rd grade students' perceptions towards the corporate image dimension of communication activities of their universities are significantly higher than 2nd grade students; and 3rd grade students' perceptions towards the corporate image dimension of communication activities of their universities are significantly higher than 4th grade students.

Throughout the study, it was found that there were significant differences in students' views on all corporate image dimensions according to class differences. In general, it was found that the 1st and 2nd grade students had more positive thoughts than the 3rd and 4th grade students, and even as the grade increased, the students' corporate image views turned negative. The reason for this can be explained by the fact that 2nd and 3rd grade students have started to get to know the institution better than 1st grade students, and 4th grade students can make more diverse evaluations as they have started to be interested in different institutions and to be in relationships with different institutions with their efforts to step into the profession. In Cerit's (2006) study, it was stated that the academic environment, social and physical environment dimensions changed according to class values, but no significant variability was found in the environmental perception dimension. The study by (Minkiewicz et al., 2011) highlights a significant direct relationship between corporate image and employees in the leisure services sector. This finding aligns with the contention that employee interaction is crucial in service management and plays a key role in supporting and reinforcing corporate image (Minkiewicz et al., 2011).

It was determined that the perceptions of the students in higher education institutions receiving sports education towards the corporate image dimensions of the universities they studied in terms of employees, management quality, social responsibility and working environment did not differ significantly according to the sport branch variable, while their perceptions towards the corporate image dimensions of products and services and communication activities differed significantly according to the sport branch variable (Table

11). In the analysis made over the binary combination of the sport branch variable in the product and service and communication activities dimensions of corporate image; It was determined that the perceptions of the students who stated that they did not have an active sports branch were significantly higher than the students who practiced both individual and team sports.

Again, it has been determined that the perceptions of the students who do team sports towards the corporate image dimension of the communication activities of the universities they study are significantly higher than the students who do individual sports and state that they do not have an active sports branch, and the perceptions of the students who do individual sports towards the corporate image dimension of the communication activities of the universities they study are significantly higher than the students who do individual sports and state that they do not have an active sports branch. The perceptions of students in higher education institutions receiving sports education towards various corporate image dimensions of the universities they study in have been investigated in relation to the sport branch variable. It was found that perceptions related to employees, management quality, social responsibility, and working environment did not exhibit significant differences based on the sport branch variable. However, perceptions regarding the corporate image dimensions of products and services, as well as communication activities, showed significant variations according to the sport branch variable Ko et al. (2008). The study by Ko et al. (2008) delves into the effects of sport involvement, sponsor awareness, and corporate image on the intention to purchase sponsors' products. This research sheds light on the theoretical relationships between sponsor awareness, corporate image, and future purchase intention, providing insights into the dynamics of sponsorship effectiveness. In a related context, the research by Filo et al. (2010) explores the antecedents and outcomes of attachment and sponsor image within charity sport events. The study emphasizes the relevance of projecting a favorable image in the sport event sponsorship context, highlighting the challenges faced by corporations in identifying effective sport sponsorship opportunities. In the study on corporate reputation and corporate image perceptions conducted by Önler (2015), it was determined that the subject of branch did not add significant differences to the sub-dimensions of corporate image. By synthesizing these studies, it can be inferred that while certain dimensions of corporate image in higher education institutions receiving sports education may not vary significantly based on the sport branch variable, other dimensions such as products and services, and communication activities, do exhibit notable differences.

Conclusion

As a result, it is concluded that the perceptions of sports education students towards the corporate image of their universities are high/positive; the perceptions of female sports education students towards the corporate image of their universities in all dimensions (employees, management quality, social responsibility, working environment, product and service quality, communication activities) are significantly higher than male students; their perceptions towards all corporate image dimensions (employees, management quality, social responsibility, working environment, product and service quality, communication activities) of their universities differ significantly according to age and department of study; perceptions of the universities they have studied towards the corporate image dimension of working environment do not differ significantly according to the class variable; perceptions of the universities they have studied towards employees, management quality, social responsibility, product and service quality, communication activities corporate image dimensions differ significantly according to the class variable; perceptions of the universities they have studied towards employees, management quality, social responsibility, working environment corporate image dimensions do not differ significantly according to the sport branch variable; perceptions of the universities they have studied towards product and service and communication activities corporate image dimensions differ significantly according to the sport branch variable.

In summary, while there are areas of strength in universities' corporate images as perceived by sports education students, notably in employee behavior, management quality, and social responsibility, there are clear opportunities for enhancement, especially in communication efforts. The significant demographic and educational variations in perception underscore the importance of tailored communication and improvement strategies to address the diverse needs and expectations of the student body.

Limitations

The study's limitations stem primarily from its sampling framework, which was confined to specific higher education institutions in Turkey, including 8 Sports Sciences Faculties, 5 Physical Education and Sports Schools, 2 Physical Education and Sports Teaching Departments within Education Faculties, 1 School of Sports Sciences and Technology, and 1 Faculty of Health Sciences Sports Sciences Department, as delineated by the 2018 Higher Education Institutions Examination (YKS) Higher Education Programs and Quotas Guide. This selective focus may limit the generalizability of the findings across the broader spectrum of higher education institutions offering sports education. Furthermore, the reliance on data from a single country and a specific set of educational programs could constrain the applicability of the results to other contexts or regions with different educational systems and cultural perspectives on sports education and university corporate image.

Recommendations

Based on the study's findings, it is recommended that universities focus on enhancing their communication strategies, particularly in areas where student perceptions were less favorable, such as product and service quality and communication activities. Efforts should be tailored to address gender, age, department of study, class, and sport branch-specific differences in perceptions. Strengthening the work environment and enriching the quality of products and services could further improve the overall corporate image. Universities might also benefit from engaging in more targeted social responsibility initiatives, as this dimension was viewed positively by students, indicating a valuable area for reinforcing university reputation.

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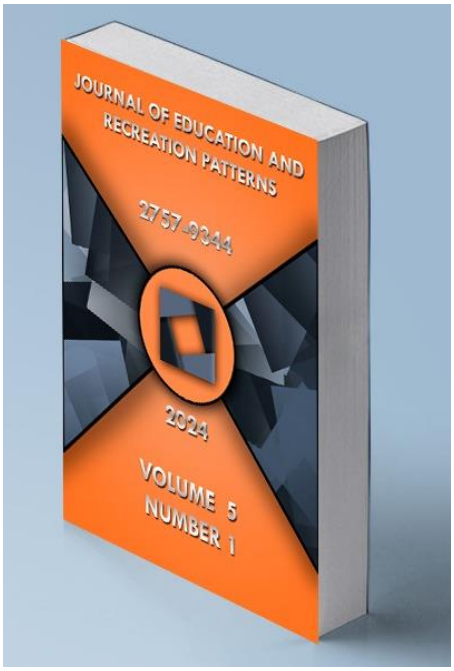

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Determination of Anaerobic Power, Agility and Some Physical Characteristics of Turkish Elite Greco-Roman Style Young Wrestlers

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ABSTRACT
Anaerobic power, agility and owned physical characteristics are the most important characteristics that determine sportive success and performance in wrestling. In this study, these characteristics of Turkish Elite Greco-Roman Style Young Wrestlers were determined. Because better preparation of the training programs to increase the performance of the athlete depends on determining the athlete profile in the best way in advance and creating it based on a scientific method. Determining the anaerobic power and agility characteristics of wrestlers will be one of the most important data in predicting their sports performance. 37 elite Greco-Roman style young wrestlers who have achieved success at national and international level participated in the research. The findings obtained because of this study will also contribute to the revision of the wrestlers' training programs. Average age of the athletes is 18.6±1 Years, their body weight is 76±16.1 Kg., their height is 175±1 cm., their body fat percentage is 10.8±4.6, and their body mass index is 24.8±3.8 kg/m2. In the made Wingate Test, the highest anaerobic power for the arm was 9.95±2.51 w/kg, and the average was 4.68±0.7 w/kg. The same measurements were determined as 14.68±2.52 w/kg at the highest and 7.17±0.8 w/kg on average for the leg. Illinois agility test result was found 15.9±0.8 sec. With these results, it has been observed that the measured performance values of Turkish elite Greco-Roman style young wrestlers are above the average and are consistent with the studies found in the literature.

Keywords: Agility, Anaerobic Power, Greco-Roman Style Wrestling

INTRODUCTION

One of the most compelling sports in the world is wrestling. Wrestling attracts the attention of almost all countries in the world, both with its historical origins and its place among Olympic sports branches. In addition to being based on struggle and contact, it also requires many physical and physiological characteristics (Gökdemir et al., 1999). The most important components of physical fitness in wrestling are strength, speed, agility, flexibility, balance, muscular and cardiovascular endurance. Agility, another critical component in wrestling, enables athletes to change direction quickly and effectively, which is vital for both offensive and defensive maneuvers. Agility is closely linked to the ability to change position rapidly, highlighting its importance in the dynamic nature of wrestling matches (Terbizan, 1996). It also exhibits both aerobic and anaerobic properties in terms of the energy systems used during physical activity. It can be said that anaerobic energy requirement is dominant. Given the importance of various physical and physiological characteristics in wrestling, it's clear that a well-rounded training program is crucial for athlete development and success. These programs must be tailored to the specific needs and characteristics of wrestlers, including their strength, speed, agility, flexibility, balance, muscular and cardiovascular endurance (Kutlu & Cicioğlu, 1995). In addition, agility features are at the forefront in both offensive and defensive activities. In sports-related research, the relationships between body structure and functions of body parts have been the subject of various studies. Physiological and psychological characteristics, physical performance capacity and anthropometric characteristics are important factors in achieving success in sports branches (James, 2009). In order to increase athlete performance, well-prepared training programs are needed. For well-prepared training programs, the athlete profile must be determined in advance or at any stage of the program and created based on a scientific method. Because evaluating individuals or groups within physical fitness parameters requires basic physical fitness information about the group or person examined (Carlson & Naughton, 1994). The assessment of anaerobic power, agility, and various physical characteristics in elite Greco-Roman style young wrestlers is a critical area of study to comprehend the physiological demands and performance factors in this sport. Research has indicated that successful wrestlers demonstrate high anaerobic power and capacity, muscular strength, aerobic power, flexibility, fat-free mass, and a mesomorphic somatotype (Ramírez-Vélez et al., 2014). Studies have specifically emphasized the importance of absolute and relative anaerobic power, as well as anaerobic capacity, in predicting wrestling performance (García-Pallarés et al., 2011). Additionally, isometric strength has been recognized as a significant physical characteristic for athletes, including wrestlers (Herold et al., 2018). In the realm of wrestling, mental attributes such as sports courage and attitudes towards the sport have been associated with athletic mental energy, suggesting a positive correlation between attitudes towards wrestling and mental energy (İslam, 2022). Furthermore, comparisons of physical fitness traits among different national wrestling teams have provided insights into the distinct characteristics of elite wrestlers from various regions (Rahmani & Mirzaei, 2019). Understanding the specific physical strength requirements, such as upper-limb pull power and power endurance, in female wrestlers at different competitive levels can offer valuable insights into the sport (Naka et al., 2022). Wrestling, renowned for its high-intensity interval efforts, depends on factors such as cardiorespiratory fitness, anaerobic performance, strength, and muscle power to impact competitive performance (Francino et al., 2022). Moreover, research has demonstrated that strength-power tests, when conducted after exhaustive exercise, can effectively differentiate between top-elite and elite wrestlers (Özbay & Ulupınar, 2021). The impact of morphological characteristics on wrestlers' readiness and physical fitness underscores the significance of adopting a holistic approach to training and performance in wrestling (Marković et al., 2022). Additionally, the assessment of the relationships between physical and motor features of young wrestlers from Turkey has provided valuable insights into the

interplay between physical characteristics and athletic performance (Acar & Özer, 2020). And in the study conducted by Şahin and Uzun (2023), it was determined that an 8-week preparatory program applied to elite wrestlers positively affected values such as body fat percentage, lean body mass, and MaxVo2. The literature on agility and physical characteristics in wrestlers underscores the multifaceted nature of factors influencing performance in the sport. Also, studies have highlighted the importance of anaerobic power in distinguishing between successful and less successful wrestlers, emphasizing its significance in executing high-intensity techniques effectively Jakovljević et al. (2018). Research has shown that anaerobic power is essential in wrestling due to the need for short-duration, high-intensity performances during matches. The Wingate Anaerobic Test has been utilized to assess the maximum power output of wrestlers, reflecting their ability to generate explosive strength and power during bouts (Deliceoğlu et al., 2022). Additionally, studies have indicated that anaerobic power and capacity are critical indicators of achieving high-level success in wrestling, underscoring the importance of these physiological factors in the sport (He et al., 2013). The physiological profile of elite wrestlers has been a subject of investigation, with studies revealing significant differences in absolute anaerobic leg power and relative anaerobic power of the arms and legs between elite wrestlers and their less successful counterparts (Mirzaei et al., 2016). Furthermore, the trainability of body composition, aerobic power, and muscular endurance in cadet wrestlers has been explored, demonstrating the positive effects of training programs on strength, aerobic capacity, flexibility, and anaerobic power in young athletes (Özer, 2019). The impact of acute muscular fatigue on static and dynamic balance performances in elite wrestlers has been studied, highlighting the importance of maintaining anaerobic capabilities and power even under conditions of fatigue (Farzad et al., 2011). Moreover, the addition of a sprint interval training program to wrestling training has been shown to improve both aerobic and anaerobic performances in trained wrestlers, emphasizing the benefits of incorporating varied training modalities to enhance physiological capacities. In conclusion, anaerobic power stands out as a critical factor in the performance of wrestlers, influencing their ability to execute explosive techniques and maintain high-intensity efforts during matches. Therefore, anaerobic power stands out as a critical factor in the performance of wrestlers, influencing their ability to execute explosive techniques and maintain high-intensity efforts during matches.

Despite extensive research on the physical and physiological demands of wrestling, there remains a lack of comprehensive studies specifically targeting the elite young Greco-Roman wrestlers in Turkey. Most studies have either focused on general wrestling populations without distinguishing between styles and age groups or have not holistically assessed the interplay between anaerobic power, agility, and other physical characteristics in relation to performance outcomes. This study aims to fill this gap by focusing on a specific, yet crucial segment of the wrestling population, providing insights into their unique physical fitness profiles and performance determinants.

Given the high intensity and specific demands of wrestling, especially the Greco-Roman style, identifying these key performance indicators is crucial for optimizing athlete development, performance, and injury prevention strategies. This research is particularly important as it provides a focused analysis on young athletes, contributing to the body of knowledge that can inform early-stage training adaptations and specialization in wrestling.

The primary aim of this study is to determine the anaerobic power, agility, and some physical characteristics of Turkish elite Greco-Roman style young wrestlers, thereby providing a detailed physiological profile of these athletes. By identifying the key physical attributes that correlate with successful performance in this specific wrestling style, the study seeks to contribute to the optimization of training and preparation methods for these athletes.

METHOD

Research Design

In this study, cross-sectional research design was used in the quantitative research model, which is one of the scientific research techniques. Quantitative studies are studies aimed at determining the countable, measurable and increasing or decreasing status of something. Cross-sectional studies are the examination of data collected from a specific experimental group at a specific time (Karasar, 2023).

This study was conducted with the approval of Kırıkkale University Non-invasive Research Ethics Committee dated 31.01.202 and numbered 2024.01.28.

Research Group

The research group of this study consisted of 37 elite young wrestlers of the Groco-Roman style. These wrestlers are those who have achieved success at national or international levels and who have been invited to the Turkish Greco-Roman Style Youth National Team Candidate Squad in 2024 and who want to voluntarily participate in the tests. The athletes were informed about the tests, measurements and test protocols to be applied, and the athletes were given the opportunity to warm up and try the test batteries before the tests.

This study is limited to Young Elite Greco-Roman Style Wrestlers invited to the U-20 Turkish National Team in 2024.

Data Collection Tools & Process

Applied Tests:

1- Wingate Test

Wingate anaerobic test (WanT) is one of the tests to determine anaerobic property, which can provide information about both the lactacid (average power) and alactacid (peak power) components of anaerobic performance (Inbar & Baror, 1986). It can be applied to the upper extremities as well as the lower extremities in people with physical fitness level (Duche & et al., 2002).

Regarding the test-retest reliability of WanT, the reliability coefficient of WanT in children and young adults was found to be between 0.95 and 0.97 (Bar-or, 1987). In the tests performed with the leg, a weight corresponding to 7.5% of each subject's body weight was used, and in the tests performed with the arm, a resistance weight corresponding to 5.5% of the subject's body weight was used during the test (Wozniak et al., 2004; Inbar et al., 1996).

A warm-up opportunity was provided before the test and the athletes were given the opportunity to try the test battery to get to know them. Necessary suggestions were also made to the athletes not to decrease their performance during the test.

The most important reason why Wingate anaerobic power test was preferred as the anaerobic power test in this study: Since the arms and legs are used more in wrestling sports.

2- Illinois Agility Test

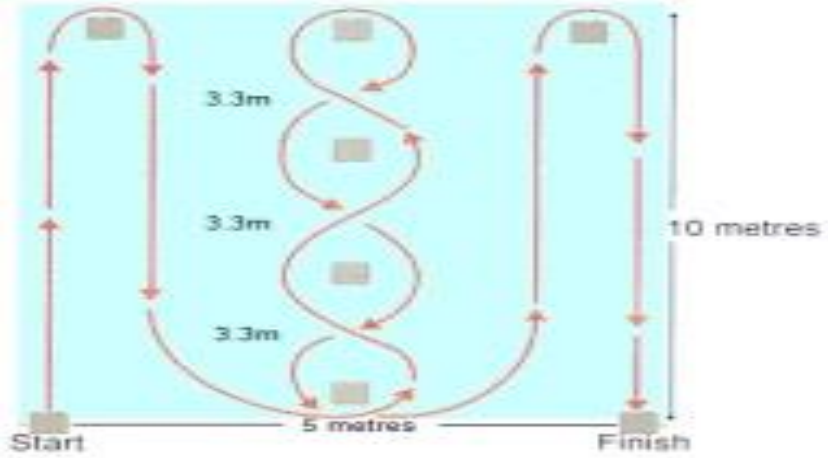
A test track consisting of three cones arranged in a straight line with 3.3 m intervals is established in the middle section of a track with a width of 5 m and a length of 10 m. The test consists of a 40-m flat run and a 20-m slalom run between cones, with 180 º turns every 10 m. After the test track is prepared, a two-door photocell electronic chronometer system that measures the start and end with an accuracy of 0.01 seconds is placed. The time to complete

the course is recorded in seconds. The test is repeated twice with full rest, and the best value is recorded (Miller et al., 2006).

A warm-up opportunity was provided before the test and the athletes were given the opportunity to try the test battery to get to know them. Necessary suggestions were also made to the athletes not to decrease their performance during the test.

The reason why the Illinois agility test was preferred as the Squat test in this study is that the test protocol is easy and understandable and the international norm values for this age group are available in the literature. In this way, it will be possible to compare Turkish Elite Greco-Roman wrestlers with international norm values.

Illinois Agility Testing Protocol: (Source: http://www.brianmac.co.uk/illinois.htm)



Illinois Agility Test 16-19 Age Norm Values: (Source:http://www.brianmac.co.uk/illinois.htm)

Gender	Excellent	Above Average	Average	Below Average	Poor
Male	<15.2 secs	15.2 - 16.1 secs	16.2 - 18.1 secs	18.2 - 19.3 secs	>19.3 secs
Female	<17.0 secs	17.0 - 17.9 secs	18.0 - 21.7 secs	21.8 - 23.0 secs	>23.0 secs

Some Physical Characteristics

Scales, ultrasonic height meter and Tanita Body Composition Analyzer TBF – 418 Japan" bioelectric impedance analyzer were used for body weight, height and body fat percentage measurements. Body Mass Index is calculated by dividing body weight by height squared (Finucane et al., 2011).

Data Analysis

All data were first organized in the Excel (Microsoft Excel 2007 Version) program, and the Weighted Average, Standard Deviation, Maximum and Minimum values in the descriptive tables were obtained from the SPSS (IBM SPSS Version 26) program.

FINDINGS

In the Findings section of the article, detailed quantitative data and analysis from three distinct measurement approaches are presented, focusing on evaluating the physical, anaerobic power, and agility characteristics of Turkish elite Greco-Roman style young wrestlers.

Table 1

The Names of the Universities and Units in the Central Anatolia Region, which constitute the population of the study, Providing Sports Education/Receiving Students

Physical Specifications	WA.	SD.	Min.	Max.
Body Weight (Kg)	76	±16,1	55	110
Height (cm.)	175	±1	150	190
Body Fat Percentage (%)	10,8	±4,6	5,6	21,3
Body Mass Index (Kg/m2)	24,8	±3,8	24,4	30,4
Age (Year)	18,6	±1	17	20

In the physical test measurements, the wrestlers' average body weight was determined as 76 kg, their average height was 175 cm and their average age was 18.6 years. In addition, their body fat percentage was determined as 10.8% and their body mass index was 24.8 kg/m2.

Table 2

Wingate Anaerobic Power Measurement Results of Turkish Elite Greco-Roman Style Young Wrestlers

Wingate Test Results	WA.	SD.	Min.	Max.
Peak Power (For Arm) W/Kg	9,95	±2,51	3,80	14,25
Peak Power (For Leg) W/Kg	14,68	±2,52	9,75	18,30
Average Power (For Arm) W/Kg	4,68	±0,7	2,70	5,50
Average Power (For Leg) W/Kg	7,17	±0,8	5,35	8,45

In the anaerobic power test measurements, the peak power for the leg was determined as 14.68 W/Kg and the average power was 7.17 W/Kg, while the peak power for the arm was determined as 9.95 W/Kg and the average power was 4.68 W/Kg.

Table 3

Illinois Agility Test Measurement Results of Turkish Elite Greco-Roman Style Young Wrestlers

Illinois Test Results	WA.	SD.	Min.	Max.
Agility Test (sec.)	15,9	±0,8	15,1	16,7

In the agility test, it was determined that the wrestlers completed the Illinois agility test protocol in an average of 15.9 seconds.

DISCUSSION & CONCLUSION

In the discussion of the findings from this study, it is important to contextualize the results within the broader scope of sports science and specifically within the realm of wrestling performance metrics. The study aimed to delineate the anaerobic power, agility, and physical characteristics of Turkish elite Greco-Roman style young wrestlers, providing a comprehensive overview that can inform training and development strategies for this specific athletic population.

The first finding of this study was that the physical test measurements revealed valuable information about the physical characteristics of Turkish elite Greco-Roman style youth wrestlers. The average body weight of the wrestlers was 76 kg, the average height was 175 cm and the average age was 18.6 years. In addition, their body fat percentage was found to be 10.8% and their body mass index was found to be 24.8 kg/m². These findings align with existing literature on the physical attributes of successful wrestlers. Studies have shown that wrestlers often exhibit specific body composition characteristics, including moderate body weight, height, and body fat percentage, which are conducive to optimal performance in the sport García-Pallarés et al. (2011). The results obtained from the physical measurements of the wrestlers in this study are consistent with previous research that emphasizes the importance of body composition in wrestling performance. Studies have highlighted the significance of maintaining an optimal body weight and composition to enhance agility, strength, and overall athletic performance in wrestlers (Kuźmicki et al., 2023). Furthermore, the relationship between body mass reduction and anaerobic power in wrestlers has been explored, indicating the impact of body weight management on physical characteristics and performance outcomes (Sarshin et al., 2021). Moreover, the findings from the physical tests align with research on the trainability of body composition and physical fitness traits in wrestlers. Studies have demonstrated that targeted training programs can lead to improvements in strength, aerobic capacity, flexibility, and anaerobic power in young athletes, contributing to enhanced performance on the mat (Farzad et al., 2011). The physical characteristics observed in the Turkish elite Greco-Roman style young wrestlers in this study reflect the importance of maintaining a balance between body weight, composition, and physical fitness to excel in the sport. In conclusion, the physical test measurements conducted in this study provide valuable insights into the physical characteristics of Turkish elite Greco-Roman style young wrestlers. The consensus within sports science literature supports the idea that a lower body fat percentage can contribute to higher efficiency in strength and power-based sports by optimizing the power-to-weight ratio, which is particularly important in weight-class sports like wrestling. Moreover, the BMI falls within the range that is often associated with athleticism, providing further evidence of the wrestlers' physical fitness and their suitability for the sport.

The second finding of this study was the peak power data obtained from the leg and arm measurements of Turkish elite young wrestlers with values of 14.68 W/kg and 7.17 W/kg for leg and 9.95 W/kg and 4.68 W/kg for arm, respectively. These findings are consistent with existing literature on the importance of anaerobic power in wrestling performance. Studies have highlighted that higher absolute and relative values of maximal strength, muscle power, and anaerobic metabolism can provide elite wrestlers with a competitive advantage during matches García-Pallarés et al. (2011). The peak power data observed in this study align with research on the physiological and performance changes resulting from specific training programs in wrestlers. Previous studies have utilized Wingate tests to assess peak and mean power output, reflecting the athletes' ability to generate explosive strength and power, essential for executing high-intensity techniques in wrestling (Farzad et al., 2011). The peak power values obtained for the leg and arm muscles of the Turkish elite Greco-Roman style young wrestlers are indicative of their anaerobic power capacity, which is crucial for quick and forceful movements

required in wrestling bouts. Furthermore, the findings from the peak power measurements in this study are in line with research on the identification of success factors in elite wrestlers. Wrestling-specific training programs have been shown to effectively monitor athletes' preparedness by controlling vital indicators such as anaerobic power and strength endurance, which are essential for optimal performance in the sport (Cieśliński et al., 2021). The disparity between leg and arm power outputs reflects the sport-specific demands of wrestling, where leg strength is paramount for executing effective takedowns, maintaining stability, and generating forceful movements. This finding aligns with previous research indicating the importance of leg power in wrestling performance, highlighting the need for targeted leg strength and power training in wrestlers' conditioning programs.

The third finding of this study is that the agility test results of the Turkish elite young wrestlers indicate an above-average agility performance compared to the norm values for individuals aged 16-19 years with an average of 15.9 seconds in the Illinois agility test. These findings shed light on the agility characteristics of the wrestlers and their proficiency in executing quick and precise movements essential for success in wrestling. The agility test results align with existing literature on the importance of agility in wrestling performance. Studies have emphasized the significance of agility in enabling wrestlers to swiftly change direction, evade opponents, and execute tactical maneuvers effectively Deliceoğlu et al. (2022). The agility performance of the Turkish elite Greco-Roman style young wrestlers, as demonstrated by the results of the Illinois agility test, is crucial for their competitive edge in the sport. Research has shown that agility is a key determinant of success in wrestling, enabling athletes to react swiftly to opponents' movements, maintain balance, and execute techniques with precision (Skugor et al., 2023). Furthermore, the relationship between agility and technical skills in wrestling has been explored, highlighting the integral role of agility in enhancing overall performance on the mat (Song et al., 2021). Moreover, the agility test results of the wrestlers in this study are consistent with research on the physical fitness profiles of elite wrestlers. Studies have indicated that successful wrestlers exhibit superior agility, along with other physical attributes such as strength, power, and endurance, which collectively contribute to their competitive advantage (Özbay & Ulupınar, 2021). Agility, as a multifaceted physical attribute encompassing speed, balance, and the ability to change direction swiftly, is integral to wrestling. This performance metric situates the wrestlers within a high proficiency category for agility, suggesting that their training regimens effectively incorporate agility-enhancing drills. This agility level is imperative for the rapid, dynamic movements required in wrestling, facilitating offensive and defensive maneuvers. The consensus among sports performance studies posits that agility is a determinant factor in wrestling success, reaffirming the relevance of agility training in these athletes' preparation.

Conclusion

The comprehensive analysis presented in this study elucidates the significant interplay between physical attributes, anaerobic power, and agility in determining the performance capabilities of Turkish elite Greco-Roman style young wrestlers. This discussion consolidates the understanding of the specific requirements for success in this demanding sport, underpinning the necessity for targeted training and developmental strategies.

The physical characteristics of the wrestlers, characterized by optimal body weight, composition, and BMI, align with the prerequisites for peak performance in wrestling. These findings highlight the importance of maintaining a balance between lean mass and minimal body fat, thereby optimizing the power-to-weight ratio essential for high-level competition. The congruence of these results with existing literature underscores the critical role of body composition in wrestling, advocating for meticulous weight and fitness management within training protocols.

The anaerobic power measurements further delineate the wrestlers' capacity for high-intensity, explosive movements, especially the pronounced leg power essential for effective takedowns and maneuverability. The disparity in power output between legs and arms accentuates the sport-specific physical demands of Greco-Roman wrestling, suggesting a prioritization of lower body strength and power in training regimens. This aligns with the consensus that anaerobic power, particularly in the legs, constitutes a cornerstone of wrestling performance, necessitating dedicated training focus.

Agility findings, as demonstrated through the Illinois agility test, reveal the wrestlers' superior ability to execute quick, precise movements—a testament to their agility training efficacy. This agility is crucial for engaging in the dynamic, high-paced action characteristic of wrestling, enabling athletes to outmaneuver opponents and adapt swiftly to the fluid combat environment. The results reinforce the notion that agility is a critical determinant of success in wrestling, advocating for its continued emphasis in training.

This proficiency in agility not only underscores the athletic capabilities of Turkish young wrestlers but also emphasizes the importance of agility training within their overall athletic development regimen. The consistency of agility performance across various test batteries, as indicated by the literature, suggests that agility is a fundamental skill cultivated within wrestling training programs. Consequently, trainers may continue to prioritize agility drills and exercises to maintain and enhance this aspect of athletic performance among Turkish young wrestlers. Furthermore, future research could delve deeper into the specific training methodologies and techniques employed to further elucidate the factors contributing to the observed agility levels in this population.

In line with the data of this study, coaches and athletes, while making their training programs, can develop training programs that will provide improvement in this direction, especially by being aware that their average anaerobic power is at a lower level than other study findings. It is of great importance to eliminate these deficiencies in the sport of wrestling, where international competition is experienced at the highest level. Physical activities that increase agility should be included more in training planning.

Limitations

This study's scope is narrowly defined by its focus on a specific cohort of 37 elite young wrestlers specializing in the Greco-Roman style, who have demonstrated success at national or international competitions and were subsequently invited to join the Turkish Greco-Roman Style Youth National Team Candidate Squad in 2024. The participants' voluntary involvement in the study, after being thoroughly briefed about the testing procedures, measurements, and test protocols, along with the provision for preliminary warm-up and test trials, delineates the study's methodological approach. However, this focus inherently limits the generalizability of the study's findings. The research is specifically confined to elite young athletes within the U-20 category, potentially excluding insights from older or less experienced wrestlers, and may not reflect the broader population of Greco-Roman wrestlers or those from different wrestling disciplines. Additionally, the selection criteria restrict the study to athletes who have already achieved a certain level of success and recognition, possibly overlooking the physical and performance characteristics of emerging talents or those at the grassroots level of the sport. This constraint may influence the study's applicability to the development of training and performance enhancement strategies across the wider wrestling community.

Recommendations

Based on the elucidated findings regarding the physical characteristics, anaerobic power, and agility of Turkish elite Greco-Roman style young wrestlers, this study posits several actionable recommendations aimed at optimizing training protocols, athlete development, and

subsequent research endeavors in the sport of wrestling. Firstly, it is imperative for coaches to integrate comprehensive body composition management strategies, prioritizing the maintenance of optimal body fat percentages and lean mass ratios through tailored nutrition and weight management plans. Secondly, the development of anaerobic power, particularly in the lower body, should be accentuated within training regimens, employing methodologies such as plyometrics, sprint training, and high-intensity interval training to enhance explosive strength. Thirdly, agility training, focusing on quickness, change of direction, and balance, must be systematically incorporated into the athletes' preparation to mirror the dynamic and high-paced nature of wrestling.

Additionally, the adoption of a holistic approach to athlete preparation, addressing mental toughness, recovery, and psychological resilience, alongside physical training, is recommended to foster a well-rounded athlete profile. For sports science professionals, the execution of longitudinal studies to monitor changes in physical attributes and performance over time, alongside research into the efficacy of individualized training programs, is advocated to further refine athlete development strategies. Furthermore, the exploration of technological advancements in training and athlete monitoring should be pursued to enhance the specificity and effectiveness of training interventions.

Wrestling federations and sports institutions are encouraged to invest in the development of comprehensive athlete development programs that not only focus on physical training but also encompass nutrition, mental health, and recovery protocols. Facilitating a platform for the exchange of knowledge, innovative training methodologies, and research findings among coaches, athletes, and sports science professionals through workshops and seminars is also recommended to elevate the sport's competitive standards globally. Implementing these recommendations will not only advance the preparation and performance of elite Greco-Roman wrestlers but also contribute to the broader objectives of enhancing the competitive landscape of wrestling.

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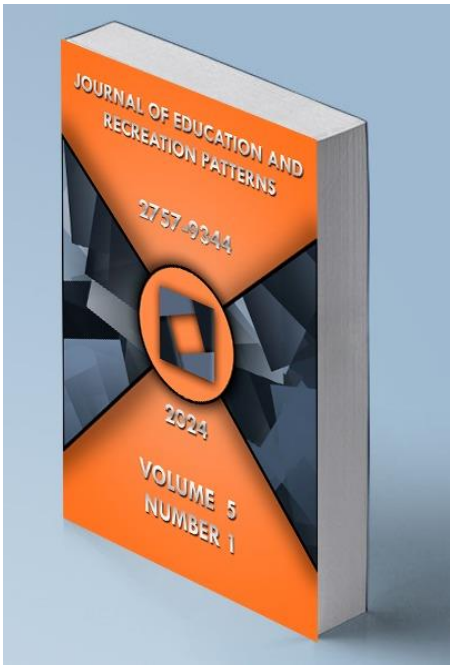

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Motivations to Engage in Physical Activity Among Non-traditional College Students at a Hispanic-serving Institution

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Motivations to Engage in Physical Activity Among Non-traditional College Students at a Hispanic-serving Institution

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ABSTRACT

Exercise motivations for undergraduate college students vary for numerous reasons. Regardless of those reasons, it is important for higher education administrators to understand these motivations to provide opportunities that increase exercise behavior. Undergraduate students attending a Hispanic-serving Institution (HSI) in a metro area in the northeast region of the United States were administered the Exercise Motivations Inventory-2 (EMI-2) (N = 140) to ascertain their motivations to engage in physical activity (PA), particularly to compare the differences between traditional (TS) and non-traditional (NTS) college students. Three variations (i.e., age, children, and employment status) were used to compare the different motivations to engage in PA. NTS over 25 years old or having children scored significantly higher on the physical and psychological health-related motivations (e.g., ill-health avoidance, positive health, stress management, and revitalization). TS scored significantly higher on social-related motivations (e.g., affiliation and competition). There was no significant difference in motivation to engage in PA between students' employment status. Results highlight different motivations to engage in PA between TS and NTS. This article presents tailored interventions for specific student cohorts to promote an increase in PA participation at HSI.

Keywords: Exercise Motivation, Hispanic-Serving Institution, Non-Traditional College Students, Physical Activity, Traditional College Students

INTRODUCTION

The physical, psychological, and social benefits of physical activity (PA) are well documented (Amatriain-Fernandez et al., 2020; Chan et al., 2019; Whitehead & Blaxton, 2017). Despite the numerous benefits of PA, there is an alarming level of physical inactivity among college students in the United States, particularly among minority students (American College Health Association, 2020; Arredondo et al., 2016; Kwan et al., 2012; Ogden et al., 2014). According to the American College Health Association-National College Health Assessment (ACHA-NCHA) III (2020), an annual assessment that measures overall college student health behavior at a national level, 57% of college students do not meet the United States Department of Health and Human Services (2018) recommendations for moderately intense PA (e.g., brisk walk or dancing), 150 to 300 minutes per week, and 63% of college students do not meet the recommendations from the same organization for vigorously intense PA (e.g., running or swimming), 75 to 150 minutes per week. However, among the twenty-two higher education institutions that participated in the ACHA-NCHA III (2020), only two were minority-serving institutions. Furthermore, PA among older college students is also quite low (Leung et al., 2016; Linder et al., 2018;). There is limited research measuring motivations to engage in PA among undergraduate students enrolled at Hispanic-serving institutions (HSIs), which enroll a higher number of Black, Indigenous, and People of Color (BIPOC). Understanding the differing motivations for PA between traditional students (TSs) and non-traditional students (NTSs), particularly at HSIs, will enable higher education administrators to create tailored interventions that effectively address the needs of both groups.

Literature Review

College Student Characteristics

The defining characteristics of NTSs have been a source of discussion for years. However, scholars generally agree that age is the most utilized method in distinguishing between a TS and NTS. A TS is within the age range of 18 years to 24 years old compared to an NTS who is 25 years old and older (Bennett et al., 2007). Other characteristics of a NTS is someone who works 40 hours or more per week and may have children or other dependents (Center for Postsecondary and Economic Success, 2015; National Center for Education Statistics, 2020). There are also differences between HSIs and other colleges and universities in addition to existing health disparities. Students attending an HSI do not fit the profile captured by TSs (Espinosa et al., 2019) and could be largely identified as NTSs. For the purposes of this study, we considered an NTS to meet at least one of these criteria: 25 years old and older; works a full-time job; and/or has children.

In addition to the lack of assessment measuring PA among students attending HSIs, significant health disparities exist among BIPOC adults. BIPOC individuals over the age of 18 years and older have a high likelihood of being obese, developing type II diabetes, having low levels of PA, and having high levels of sedentary behaviors (Coleman & Gonzalez, 2001; Ryan et al., 2011; Webb & Smith, 2011). PA has been found to play a crucial role in reducing the impact of health disparities, therefore, understanding the different motivations to PA would increase interest in healthy behaviors.

Exercise Motivations

Promoting PA on college campuses begins with understanding motivations behind it (Buckworth et al., 2007). There exists a considerable body of literature on PA motivations among TS (Egli et al., 2011; Kilpatrick et al., 2005; Lauderdale et al., 2015; Pauline, 2013), but PA motivations identified among TSs may not be applicable across wider age ranges, as past studies have reported differences in motivations between age groups. Kilpatrick et al. (2005)

found that undergraduate students with a mean age of 22 years, are motivated by body health-related and body-related motivations such as appearance, weight management, and strength and endurance to engage in PA. Although Kilpatrick et al., 2005 measured exercise motivations among college students, the researchers compared exercise motivations to sport participation, only investigating the differences by gender, as opposed to the differences in exercise motivations between TSs and NTSs at an HSI, and a majority of their participants identified as Caucasian. Bastos et al. (2006) also found that younger participants rated motivations such as health and fitness as of lower importance than older adults, however, their study was based in Brazil rather than the United States. Younger individuals tend to engage in PA for more extrinsic reasons (e.g., body image and impressing others), while intrinsic reasons (e.g., flexibility and feeling rejuvenated), tend to be the motivating factor later in life (Bastos et al., 2006; Beck et al., 2010; Strong et al., 2006). Brunet and Sabiston (2011) explored the differences in motivation to engage in PA among three age groups: (1) 18-24 years old, (2) 25-44 years old, and (3) 45-64 years old. They found that both intrinsic and extrinsic motivations to engage in PA tended to decrease with age, conversely leading to a decline in PA throughout the span of adulthood (Brunet & Sabiston, 2011). Although motivation to engage in PA decreased with age in Brunet & Sabiston (2011), the 25-44 age group and 45-64 age group indicated intrinsic motivations rather than the extrinsic motivations observed in the 18-24 age group. The researchers also did not conduct their study at an HSI and only investigated exercise motivation among age groups. Similarly, researchers found that TSs are motivated by challenge, social recognition, affiliation, competition, appearance, and nimbleness (Kulavic et al., 2013). These studies investigated motivations to engage in PA among undergraduate college students, but none of them were conducted at an HSI. Although motivation to engage in PA can vary by age, other variations exist such as motivations to engage in PA for parents. The results indicate that motivation to engage in PA can vary throughout adulthood due to aging, changing lifestyles, goals, and health concerns (Miller & Iris, 2002).

Dozier et al. (2020) investigated the frequency of PA of individuals with children. The researchers have found that only 57% of the parents in the study met the PA guidelines for Americans (Dozier et al., 2020; U.S. Department of Health and Human Services, 2018). Only 42% of the participants in the study conducted by Dozier et al. (2020) were from racial/ethnic minority groups (Dozier et al., 2020). Another study investigated the relationship in PA among Hispanic parents and their children and found that the parents experienced a significant lack of vigorous PA (Ruiz et al., 2011). Finally, a sample of parents (N = 458) in a study conducted by Hamilton et al. (2012) averaged only 30 minutes of at least moderate-intensity PA for 3 days per week, which is much lower than the current PA guidelines (Hamilton et al., 2012). Further research is needed that investigates motivations to engage in PA in Hispanic parents, particularly those who are also attending college.

Vandelanotte et al. (2015) investigated the influence of occupational indicators, such as full-time and part-time work, on PA levels, with full-time being more than 35 hours per week and part-time being less than 35 hours per week. The researchers found that part-time employees were more likely to report low PA compared to full-time employees (Vandelanotte et al., 2015). Van Domelen et al. (2011) analyzed cross-sectional data from the National Health and Nutrition Examination Survey (NHANES), which is a national survey that collects data on individual health behaviors such as nutrition and PA. They found that full-time, male workers were more likely to report higher PA than part-time and unemployed, male workers. In contrast, full-time, female workers were more likely to report lower PA that part-time and unemployed, female workers (Van Domelen et al., 2011). Unfortunately, Vandelanotte et al. (2015) did not specify if the participants in their study were currently enrolled as students at a higher education institution nor did they provide the ethnic and racial background of their sample. Furthermore, Van Domelen et al. (2011) also did not indicate if any participants in their study were currently

enrolled as students at a higher education institution, and 70% of their sample reported that they were Caucasian.

To our knowledge, the only research that investigates the various motives to engage in PA among NTSs investigates those differences between TSs and NTSs (Kulavic et al., 2013). They found that there are significant differences in motivations between the two groups, including challenge, social recognition, affiliation, competition, health pressure, ill health avoidance, appearance, and nimbleness. However, the criterion used to distinguish TSs from NTSs was based solely on age, which may not be sufficient to reflect the NTS, and their study was not conducted at an HSI. Additionally, 58% of participants in the Kulavic et al. (2013) study was Caucasian, whereas this study focuses on NTSs enrolled at an HSI. Therefore, to overcome this gap, this research incorporates three criteria to describe a NTS: (1) 25 years of age and older, (2) work 40 hours or more per week, and (3) have children. Although we describe three criteria to describe NTSs, participants were considered an NTS if they met at least one of those criteria.

The purpose of this study is to investigate the different motivations to engage in PA between TSs and NTSs attending an HSI to better understand and recommend interventions to address the lack of PA among these groups. To achieve the above goals, our research questions (RQ) and alternative hypotheses (H) are proposed: (RQ1) Are there differences in motivations to engage in PA between college students enrolled at an HSI who meet all three criteria for being a TS, and students who meet at least one criteria of being a NTS, (H1) There will be a difference in PA motivations between students enrolled at an HSI who meet criteria for being a TS, and students who meet at least one criteria of being a NTS; (RQ2) Are there differences in motivations to engage in PA between college students enrolled at an HSI under 25 years old and those 25 years and over? (H2) There will be a difference in PA motivations between students enrolled at an HSI under 25, and students 25 years and older; (RQ3) Are there differences in motivations to engage in PA between college students enrolled at an HSI who work 39 hours or less per week and those who work 40 hours or more per week? (H3) There will be a difference in PA motivations between students enrolled at an HSI who work 39 hours or less per week, and students who work 40 hours or more per week; and (RQ 4) Are there differences in motivations to engage in PA between students enrolled at an HSI that have children and those that do not have children? (H4) There will be a difference in PA motivations between students enrolled at an HSI who have children, and students who do not have children.

METHOD

This study used a cross-sectional design to assess differences between current TSs and NTSs at a single campus. The research study took place at a public, four-year degree-awarding institution in a metro area in the Northeastern region of the United States in February 2020. The college is an HSI with a population of approximately 14,000 undergraduate students with approximately 93% of students identifying as a student of color (Hispanic=55.07%, Black or African American=27.21%; White=7.24%, Asian=6.32%; other international=2.73%; multi-ethnic=1.04%; and Native Hawaiian or Pacific Islander=0.20%).

Participants

An estimated 44% of the undergraduate students at the college are considered NTSs according to their age. Upon approval from the institutional review board, participants were recruited through the college's undergraduate student listserv, in which the principal investigator is the administrator of. The listserv included the entirety of the undergraduate student population. One email was sent through the listserv. In the recruitment email, participants received a link to the online survey and were informed that participation was voluntary and confidential. There were 172 (1%) responses to the survey. After eliminating

incomplete responses along with those participants who did not meet the research criteria, the sample consisted of 140 participants. A simple random sampling technique was used in order to reduce selection bias and to ensure that every undergraduate student had an equal chance to be selected for the study (Blankenship, 2010). Inclusion criteria were as follows: (a) undergraduate students, (b) enrolled full-time, (c) self-report regularly participating in PA at least once per week.

Measures

Participants were asked to complete a researcher developed demographic questionnaire to capture information (categorically) on age, sex, race, employment status, family status, and self-perceived health. Although this study focused on age, children, and employment (the most common demographic differences between a TS and NTS), the other demographic variables provide a complete picture of the sample. Participants were asked if they were 18-24 years old or if they were 25 years old or older. Participants were asked which gender they most identify choosing from female, male, transgender female, transgender male, gender-variant/non-comforming, or prefer not to answer. Employment status included being employed full-time (40+ hours per week), employed part-time (39 hours per week or less), unemployed, retired, or disabled (cannot work). Participants were asked if they were married, widowed, divorced, separated, or never married; and whether or not they had children. The self-perceived health question asked, "In general, would you say that your health is…" in which participants selected "Excellent," "Very Good," "Good," "Fair," or "Poor."

The Exercise Motivations Inventory-2 (EMI-2) was used to measure motivation to engagement in PA (Markland & Ingledew, 1997). The EMI-2 instrument was validated by Markland and Ingledew (1997) and showed support for the factor structure by gender. Markland and Ingledew (1997) concluded that the EMI-2 is factorially valid for assessing exercise motivations in adult males and females. The EMI-2 has also been used to assess exercise motivations among other populations, including undergraduate college students. Kilpatrick et al. (2005) administered the EMI-2 to investigate motivations to engage in PA in a sample of 233 undergraduate students, of which 81% of the sample was Caucasian, 12% was African American, and 3% was Hispanic. Additionally, Kim and Cho (2022) validated the EMI-2 among a similar population of 325 college students, however, data regarding race and ethnicity was not collected. The EMI-2 contains 51 statements related to exercise motivation. Participants were asked to rank how true each statement was for them personally on a six-point Likert scale ranging from 0 (not true for me) to 5 (very true for me). The inventory contains 14 subscales: affiliation, appearance, challenge, competition, enjoyment, health pressures, ill-health avoidance, nimbleness, positive health, revitalization, social recognition, strength and endurance, stress management, and weight management. Three to four of the 51 items are included in each subscale and averaged to find the score of each. The subscales can also be categorized into themes: Body-related Motives (appearance and weight management), Health Motives (health pressures, ill-health avoidance, and positive health), Interpersonal Motives (affiliation, competition, and social recognition), Fitness Motives (nimbleness and strength/endurance), and Psychological Motives (enjoyment, challenge, revitalization, and stress management). See Markland and Ingledew (1997) for further information regarding the EMI-2 and its subscales.

Data Analysis

Statistical analyses were performed using IBM SPSS Statistics (Version 25). Descriptive statistics were calculated for age, gender, race, relationship status, employment status, and self-perceived health. Demographics were compared between students ages 18-24, and students 25 and older using a chi squared goodness of fit test. Using the age variable for TS (n=86) and NTS (n=54), a G*Power analysis (0.82) indicated the commonly desired threshold of 0.80 was

achieved for the desired sample size (n=140) (Faul et al., 2007). Cronback's alpha coefficient (α) was high for the EMI-2 (0.79) and its subscales (0.81), indicating high internal consistency. Hypothesis testing was completed using a Mann-Whitney U Test to compare each of the 14 motivation subscales between groups of students (i.e. TS vs NTS, age, employment status, children). Additionally, a Mann-Whitney U test was subsequently conducted to compare PA motivation for various demographic factors (i.e., gender and race). The Mann-Whitney U test was chosen because we were assessing distribution of motivation subscales between two independent groups and our data showed significant skewness and kurtosis (Agresti & Finlay, 2014).

FINDINGS

Demographic Profile

The current study sampled 140 participants. The ratio of TSs and NTSs closely reflected the make-up of the institution where the study took place, with 86 students 18-24 years old, (61%) and 54 students ages 25 years old or older, (39%). The sample consisted of 41 male students (29.3%), 99 female students (70.7%), and zero transgender or gender non-conforming students (0%). Participant characteristics including race, relationship status, and perceived health are further summarized in Table 1.0 below. Overall, 77(55%) participants met the criteria for being TS, and 63(45%) met at least one criterion for being a NTS. It is worth noting that only four participants met all three criteria (25 years or older, employed full-time, and having a child) for being a NTS.

When comparing demographic data between the TS and NTS groups, apart from the demographic criteria used to define the groups, not surprisingly, the only significant difference in demographics was marital status ($p = .025$), indicating that the younger group was more likely to be single.

Table 1.
Participant Demographics and Characteristics **(n=140)**

Variables	Factor	Total Sample (%)	TS (%)	NTS (%)
*Age	18-24 years old	86 (61.4)	77 (100)	9 (14.3)
	25 years old and older	54 (38.6)	0 (0.0)	54 (85.7)
Gender	Male	41 (29.3)	21 (27.3)	20 (31.7)
	Female	99 (70.7)	56 (72.7)	43 (68.3)
Race	Hispanic or Latino or Spanish Origin	67 (47.9)	38 (49.4)	29 (46.0)
	American Indian or Alaskan Native	1 (0.7)	0 (0.0)	1 (1.6)
	Asian	15 (10.7)	10 (13.0)	5 (7.9)
	Native Hawaiian or other Pacific Islander	1 (0.7)	0 (0.0)	1 (1.6)
	Black or African American	31 (22.1)	13 (16.9)	18 (28.6)
	White	15 (10.7)	11 (14.3)	4 (6.3)

	Two or more races	6 (4.3)	3 (3.9)	3 (4.8)
	Non-resident alien (of any race or ethnicity)	1 (0.8)	0 (0.0)	1 (1.6)
	Race and Ethnicity Unknown	3 (2.1)	2 (2.6)	1 (1.6)
*Relationship Status	Married	14 (10.0)	3 (3.9)	11 (17.5)
	Divorced	1 (0.7)	0 (0.0)	1 (1.6)
	Separated	3 (2.1)	1 (1.3)	2 (3.2)
	Never Married	122 (87.1)	73 (94.8)	49 (77.8)
*Child Status	Have Children	25 (17.9)	0 (0.0)	25 (39.7)
	Do not have Children	115 (82.1)	77 (100)	38 (60.3)
*Employment Status	Employed Full-time	21 (15)	0 (0.0)	21 (33.3)
	Employed Part-time	55 (39.3)	37 (48.1)	18 (28.6)
	Unemployed	62 (44.3)	40 (51.9)	22 (34.9)
	Disabled, cannot work	2 (1.4)	0 (0.0)	2 (3.2)
Ability Status	Individuals with a disability	8 (5.7)	4 (5.2)	4 (6.3)
	Individuals without a disability	132 (94.3)	73 (94.8)	59 (93.7)
Health Status	Excellent	20 (14.3)	10 (13.0)	10 (15.9)
	Very Good	55 (39.3)	35 (45.5)	20 (31.7)
	Good	50 (35.7)	23 (29.9)	27 (42.9)
	Fair	12 (8.6)	8 (10.4)	4 (6.3)
	Poor	3 (2.1)	2 (3.2)	1 (1.3)

*Indicates significant difference between TS and NTS groups

Variations in Motivation Between TS and NTS

H1 predicts there will be a difference in PA motivations between students enrolled at an HSI who meet criteria for being a TS, and students who meet at least one criterion of being a NTS. A Mann-Whitney U Test was conducted to examine the differences in PA motivations between participants who met criteria for being a TS (n=77) and those who did not (n=63). NTS were significantly more likely to be motivated by *health pressure* (p = .013), *ill health avoidance* (p = .004), *nimbleness* (p = .031), and *revitalization* (p = .030) than their TS peers.

Variations in Motivation Between Ages

H2 states there will be a difference in PA motivations between students enrolled at an HSI under 25, and students 25 years and older. A Mann-Whitney *U* test was conducted comparing the motivations for PA between students ages 18-24, and students 25 and older. A significant difference between the groups was found for several subscales indicating that older students were more likely than younger students to be motivated by stress management (p =

.006), *health pressure* (p = .011), *ill-health avoidance* (p = .001), *positive health* (p = .039), and *revitalization* (p = .005). Older students were also more likely to be motivated to engage in PA because of *nimbleness* than younger students.

Variations in Motivations Based on Employment Status

H3 states there will be a difference in PA motivations between students enrolled at an HSI who work 39 hours or less per week, and students who work 40 hours or more per week. A Mann-Whitney *U* test was conducted comparing the motivations for PA between students who worked 40 hours or more and students who worked 39 hours or less. There were no significant differences between these groups and the null hypothesis was retained.

Variations Between Students With and Without Children

H4 states there will be a difference in PA motivations between students enrolled at an HSI who have children, and students who do not have children. A Mann-Whitney *U* test was conducted comparing the motivations for PA between students with children and students without children. Significant differences were found between students with children and those without children in relation to *affiliation* (p = .027), *ill-health avoidance* (p = .030), *positive health* (p = .005), and *stress management* (p = .024) and *strength* (p = .040). These results indicate that students without children were motivated to engage in PA because of *affiliation* more so than those students with children. Conversely, students with children were more likely to be motivated to engage in PA because of *ill-health avoidance, positive health, strength,* and *stress management.*

Additional Findings

Overall, the motivations common to NTS (apart from employment) were health-related outcomes (i.e. *ill-health avoidance* and *positive health*). Interestingly, those with children identified specific physical abilities (i.e. *nimbleness* and *strength*) as motivations. Lastly, while the purpose of this study was to evaluate differences between TS and NTS enrolled at an HSI, it is worth noting that there were significant differences based on gender indicating that females were more likely to be motivated to engage in PA by *positive health* (p = .024) and *weight management* (p = .020). There were no significant differences in motivation between race/ethnic groups.

DISCUSSION

This study fills a significant gap in the literature by investigating PA motivations among NTSs at an HSI, a context that has been largely overlooked in previous research. Additionally, it expands the understanding of how different NTS criteria, such as age, employment status, and parenthood, impact PA motivations. Results from this study revealed different motivations to engage in PA between TSs and NTSs enrolled at an HSI. These findings confirm previous research that investigated the motivations to engage in PA in TSs (Egli et al., 2011; Kilpatrick et al., 2005; Lauderdale et al., 2015; Pauline, 2013). However, several significant differences of the 14 subscales were found in this study for NTSs. The first research question and hypothesis was: (RQ1) Are there differences in motivations to engage in PA between college students enrolled at an HSI who meet all three criteria for being a TS, and students who meet at least one criteria of being a NTS, (H1) There will be a difference in PA motivations between students enrolled at an HSI who meet criteria for being a TS, and students who meet at least one criteria of being a NTS. There were also differences found based on how a NTS was defined. For example, NTSs who were over the age of 25 were found to have significant differences from TSs in motivation subscales, but there was not a significant difference in those same subscales for those with children compared to those without. Those undergraduate

students who met at least one of the research criteria as an NTS were generally motivated for health-related reasons compared to undergraduate students compared to a TS. This study further fills in gaps in the research that exist among both NTSs and at HSIs by the following variables (i.e., age, employment, children).

Age

The second research question and hypothesis was: (RQ2) Are there differences in motivations to engage in PA between college students enrolled at an HSI under 25 years old and those 25 years and over? (H2) There will be a difference in PA motivations between students enrolled at an HSI under 25, and students 25 years and older. There was a significant difference in the exercise motivations subscales of ill-health avoidance, stress management, health pressures revitalization, positive health, and nimbleness between undergraduate students enrolled at an HSI that were under 25 years old and those that were over 25 years of age. The significant differences in health-related motivations between students over 25 and those under 25 align with Bastos et al. (2006), who found similar trends in health concerns increasing with age. However, our findings extend these results by showing that NTSs at an HSI are also more motivated by psychological factors such as stress management and revitalization, which were not emphasized in Bastos et al. (2006). Kilpatrick et al. (2005) found that TSs that were under the age of 25 were also motivated by the body health-related and body-related subscales of appearance, weight management, and strength and endurance. However, students that reported they were 25 years old and older in this study scored significantly higher on health motives such as ill-health avoidance, health pressures, positive health, and stress management subscales than TSs at the HSI. Both the ill-health avoidance and the health pressures subscales refer to motivating factors such as reducing the risks of heart disease, diabetes, obesity, cancer, and depression. The health pressures subscale involves a motivation to engage in PA to mitigate an existing injury, illness, or other health condition of which they are at risk. NTSs in this study appeared to be motivated to engage in PA for other health-related reasons. Although these findings are consistent with those of Kulavic et al. (2013) who also found that NTSs scored significantly higher on the health pressure and ill-health avoidance subscales, this study also found that NTSs that were over the age of 25 at an HSI scored higher on the psychological subscales.

NTSs in this study who attend an HSI scored significantly higher on the psychological motives subscales of stress management and revitalization. Those students that were older recognized that PA served as an avenue to manage their stress, which occurs frequently in college students due to the rigors of balancing academic life, work, family, relationships, and finances. Not only did NTSs engage in PA as a way to alleviate stress, but they were also more motivated than TSs on the revitalization subscale. NTSs tended to engage in PA as a way to feel more energetic. The findings in this study are consistent with previous research that indicated motivations to engage in PA decrease as someone ages and they also shift to focus on health-related reasons due to aging and changing lifestyles (Beck et al., 2010; Brunet & Sabiston, 2011; Strong et al., 2006).

The findings in this study show that undergraduate students over the age of 25 years old are motivated to engage in PA for both health-related reasons and psychological reasons. These students are not only concerned with their physical and mental health; they are aware that PA has a positive effect on them both. These findings may be vital to higher education administrators that are responsible for developing health promotion, mental health, PA, and recreation interventions to their students, particularly at an HSI with a high number of students over the age of 25. This study sheds light on motivation to PA among college students (both TS and NTS) at an HIS as the other studies that the findings were compared to were either not conducted at an HSI or a majority of their sample was Caucasian. The findings also demonstrate the need for higher education administrators and departments to collaborate in implementing

their services by taking a holistic approach to promoting mental and physical health to students of all ages on their campus.

Employment

The third research question and hypothesis was: (RQ3) Are there differences in motivations to engage in PA between college students enrolled at an HSI who work 39 hours or less per week and those who work 40 hours or more per week? (H3) There will be a difference in PA motivations between students enrolled at an HSI who work 39 hours or less per week, and students who work 40 hours or more per week. While Kavetsos (2011) and Van Domelen et al. (2011) suggested that employment status influences PA levels, our study found no significant difference in PA motivation between students working less than 40 hours and those working more. This discrepancy might be due to the unique stressors and time constraints faced by college students, particularly those at an HSI. However, the previous research studies conducted by Kavetsos (2011) and Van Domelen et al. (2011) also did not indicate a difference in the amount of hours worked per week and how it impacts motivation to engage in PA in undergraduate students, particularly at an HSI.

Children

The fourth research question and hypothesis was: (RQ 4) Are there differences in motivations to engage in PA between students enrolled at an HSI that have children and those that do not have children? (H4) There will be a difference in PA motivations between students enrolled at an HSI who have children, and students who do not have children.Health motives such as *ill-health avoidance* and *positive health* in this study tended to be more important to undergraduate students that had children, compared to those that did not. It appears that the motivation to avoid illness and injury and to stay healthy, is important to those college students who are parents. Consistent with findings in previous research (Naisseh et al., 2015), individuals with children in this study tended to be motivated to PA due to health concerns. NTSs', those with children, motivation to engage in PA also differed significantly in the interpersonal motives of the *competition* and *affiliation* subscales. *Competition* and *affiliation* were less important to those students with children. Findings in this study were inconsistent with the previous research by Emm-Collison et al. (2019) and Solomon-Moore et al. (2017) who found parents who put personal value on PA (i.e., *socialization* and *challenge*) are highly motivated and also engaged in higher levels of the activity. However, the previous research did not identify those parents as college students, and they may have less time to engage in PA due to balancing school, work, and parenting. These findings would be beneficial to health, fitness, recreation, and sports professionals in developing and implementing group sport-related activities to undergraduate students who attend an HSI and have children to provide them a social outlet.

Those students with children in this study also reported higher scores in the psychological subscale of *stress management*. Again, PA may serve as a mitigator of stress for those students who were parents. These findings are consistent with previous studies investigating motivational factors to PA in individuals with children (Emm-Collison et al., 2019; Naisseh et al., 2015; Solomon-Moore et al., 2017); however, participants in these studies were not identified as undergraduate college students. The findings in this study will help health and fitness professionals in understanding the psychological motivations of undergraduate students at an HSI with children to engage in PA. These students understand that PA serves as a stress reliever and should have access to these opportunities that meet their needs. The findings also point to the need for further research to compare motivations to engage in PA in undergraduate college students with children.

Health promotion on college campuses may be especially important for institutions that serve underrepresented populations, such as HSIs (Yoon et al., 2020). Departments that are responsible for health promotion and PA on their campuses would benefit from understanding the differences in motivations to engage in PA between TSs and NTSs. However, there is also limited research regarding the impact of health promotion at HSIs, particularly to address physical inactivity. It has been suggested that higher education institutions have the responsibility to address the increasing rates of physical inactivity among students in order to reduce their correlated health risks (Pauline, 2013).

Conclusion

Physical inactivity continues to rise in the United States, especially on college campuses, with detrimental health consequences. The current findings suggest that undergraduate students have various motivations to engage in PA that can better inform administrators in higher education when making policy decisions pertaining to the health and well-being opportunities on their campus, especially at an HSI. Understanding that motivations to engage in PA are different between TSs and NTSs can help them to increase the level of PA and to provide opportunities specific to the needs of all their students.

Limitations

Some limitations existed in this study that could be addressed in the future. The first limitation is the low response rate that was received. A significantly higher sample would provide greater power in the statistical analysis. The amount of PA was not assessed in this study, therefore, future research measuring if specific motivational factors contribute to an increase in PA would provide additional insight for the adoption of specific interventions to address physical inactivity in NTS. Also, this study was conducted at a single institution as there are a lack of studies that investigate PA at HSIs, therefore, conducting a more comprehensive study, including various HSIs across the United States would provide more generalizable data. Lastly, data collection for this study occurred in February 2020, prior to the COVID-19 pandemic. Future investigations into the motivations and barriers to PA would inform this line of research, particularly among BIPOC undergraduate students attending a HSI.

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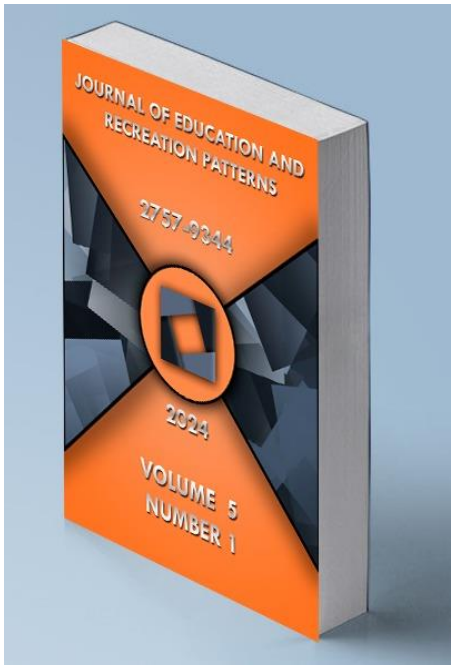

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Teachers' Views on the Role of Traditional Children's Games in Education

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ABSTRACT

This research aimed to determine the opinions of teachers who participated in the "I Live My Values with Traditional Games Project (ILMVTGP)" in the 2nd semester of the 2022-2023 academic year regarding the role of traditional children's games (TCG) in education. In the study, phenomenological research design, one of the qualitative research methods, was used. The study group consisted of 17 teachers in total, including 12 primary school teachers and 5 physical education teachers who participated in ILMVTGP in Aksaray/Eskil. Criterion sampling method was used to determine the participants and focus group interviews were held with the participants. Content analysis was performed to evaluate the data collected with the semi-structured interview form. According to the research findings, four themes were determined: "development", "cultural bridge", "value transfer" and "educational tool". Teachers participating in ILMVTGP stated that TCG supports the holistic development of students and that physical development is especially at the forefront. Traditional games serve as an important cultural bridge in transferring our culture to future generations. The role of traditional games in transferring the values of respect, love, helpfulness, honesty, friendship, and tolerance inherent in our culture was emphasized by teachers. Attention has been drawn to the role of traditional games in transferring physical education lesson achievements, and especially psychomotor achievements, to students. It was stated that students' love for school and motivation to learn increased, their negative behaviors decreased and their academic success increased. As a result of the research; It has been determined that the use of TCG in education serves the purposes of the physical education course curriculum and has a positive impact on children in terms of holistic development, culture, and value transfer. Based on these results, it is recommended that traditional games be used effectively at the basic education level and supported by the authorities.

Keywords: Basic Education, Culture, Development, Traditional Children's Games, Values

INTRODUCTION

The child needs to be in communication with the social environment, which is the source of emotional stimuli, in achieving holistic development and acquiring cultural achievements. Traditional children's games (TCG) are an important factor in the development of children's communication with the holistic environment (Çankırılı, 2015). Regarding cognitive development, TCG improves children's decision-making abilities (Yıldız & Koçak, 2022), attention, and visual perception (Yıldız, 2023). In TCG, the child learns to be hopeful, share, follow the rules, be patient, and adopt social characteristics such as self-control (Bozkurt & Sözer, 2017; Fang et al., 2016; Lestari & Prima, 2017). It is also possible for children to learn about their cultural richness by having fun in this environment (Lestariningrum, 2017). In addition to these effects, TCG also has a structure that increases children's ability to engage in physical activity and improves their play skills (Temel & Temel, 2023). TCG is frequently used in the acquisition of psychomotor skills (locomotor, non-locomotor, and manipulative) included in the physical education and sports course (Temel & Kangalgil, 2021).

Traditional children's games festival (TCGF) is organized every year in a competition format in order to transfer the values of the Turkish society to future generations (Sümbüllü & Atınışık, 2016), to provide leadership, sharing, effective and efficient use of time, and mental and physical skills (Temel & Kangalgil, 2021). These activities, which were previously carried out under the coordination of provincial national education directorates, are now carried out under the coordination of provincial youth sports directorates. T.R. Ministry of National Education and by the protocol signed between the T.R. Ministry of Youth and Sports, the games are implemented on a national scale (GSB, 2021). Traditional games include drop the handkerchief, tombik, grab the handkerchief, hopscotch and castled dodgeball games. These games meet the course objectives included in the physical education and sports course (Temel, 2022). Schools starting from the 2nd grade of basic education to the 9th grade can participate in these festivals. Schools' participation in TCGF is not legally obligatory. Schools, within their means; It is possible to participate in inter-class tournaments, competitions with schools in the district, and tournaments with schools within the province and Turkey.

The benefits of TCG on students are emphasized by most researchers (Bozkurt & Sözer, 2017; Gelisli & Yazici, 2015; Temel & Kangalgil, 2021). However, since participation in TCGF places a financial burden on schools, primary school students studying in Aksaray/Eskil cannot participate in these games. To increase students' participation in the festivals, Under the coordination of T.R. Eskil District Governorship and Eskil District Directorate of National Education, the "I Live My Values with Traditional Games Project (ILMVTGP)" was implemented and students were provided with the opportunity to play TCG. With the prepared project, the games in TCGF were played specifically for Eskil and financial support was provided to schools. 2022-2023 education in the second semester of the academic year, schools experienced the excitement of preparing for and participating in the tournaments. 107 teachers and 1124 students from a total of 40 schools, including 27 primary schools and 13 secondary schools, participated in the tournaments. Physical education teachers served as referees in the tournament and had the opportunity to watch other school students. Approximately four In this month-long project, teachers had the opportunity to observe their students and record their development files. Especially since primary school teachers attended all the students' lessons, they had the opportunity to follow different development aspects of the students.

TCG appears as a field of study that is emphasized in the literature and has important consequences for education. Temel and Kangalgil (2021) reported that TCG was effective in

achieving course objectives, but they did not mention the contents to what extent teachers used TCG, which games they used, and the time spent in the tournament. In the research conducted by Bozkurt and Sözer (2017) on 3rd-grade primary school students in Elazığ, they found that students were able to acquire some values through children's games. Still, the fact that the research was conducted in a single school and 40 students were included in the sample is seen as an important limitation. Temel (2022) noted that there was an improvement in the students' responsibility, helpfulness, self-control, and attitude values as a result of the physical education and sports lesson they conducted for 10 weeks, using the games in the TCG content. The fact that this research was conducted in a single school creates a significant limitation in terms of generalizing the results obtained. Istirahayu (2020), Romanvican et al. (2020) and Syihabbudin and Umami (2021) focused on a single traditional game in their research and recorded the educational outcomes of traditional games by working on a small number of samples. Studies in the literature focused on one age group and excluded students in other age groups. In this study, 107 teachers from 40 schools first taught the games to 1124 students and then enabled the students to participate in the games. The fact that students actively participate in the process, provide learning by doing, and the large sample size increases the importance of the results obtained in the research. Within the scope of the I Live My Values with Traditional Games Project (ILMVTGP), it has become easier for schools to participate in tournaments and their results can be followed. In addition, the fact that the project covers a period of time increases the reliability of the results obtained. In this regard, the study was conducted to determine the opinions of teachers participating in ILMVTGP regarding the place of TCG in education.

METHOD

Research Model

In this research, a phenomenological pattern, one of the qualitative research methods, was used to examine the opinions of primary school teachers and physical education teachers who participated in tournaments by teaching traditional games to their students within the scope of "I Live My Values with Traditional Games Project (ILMVTGP)". In phenomenology studies, phenomena that we are aware of but do not have a detailed understanding of are examined. For this reason, a theoretical explanation of a process or action is put forward by going beyond describing and emphasizing the common experiences of a group of individuals (3-15). The ultimate goal of phenomenology research is to understand and explain human experience (Tekindal & Uğuz Arsu, 2020).

Research Group

In the 2022-2023 academic year, 17 teachers, including 12 primary school teachers and 5 physical education teachers, who participated in the ILMVTGP within T.R. Eskil District Governorate (dated 20.02.2023 and numbered E-72879462-604.01.01-70660067) formed the research group. To obtain a rich knowledge of the subject under investigation, teachers with experience on the subject were purposefully selected. "Criteria sampling" was used to select students (Yağar & Dökme, 2018). Teachers who were included in the study according to criterion sampling were included in the research provided that they participated in ILMVTGP and took an active part in the tournaments. The qualifications of teachers are shown in detail in Table 1.

Table 1

Qualifications of the teachers who participated in the focus group discussion

Code	Gender	Branch	Career (year)	Student group
P1	Female	Primary school teacher	17	3rd grade
P2	Male	Primary school teacher	13	1st grade
P3	Female	Primary school teacher	4	3rd grade
P4	Female	Primary school teacher	9	2nd grade
P5	Female	Primary school teacher	1	4th grade
P6	Male	Primary school teacher	10	4th grade
P7	Female	Primary school teacher	8	1st grade
P8	Male	Primary school teacher	1	3rd grade
P9	Female	Primary school teacher	17	2nd grade
P10	Female	Primary school teacher	12	3rd grade
P11	Female	Primary school teacher	17	1st grade
P12	Female	Primary school teacher	25	2nd grade
P13	Male	Physical education	3	5th-8th. grades
P14	Male	Physical education	3	5th-8th. grades
P15	Male	Physical education	4	5th-8th. grades
P16	Male	Physical education	13	5th-8th. grades
P17	Female	Physical education	3	5th-8th. grades

Data Collection Tool

A semi-structured interview form was used to collect research data. The form, which was created by taking the opinions of three different faculty members who conduct qualitative research in the field of sports sciences, included seven questions. Teachers were asked to answer questions during the focus group interview. More comprehensive and in-depth information is obtained in focus group interviews than in individual interviews. In the group meeting, participants can make additional comments or have the opportunity to look at the issue from different perspectives because they hear someone else's comments (Büyüköztürk et al., 2020: 160). With permission from the teachers, the focus group interview process was recorded with a voice recorder. The interview duration lasted 77.13 minutes in the 1st focus group and 35.03 minutes in the 2nd focus group. The interviews on the voice recorder were transcribed in a word processing program, and copies were sent to the teachers for them to read and approve. After the teachers approved the records in the meeting minutes by signing, the voice recording was deleted and the principle of protecting confidentiality was followed.

Data Analysis

Content analysis was performed to analyze the interview minutes, which were converted into written text. Content analysis is a systematic and repeatable technique in which the prominent words of a text are summarized with smaller content categories by coding in line with certain rules (Taylan, 2011). With the inductive approach, the interview minutes are read line by line and the codes are parsed and the aim is to reach themes from similar expressions (Yıldırım & Şimşek, 2018: 242). In this regard, the study findings were analyzed by following the relevant criteria.

Validity and Reliability

In order to ensure the external validity (transferability) of the research, a detailed description was made by selecting a purposeful sample. To generalize the research results under similar situations or environments, a suitable sample should be used and detailed

descriptions should be made (Creswell, 2020: 267). For the internal validity (credibility) of the research, the interview minutes were read to the teachers in writing and participant confirmation was obtained. Obtaining participant confirmation is critical for the credibility of the study (Creswell, 2018: 252). Control of the reliability (consistency) of the research was tested with the formula of Miles and Huberman (2016) (= consensus/consensus + disagreement). According to this formula, the reliability coefficient is expected to be above .70. As a result of the analysis made by two experts conducting qualitative research in the field of sports sciences, a consensus was reached on 36 codes and a disagreement was observed on 5 codes. Accordingly, the reliability coefficient in the study was calculated as .87.

Ethics Statement

The ethical suitability of the research was checked with the approval of the Dokuz Eylül University Non-Interventional Research Ethics Committee (dated 24.05.2023, document number 2023/18-13). The study started after obtaining the research application permission from Aksaray Governorship (dated 18.05.2023 and document number E-76490249-605.01-76503692). Teachers who participated in ILMVTGP were informed about the study, and teachers who met the criteria and agreed to participate voluntarily in the research were included in the research by signing informed consent forms.

FINDINGS

As a result of content analysis, four themes, and related coding are presented in this section. The themes of “development”, “cultural bridge”, “value transfer” and “educational tool” came to the fore in teachers' opinions about the place of traditional children's games in education.

Development Theme

A structure consisting of 16 codes was obtained under the theme of development. The majority of teachers agreed that traditional children's games support physical development. It has been stated that development is not limited to physical development alone, but also develops social, emotional, and mental skills. Ultimately, it was accepted by the teachers that traditional games contribute to holistic development. Teacher expressions that influenced the formation of this theme are as follows. **P13:** “*Traditional children's games contribute to the holistic development of children in physical, mental, social, and emotional areas.”* ***P4:*** *“Children develop psychomotor skills because they involve movement, cognitive skills because they require knowing strategies and game rules, and affective skills because they make them experience the feelings of winning and losing.*” **P12:** “*These games include all mental, emotional, and psychomotor areas. For example, games include development in many aspects such as who should not give the tissue to whom, following the game, running fast, being happy when you win, or accompanying your friend's happiness. Following the play order, saying the nursery rhyme at the same time and at the same tempo, keeping one's ear to the nursery rhyme, and paying attention to whether a tissue is placed behind the child is very valuable for the development of children.*” **P16:** “*Traditional children's games contribute to the physical and mental development of children. Additionally, through games, children also improve their social skills. While playing games, children can develop communication, observation, and cooperation with other people. They also learn social rules such as respecting others, protecting the rights of others and their own rights, undertaking assigned duties, being able to decide and implement any issue, and cooperating.*” **P2:** “*Children learn basic concepts such as numbers, shapes, and colors through games. In terms of these features, children's attention, focus, and memory improve, and their problem-solving skills improve, making a positive contribution to their mental development. Children also develop socially through the behaviors of cooperating, taking responsibility, and obeying the rules*

during play." **P6:** "*Children's self-confidence increased in games, and this was reflected in children's lessons and increased their academic success.*" They used the expressions. Based on this, the theme of development was created.

Table 2

Development theme' codes

Codes	Participants	f (n=17)	%
Provides physical development.	P1-P3-P5-P6-P7-P8-P10-P11-P12-P14-P15-P17	12	70
Provides holistic development.	P1-P3-P5-P6-P11-P13-P15-P16-P17	10	58
Provides social development.	P1-P2-P3-P6-P9-P10-P12-P16-P17	9	52
Increases academic success.	P2-P3-P6-P7-P9-P15-P16	7	41
Provides emotional development.	P2-P3-P7-P8-P9-P10	6	35
Develops a sense of responsibility.	P1-P2-P3-P7-P8-P10	6	35
Improves attention.	P1-P2-P6-P12-P13-P16	6	35
Gives you the feeling of success.	P3-P12-P14-P15	4	23
Improves cooperation.	P4-P5-P6-P12	4	23
Improves mental skills.	P5-P6-P13-P17	4	23
Teaches to obey the rules.	P2-P7-P13-P17	4	23
It improves focus.	P1-P8-P13-P15	4	23
Improves self-confidence.	P7-P13-P14-P16	4	23
Teaches respect.	P3-P7-P16-P17	4	23
Improves strategic thinking.	P8-P10-P11	3	17
Increases communication.	P4-P12	2	11

Culture Bridge Theme

The six codes determined by the researchers led to the formation of the culture bridge theme. The majority of teachers mentioned that traditional games are important in transferring our culture to future generations. They emphasized that traditional games reflect the past due to their structure, include our cultural ties, and should be played in lessons to establish a bond between the past and the present. Games have been seen as valuable in preventing generational conflict and combating digital addiction. **P17:** "*From the materials used in children's games and the symbolic meanings attributed to them, to the relationships that people living in a certain region establish with the geography they live in and each other, to intercultural interactions; It offers rich clues in many areas, from economic activities to traditions and customs.*" **P14:** "*We can transfer our traditional games, which have gained a place in folk culture and are on the verge of extinction, from generation to generation by preserving the vitality of these games by organizing various competitions.*" **P2:** "*Traditional children's games are an important pillar of transferring the cultural values and traditions of a society to future generations. These games contain important information about the history, roots, and identity of the society. By playing these games, children get to know, understand, and keep alive their own culture and heritage by taking part in these games.*" **P5:** "*Children who play traditional children's games establish a connection with the past, thus their interest in the past increases and they learn about their past. Children's common ground with their parents increases and there is no cultural disconnection between them.*" **P1:** "*With the development of technology, children's unfamiliarity with their culture has increased greatly. They experienced their own culture through the traditional games played within the scope of the project. With the development of technology, serious differences began to emerge between the games played by children and the games played by their parents. I think traditional games are effective for children to play with their friends and their parents when necessary. Thus, by*

learning traditional games, children will be able to preserve and carry forward their own past and culture."

Table 3

Culture bridge theme' codes

Codes	Participants	f (n=17)	%
Provides cultural transfer.	P1-P3-P6-P9-P10-P12-P13-P15-P16	9	52
Creates a connection between the past and the present.	P5-P11-P13-P15	4	23
Teaches our cultural identity.	P2-P8-P10-P12	4	23
Reflects the past.	P3-P9-P13	3	17
Reduces generation conflict.	P15-P16	2	11
Takes our children away from the virtual world.	P11-P14	2	11

Value Transfer Theme

With the cultural bridge established with the past, we are able to convey our important values to our children. While teachers think that traditional games are effective in transferring most values, they stated that some values stand out clearly. In particular, the values of respect, love, helpfulness, honesty, friendship, and tolerance have been adopted by the students. In addition to these values, it is expected that traditional games will be played for a long time and parents will support them in order to highlight other values. **P15:** "*I believe that traditional games will unite our children on a common ground in terms of unity and integrity. It will be effective in raising generations of mutual love, respect, and tolerance. Children will learn that the opponent should be respected and loved.*" **P7:** "*Traditional games; have been very effective in transferring the values of respect, love, cooperation, friendship, and trust.*" **P3:** "*Students, who were previously fighting without respecting each other's rights, learned to respect each other over time. They managed to act as a team and act together rather than individually. While they were happy together when they won, they consoled each other when they lost.*"

Table 4

Value transfer theme' codes

Codes	Participants	f (n=17)	%
Teaches respect.	P1-P3-P5-P9-P14-P16-P17	7	41
Enables feeling love.	P1-P3-P6-P12-P15-P16	6	35
Develops a sense of helpfulness.	P6-P7-P8-P9-P12-P15	6	35
Teaches to be honest.	P3-P6-P9-P10-P11	5	29
Establishes a bond of friendship.	P3-P8-P13-P15-P17	5	29
Brings tolerance.	P1-P5-P12-P16	4	23

Educational Tool Theme

Researchers considered eight codes in creating this theme. Traditional children's games, due to their structure, consist of content in which children actively participate. It has been observed that students who actively participate in physical education lessons or ILMVTGP can fulfill course objectives and achieve success in terms of psychomotor skills. In addition, children's love of school and motivation to learn increased, and accordingly, their academic success increased and their negative behaviors decreased. **P2:** "*These games allow children to play an active role in the learning process, encourage learning with a fun experience, and increase interest and motivation.*" **P5:** "*In this way, the feeling of learning by having fun can*

be developed in children. This can be transferred to all lessons, as children's self-confidence will increase thanks to games." **P9:** "*I selected one of my students, whom I noticed a lack of self-confidence in the lessons, to this tournament team, and I saw very significant changes in him. He started to attend classes more. He became more enterprising. His success in general courses increased.*" **P3:** "*With the decrease in negative behaviors, course success has increased relatively.*" **P6:** "*Students with poor academic success began to come to school more motivated after traditional games. Thanks to these games, students began to act more carefully. Students with high psychomotor skills were discovered.*" **P8:** "*Traditional games enable children to be mentally motivated for school and to be successful in classes. It enables the development of hand and body skills as psychomotor skills.*" **P2:** "*It helps children develop their motor skills. During games, children experience physical activities such as running, jumping, balancing, and skipping. Traditional children's games are effective in helping student acquire motor skills, health awareness, and social activities through physical activity.*"

Table 5

Educational tool theme' codes

Codes	Participants	f (n=17)	%
Provides active participation.	P2-P7-P8-P11-P13-P14-P15-P17	9	52
Increases academic success.	P1-P4-P5-P16-P17	6	35
Makes love school.	P3-P6-P8-P10-P13	5	29
Especially effective in psychomotor field gains.	P1-P3-P6-P11-P15	5	29
Supports gains.	P9-P12-P15-P19	4	23
Provides a fun experience.	P1-P7-P13-P16	4	23
Increases motivation for education.	P8-P10-P11	3	17
Reduces negative behavior.	P3-P9-P13-P17	4	23

DISCUSSION

Teachers stated that traditional children's games (TCG) have a structure that allows students to develop physically, emotionally, socially, cognitively, and holistically. It has been explained that students pay attention to the game, can perceive different changing situations within the game, and develop counter strategies. Students took responsibility for winning the game and demonstrated the ability to act together by establishing correct communication with their friends. Children learned numbers, shapes, and colors through games. Students who demonstrate problem-solving skills have learned to follow the rules and act according to our values. Due to the nature of holistic development, children who are in a healthy development process experience the feeling of success. In their research, Temel and Kangalgil (2021) reported that primary school students who played TCG moved away from self-centeredness, could understand the emotions of others, communicated healthily with their friends, acted in line with national and moral values, and obeyed the rules. Altun (2013) touched upon the importance of game playing regularly in children's development and found that the self-control skills of children who play constantly develop. Children with high self-control skills know how to behave according to the situation and the individual. Accordingly, they communicate with the people around them. Girmen (2012) found in his research that TCG provides children with communication, self-control, leadership, cooperation, teamwork, decision-making, and problem-solving skills. Children who develop attention skills can, after a certain period, perceive the subject they focus on and develop behavior accordingly. In TCG, children may tend to try different attack methods depending on the flow of the game. In Yıldız's (2023) research, the attention of students playing TCG improved and subsequently

the visual perception mechanism also improved. Children with good attention and perception skills can make healthy decisions during the flow of the game (Arslan & Dilci, 2018; Yıldız & Koçak, 2022). Children who acquired these skills through games showed similar success in other lessons. Children who tried different problem-solving situations also experienced a sense of success in their lessons.

TCG has a structure that includes the holistic development of children as well as the cultural identity of the society in which they live. The teachers participating in the study mentioned that TCG reflects the past and that these games have been played for years. As a result of teaching and playing these games to today's children, children will have the opportunity to establish a connection with the past. It is emphasized that when a healthy emotional bond is established, negativities such as generational conflict can be prevented. It has been stated that physically active children can be protected from unsupervised virtual games through TCG. In their studies, Esen (2008) and Girmen (2012) reported that children who play TCG, which is an important part of our culture, learn social habits and adopt the culture. In his research, Hidayati (2020) explained that culture was transferred to Indonesian children through TCG and that the character development of children developed more healthily. Temel (2022) also found in their research that students told their parents about the TCG they played at school, chatted about the game, and took tactics. This situation enabled the parent and child to establish a bond between the past and the present and led to the formation of cultural unity. It has been observed that students who spend their time effectively in TCG move away from virtual games. Related to this result, Kacar (2020) concluded in his study that internet addiction decreased when secondary school students played TCG. Although students have limited access to the internet in the district where the study was conducted, it is worrying that such a risk exists. TCG is important in terms of keeping children engaged in play while they are at play age.

We have the convenience of transferring our root values (OGM, 2022), which are included in the curriculum of all courses of the T.R. Ministry of National Education, with TCG. Students acquire values such as respect, love, helpfulness, honesty, friendship, and tolerance and develop behavior patterns appropriate to these values. Students enter the process of acquiring values when they identify the children's games that have been played for a long time in the region they live in and play them in physical education classes (Yıldız, 2023). In their research, Temel and Kangalgil (2021) examined the level of impact of classroom teachers' participation in the TCG festival with their students and found that after the study, students were able to acquire values such as following the rules, responsibility, respect, cooperation, awareness, and willingness to participate in national festivals. Responsibility, helpfulness, self-control, and friendship values can be transferred through castle dodgeball game, handkerchief grabbing, and hopscotch games (Temel, 2022). Bozkurt and Sözer (2017) also had primary school students play TCG for 8 weeks. Among the games implemented in the study, it was observed that there was an improvement in the values of responsibility with the handkerchief grabbing game, self-confidence with the dodgeball game, cooperation with the seven stone game, and respect and congratulations for success with the golden bracelet game. Damayani et al. (2019) found that students playing TCG acquired the values of honesty, leadership, cooperation, cleanliness, and awareness. Students who acquire values can adapt to society by completing a healthy character development process and learning accepted and unacceptable behaviors in society (Dewi et al., 2020; Lestari & Prima, 2017). Istirahayu (2020) observed an increase in students' collaborative working attitudes as a result of having students at the basic education level play the national Lompat Tali game. Syihabbudin and Umami (2021) traditional game called Gobak Sodor, Romanvican et al. (2020) had his students play the traditional game called Engklek, and as a result of the study, an improvement was noted in the students' attitudes of being tolerant and showing tolerance.

Using TCG in value transfer, which allows values to be perceived concretely and practiced, is an important advantage for education (Aydın et al., 2022).

It was stated by teachers that TCG could be used as an educational tool in education. TCG has been effective in transferring physical education and sports course achievements, especially psychomotor content achievements. The academic success of students who are motivated to learn the achievements has increased. Children became attached to school through games and loved school more. They had fun experiences by actively participating in events. There has been a decrease in students' undesirable behavior both inside and outside of school. In Erol et al.'s (2022) study, primary school teacher candidates stated that TCG could be used educationally in terms of value education, skill development, and contribution to cultural heritage. Turan et al., (2020) found that, in line with the opinions of teachers who participated in TCG in Kayseri, it increased the interaction between teachers and students the most. However, it has been observed that they can perform psychomotor skills at a good level. Students' course success increased as their focus and motivation increased. Celayir (2015) emphasized the educational importance of using TCG in primary school physical education practices. In their study conducted in the provinces of Konya, Karaman, Kayseri, Sivas and Niğde, Temel and Kangalgil (2021) found that primary school teachers participating in the TCG festival effectively provided their students with the course outcomes included in the curriculum. Temel and Temel (2023) found that the time spent in moderate-to-vigorous physical activity by primary school children playing TCG was high and the students actively participated in the lesson. When students are active in the process, their undesirable behaviors will decrease. Thus, students spend their time playing games by taking part in educational applications (Hazar et al., 2017). Reducing students' negative behaviors at school and having fun participating in games increases school love and can have an impact on academic success.

Conclusion

As a result of the research; within the scope of the "I live my values through traditional games" project, it has been determined that students who play traditional children's games (TCG) benefit educationally. After following the students for about 4 months, TCG has made important contributions to providing holistic development, cultural bridge, value transfer, love of school, motivation, and academic achievement.

Recommendation

Based on these results, the use of traditional children's games in primary education can be recommended to teachers.

Limitations

This study is limited to primary school teachers who participated in "I live my values through traditional games" in the Aksaray-Eskil district.

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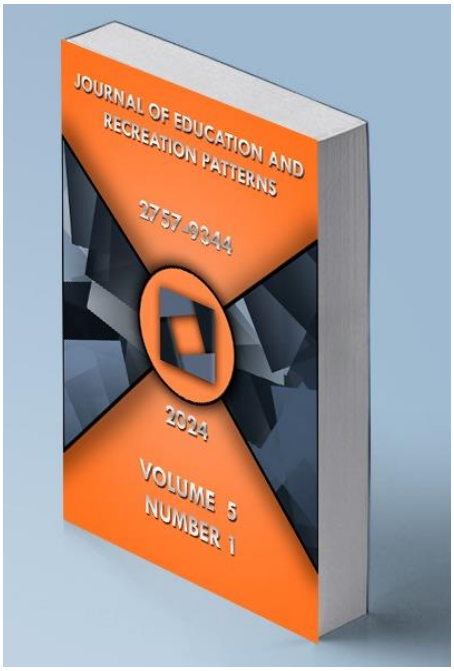

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Determination of Football Academy Coaches' Attitudes and Thoughts Towards Match Analysis in Football

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Determination of Football Academy Coaches' Attitudes and Thoughts Towards Match Analysis in Football

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ABSTRACT

This study aimed to determine the attitudes and opinions of football academy coaches towards match analysis in football and assess if these vary based on demographic variables. Using a descriptive survey method, data were collected from 210 football academy coaches participating in training in Istanbul during the 2022-2023 season. The study included coaches from 21 clubs in the Spor Toto Super League and Spor Toto 1st League, within the Turkish Football Federation's Football Academies Project.

No sampling was used; instead, the entire population was targeted with voluntary participation, resulting in 112 respondents. Data were collected using the Football Specific Match Analysis Scale by Gürkan et al. (2023). Due to non-normal distribution of data, Mann-Whitney U Test and Kruskal-Wallis Analysis of Variance were employed for statistical analysis, with significance set at 0.05.

Findings revealed that technology use in football, specifically match analysis, is seen as highly beneficial by coaches. Match analysis was considered significantly important and contributive to their development. Coaches generally rated match analysis as "very high" in importance and contribution to player development. It was also found that:

- Younger coaches and those with less experience in the academy league rated match analysis more positively.
- Coaches with higher education levels and higher monthly incomes were more likely to value match analysis highly.
- Differences in attitudes and opinions were significant across age groups, tenure in the academy, education levels, and income brackets.

These results indicate the growing importance of match analysis in football training and development, influenced by demographic factors.

Keywords: Academy, Football, Football Academy Coach, Match Analysis.

INTRODUCTION

Human beings have carried out some kinetic (protection, eating, drinking, sheltering) activities in order to maintain their vital functions and to survive their generation. In this process of existence, the concept of education has become the most important part of this existence while seeking solutions to the problems faced by human beings. Within the concept of education for centuries, all aspects of developmental factors have revealed the concept of sports training through both protection, defence and combat methods (Açak, 2010; Ceviz & Genç, 2021). Various games such as shooting, horse riding, tepük (football), which are inherited from our ancestors, have been modernised today and football competitions that millions of people watch with admiration have emerged. As a result of the blending of human talent level and education, it has brought the studies on football to the forefront today.

Looking at recent history, football, which was developed by the British in the 19th century, is a popular sports branch that has reached the most fan base by attracting the attention of people all over the continents of the world in a short time (Akgeyik, 2018). This branch, which has a high level of spectator pleasure, is enjoyed by billions of spectators today. In the international arena, billions of football viewers follow the matches on television screens by organisations such as FIFA and UEFA (İnan, 2018). While football is a recreational activity for football fans, it is a method that requires analysis and observation for practitioners. It is one of the most important tasks of a coach to observe the organisations that occur during competitions in order to reach the goal (Franks & Hughes, 2016). The fact that students around the world see the brand as an identity card, perceive it as a status tool in society, and tend to use this brand in their social relations has an extremely important place for many institutions and organizations (Sarıipek 2023). The branch of football has become an important part of life in developed countries with tens of thousands of practitioners and millions of fans, which attracts the attention of large masses, as well as the interest in football in developed countries, which has become an important part of life by moving to football schools and clubs (Schmidt, 1991). Football has become a very powerful phenomenon that involves social, economic, political, cultural and many other fields beyond a 90-minute competition. Beyond the magic of the concept of football, it has become an important branch that deeply affects societies and has become a commercial activity in significant dimensions as well as its rapid progress, high level of spectator pleasure at an exciting level (Kubayi, 2020).

Recently in football; analysis studies using scientific data have become extremely important. From this point of view, match analysis reveals the in-field performance and the formation of data (Dinçer et al., 2017). In our world where knowledge is rapidly increasing and renewed, research in the field of education in recent years has brought about major changes in the perspective of education and the individual (Çağlayan & Sezen, 2007). In the field of match analysis in football, it has become a valuable situation to evaluate and automatically analyse tactical situations based on position data during the match. The ability to obtain a large amount of data with little effort and in a very short time with well-planned match analysis evaluation steps is important for game formation and applications in football, and it is thought that it may bring new changes (Özçilingir, 2021). The analysis parameters used for match analysis in football can give useful results about the match-related statistics of the player's actions such as shooting, fouling, ball control, running distance, sprint count, passing, and the performance indicators of positive or negative teams. There are many positive benefits in terms of tactical evaluations made with video analysis methods Statistical studies can be evaluated by directly entering data with advanced analysis programmes. Through these analysis programs, all specific data such as shots, goals, interceptions, etc. can be analysed and presented graphically to the players (Bilgin, 2019). The implementation of programmes and applications that are considered to be beneficial for tactical training in the feedback process in unit and weekly training has been widely accepted as a very valuable input among

sports scientists, coaches and athletes (Groom & Cushion, 2004). Analysing the competition can help in tactical strategising and decision-making and training analysis can facilitate the provision of enhanced training feedback (Nelson et al., 2014).

The main purpose of this study is to provide coaches and managers debriefing experience to gain more understanding of objectives, processes and results is related to the practice of information in the context of sport (McArdle et al., 2010).

In the light of this information, the aim of this study is to determine the attitudes and opinions of football academy coaches towards match analysis in football, to contribute to football stakeholders in the light of science and to determine whether their attitudes and opinions towards match analysis in football differ according to demographic variables.

METHOD

Research Design

In the research, a descriptive survey method aiming to reveal the current situation was used. Survey models are research approaches that aim to describe a past or current situation as it exists. The event, individual or object that is the subject of the research is tried to be defined in its own conditions and as it is. No effort is made to change or influence them in any way (Karasar, 2008).

Universe and Sample

In order to create a healthy and sustainable "Academy Model" at international standards for the development of young players in Turkish football, the Turkish Football Federation has launched a new project. This project is carried out in co-operation with Double Pass, a company known for its training and auditing activities with FIFA, UEFA and various country federations (TFF, 2024).

Double Pass is a Belgium-based company specialising in talent development and optimising player potential. It offers comprehensive assessment, consultancy and training services to federations, leagues, clubs and individuals. With more than 20 years of experience and a team of highly trained and professional experts, it has completed many successful projects. He has worked with FIFA, Premier League, Bundesliga, US Soccer, J-League, DBU, Flamengo, Hertha Berlin, SC Internacional, FC Copenhagen and many other reputable organisations. In addition to significantly increasing the efficiency of clubs and academies, it offers services to improve the quality of play on the field (TFF, 2024).

Within the scope of the Football Academies Project carried out by the Football Federation of Turkey in cooperation with Double Pass company; 19 teams (Galatasaray A.Ş., Fenerbahçe A.Ş., Beşiktaş A.Ş., Adana Demirspor A.Ş., Medipol Başakşehir FK, Trabzonspor A.Ş., Vavacars Fatih Karagümrük, Arabam.com Konyaspor, Yukatel Kayserispor, Kasımpaşa A.Ş., MKE Ankaragücü, İstanbulspor A.Ş., Fraport Tav Antalyaspor, Demir Grup Sivasspor, Corendon Alanyaspor, Bitexen Giresunspor, Hangikredi Ümraniyespor, Gaziantep Futbol Kulübü A.Ş, Atakaş Hatayspor) and 19 teams in Spor Toto 1. League (Yılport Samsunspor, Eyüpspor) and U6, U7, U8, U9, U10, U11, U12, U13, U14, U15, U16, U17, U19 COACHES of 2 teams (Yılport Samsunspor, Eyüpspor) selected from 19 teams in the Spor Toto 1. League in the same period 4-5 April 2023 [U13-U16, U17-U19], 6-7 April 2023 [U6-U9, U10-U12], 23-24 May 2023 [U13-U16, U17-U19], 25-26 May 2023 [U6-U9, U10-U12], 20-21 June 2023 [U13-U16, U17-U19], 22-23 June 2023 [U6-U9, U10-U12], 15-16 August 2023 [U13-U16, U17-U19], 17-18 August 2023 [U6-U9, U10-U12], 17-18 September 2023 [U6-U9, U10-U12], 26-27 September 2023 [U13-U16, U17-U19].

In the light of this information, the population of the research was formed by the Football Academies Project carried out by the Turkish Football Federation in cooperation with Double Pass company, in the 2022-2023 Season, 19 clubs in the Spor Toto Super League and 2 clubs selected from 19 clubs in the Spor Toto 1. League, a total of 210 football academy coaches participated in the trainings given in Istanbul, including 126 coaches working in U13-U15 and U16-U19 age groups and 84 coaches working in U6-U9 and U10-U12 age groups (TFF, 2024).

In order to obtain reliable data, sampling was not used, the universe was studied on the basis of voluntary participation, and the "self-sampling universe" (Çilenti, 1984) was accepted as the study population of the research.

In the research, face-to-face interviews and online survey application methods (the scale created on the digital platform was sent to the whtasapp applications of the e-mail and phone numbers of the coaches' personal use with the request to be answered on a voluntary basis) were used (Büyüköztürk et al 2014, Özmen and Çakmaklı 2022) and the scale was tried to be applied to all football academy coaches in the universe. The questionnaires were not applied to the coaches who did not want to participate in the survey and did not return the questionnaires.

At the end of this process, it was determined that 112 football academy coaches participated in the data collection process of the research. In this way, the sample group of the research consisted of 112 football academy coaches in total.

As presented in Table and Figure 1 below, it was determined that all of the football academy coaches participating in the study were MALE [n=112; 100,0%]; 30,4% (n=34) had UEFA B, 59,8% (n=67) had UEFA A, 7,1% (n=8) had UEFA ELITE A and 2,7% (n=3) had UEFA PRO LICENCE.

Table 1

Percentage and frequency distributions of football academy coaches participating in the study according to their coaching licences

GENDER	**f**	**%**
Male	112	100,0
Total	**112**	**100,0**
COACH LICENCE		
UEFA B Licence	34	30,4
UEFA A Licence	67	59,8
UEFA Elite Youth A	8	7,1
UEFA Pro Licence	3	2,7
Total	**112**	**100,0**

Data Collection Tools & Process

Football Specific Match Analysis Scale developed by Gürkan et al (2023) was used as a data collection tool in the study.

The pool of fifty-five items created by Gürkan et al (2023) during the development process of the scale was reduced to fifty items in line with expert suggestions. As a result of the opinions received in terms of language and expression, the draft scale was finalised by Gürkan et al (2023). As a result of Exploratory Factor Analysis, overlapping items were removed from the scale and a structure consisting of four sub-dimensions and thirty-two items was obtained. This structure explains 71.593% of the total variance. Gürkan et al (2023) reported that the structure obtained after EFA was sufficient in terms of construct validity. Gürkan et al (2023) determined that the factor load values of the match analysis scale items specific to the football branch took values in the range of 0.584-0.950 and therefore stated that the factor load values of the items were sufficient. As a result of CFA applied to the data collected from another independent sample after EFA, a model consisting of four sub-dimensions and twenty-three items emerged. This showed that the scale structure was also valid in another sample. Gürkan et al. (2023) conducted item analysis based on item-total correlation for the items of the scale. As a result of the item analysis, it was determined that the structure revealed by CFA was preserved. Reliability analyses of the scale; As a result of the test-retest application in the context of stability and internal consistency, it was seen that the scores obtained as a result of the application of the scale and its sub-dimensions to the same sample two weeks apart were similar, and the stability coefficients took values greater than 0.70, which is the critical value for reliability coefficients. Gürkan et al (2023) reported that these results expressed the invariance and stability of the measurement results of the scale being developed and that the scale was reliable. Finally, the internal consistency of the scale was examined by calculating Cronbach's α coefficients, and the Cronbach's α coefficient values calculated for the overall and sub-dimensions of the scale were sufficient, indicating that the scale had internal consistency. As a result of the research conducted by Gürkan et al (2023), it was determined that the match analysis scale specific to the football branch is a valid and reliable measurement tool consisting of 23 items and 4 sub-dimensions.

Within the scope of this study, the values related to the reliability analysis of the overall scale and its factors are given in Table 2.

Table 2

Reliability analysis of Football Specific Match Analysis Scale

Football Specific Match Analysis Scale Factors	Cronbach Alpha	Number of Items
Development	0,956	6
Being Trivialised	0,739	7
Being Seen as Important	0,636	5
Contribution	0,849	5
Football Specific Match Analysis Scale Total Score	0,838	23

The evaluation criterion used in the evaluation of Cronbach's alpha coefficient is; $0,00 \leq \alpha < 0,40$ means that the scale is not reliable, $0,40 \leq \alpha < 0,60$ means that the scale has low

reliability, $0,60 \leq \alpha < 0,80$ means that the scale is highly reliable, $0,80 \leq \alpha < 1,00$ means that the scale is highly reliable (Özdamar, 2004).

As can be seen in Table 2, the results of 0,956 obtained in the "Development" dimension, 0,849 obtained in the "Contribution" dimension and 0,838 cronbach alpha coefficient obtained from the overall scale in this study indicate that the overall scale and its two sub-dimensions are highly reliable; The results of 0,739 cronbach alpha coefficient obtained in the dimension of "Perceived as Unimportant" and 0,636 cronbach alpha coefficient obtained in the dimension of "Perceived as Important" showed that the two sub-dimensions of the scale were highly reliable.

The question items forming the dimensions of the Football Specific Match Analysis Scale developed by Gürkan et al (2023), which consists of 23 questions and 4 factors with a 7-point Likert-type rating (7=Strongly Agree, 1=Strongly Disagree) are given in Table 3.

Table 3

Number of items constituting the factors of the Football Specific Match Analysis Scale and question items

Football Specific Match Analysis Scale Factors	**Article Number**	**Question Items Forming the Factors**
Development	6	(**1** + **2** + **3** + **4** + **5** + **6**) / 6
Being Trivialised	7	**(7** + **8** + **9** + **10** + **11**+ **12**+ **13)** / 7
Being Seen as Important	5	(**14** + **15** + **16** + **17** + **18**) / 5
Contribution	5	(**19** + **20** + **21** + **22** + **23**) / 5
Football Specific Match Analysis Scale Total Score	23	**(1** + **2** + **3** + **4** + **5** + **6** + **7** + **8** + **9** + **10** + **11**+ **12** + **13** + **14** + **15** + **16** + **17** + **18** + **19** + **20** + **21** + **22** + **23)** / 23

Scoring of the scale is based on sub-dimensions and overall. There are items in the scale that need to be reverse coded (7th, 8th, 9th, 10th, 10th, 11th, 12th and 13th items). For this reason, these items should be reversed when scoring. As the score obtained from the relevant item approaches seven, it is understood that the level of participation of individuals in that item is high, and as the score obtained approaches one, it is understood that the level of participation in the proposition in that item is low (Gürkan et al, 2023).

Data Analysis

In the data analysis phase, descriptive frequency and percentage distributions of the personal characteristics of the football academy coaches participating in the research were extracted in accordance with the aims of the research. The arithmetic mean and standard deviation values of the coaches' answers to the scale were calculated and the direction of their distribution was determined.

Afterwards, the normality distributions of the scale scores were examined in order to decide which statistical techniques to use in order to determine whether the attitudes and opinions of football academy coaches towards match analysis in football differ according to demographic variables. Normality distributions were tested with Kolmogorov-Smirnov and Shapiro-Wilk tests. As can be seen from the test results in Table 4, the results were significant

in all variables (P<0.05). In other words, it was seen that all variables did not show normal distribution. Therefore, whether the attitudes and opinions of football academy coaches towards match analysis in football differed according to demographic variables was tested with nonparametric tests. Mann-Whitney U Test was used for pairwise comparisons and Kruskal-Wallis Analysis of Variance was used for multiple comparisons. In cases where a significant difference was found because of Kruskal-Wallis Analysis of Variance in multiple comparisons, Mann-Whitney U Test was applied to determine between which groups this difference originated. In all statistical calculations, the basic significance level was accepted as 0.05 and the data were analysed with SPSS 23.0 software.

Table 4

Results of Kolmogorov Smirnov Test and Shapiro Wilk Test for Football Specific Match Analysis Scale of football academy coaches

	Kolmogorov-Smirnov Testi			**Shapiro-Wilk Testi**		
Football Specific Match Analysis Scale	**Statistic**	**df**	**P**	**Statistic**	**df**	**P**
Development	0,302	112	**0,000***	0,603	112	**0,000***
Being Trivialised	0,258	112	**0,000***	0,850	112	**0,000***
Being Seen as Important	0,299	112	**0,000***	0,815	112	**0,000***
Contribution	0,367	112	**0,000***	0,704	112	**0,000***
Football Specific Match Analysis Scale Total Score	0,246	112	**0,000***	0,805	112	**0,000***

***p<0,05**

FINDINGS

The findings pertaining to the data collected for this study are presented in this section.

Table 5

Percentage and frequency distributions of football academy coaches participating in the study according to personal variables

Variables	**Subcategories**	**f**	**%**	**Total**
Age	25-29 years old	7	6,3	112 - %100,0
	30-34 years old	40	35,7	
	35 years and older	65	58,0	
Working Time in Academy League	1-2 years	22	19,6	112 - %100,0
	3-4 years	27	24,1	
	5-6 years	46	41,1	
	7 years and over	17	15,2	
Education Status	High school	13	11,6	112 - %100,0
	Licnce	80	71,4	
	Postgraduate	19	17,0	
Monthly Income Status	Low	13	11,6	112 - %100,0
	Centre	17	15,2	
	Good	82	73,2	

As can be seen in Table 5, 6,3% (f=7) of the football academy coaches participating in the study were between the ages of 25-29, 35,7% (f=40) were between the ages of 30-34, and 58% (f=65) were in the age group of 35 and above; 19,6% (f=22) have been working in the academy league for 1-2 years, 24,1% (f=27) for 3-4 years, 41,1% (f=46) for 5-6 years, 15,2% (f=17) for 7 and more years; 11,6% (f=13) were high school graduates, 71,4% (f=80) were undergraduate graduates, 17% (f=19) were postgraduate graduates; 11,6% (f=13) had a low monthly income, 15,2% (f=17) had a medium monthly income and 73,2% (f=82) had a good monthly income.

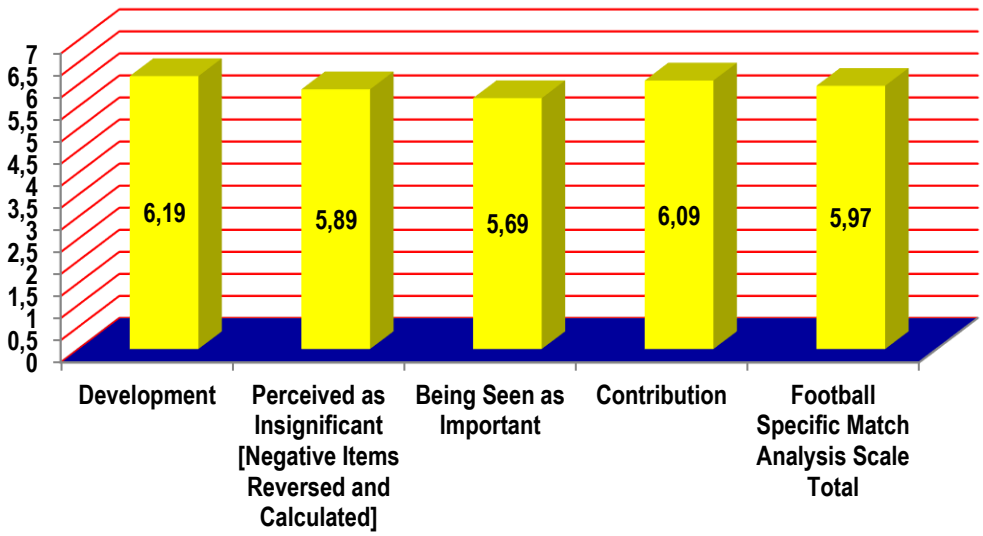
Table 6

Descriptive statistics of Football Specific Match Analysis Scale

Scale/Sub Dimensions	Number of Items	Min	Max	$\overline{X}$±SS
Development	6	1,50	7,00	6,19±0,70
Being Considered Insignificant [Unreversed Raw Form of Negative Items]	7	1,00	5,29	2,10±0,77
Perceived as Insignificant [Negative Items Reversed and Calculated]	7	2,71	7,00	5,89±0,77
Being Seen as Important	5	2,80	7,00	5,69±0,67
Contribution	5	4,40	7,00	6,09±0,37
Football Specific Match Analysis Scale Total	23	3,87	6,74	5,97±0,45

Figure 1

Distribution of Average Scores by Coach Licence Level



As seen in Table 6 and Figure 1, it was determined that the football academy coaches participating in the study had a mean score of 6,19±0,70 in the "Development" sub-dimension, 5,89±0,77 in the "Considered Unimportant" sub-dimension (the mean score obtained after the

negative items were reversed), 5,69±0,67 in the "Considered Important" sub-dimension, 6,09±0,37 in the "Contribution" sub-dimension and 5,97±0,45 in the overall scale.

When the sub-dimensions and the overall scale of the Football Specific Match Analysis Scale were considered within the framework of the research; it was determined that the coaches had the highest mean score in the "Development" sub-dimension (6,19±0,70).

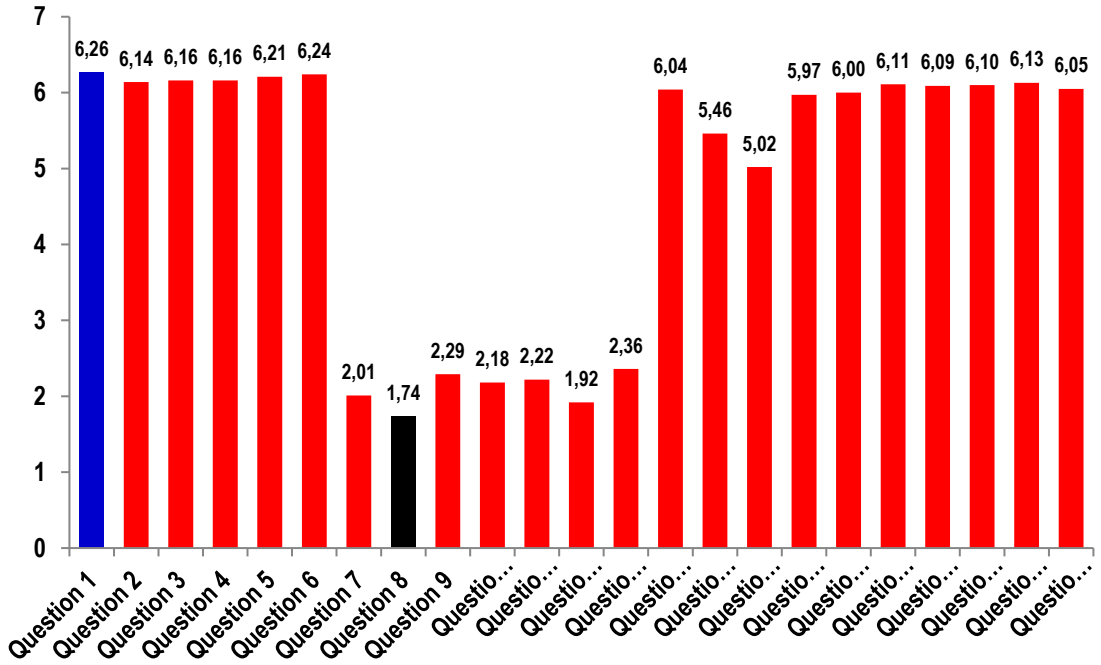
Table 7

Football Specific Match Analysis Scale item statistics

	Scale Items	$\overline{X}$**±SS**
1	Match analysis helps football coaches in their professional development	6,26±0,76
2	Football coaches determine different tactics as a result of statistical data obtained by match analysis	6,14±0,79
3	Match analysis helps football coaches to make a positive difference on the pitch	6,16±0,81
4	Match analysis provides information to coaches about the performance of footballers on the pitch	6,16±0,82
5	Match analysis increases the football knowledge of coaches	6,21±0,76
6	Match analysis allows football coaches to improve their tactical skills	6,24±0,73
7	Match analysis does not contribute to the professional development of football coaches	2,01±1,49
8	Match analysis is of no importance for the sporting development of footballers	1,74±0,78
9	Footballers do not take into account the data obtained by the match analysis method	2,29±1,36
10	Match analysis methods do not have an important place in winning football matches	2,18±1,39
11	The development of match analysis has not affected the number of clubs in need of football analysts	2,22±1,22
12	Football coaches do not attach importance to match analysis	1,92±0,86
13	Match analysis is not used in amateur leagues	2,36±1,41
14	With the development of technology, the level of development of football analysts interested in match analysis is increasing.	6,04±0,86
15	Club managers have more confidence in football coaches who apply match analysis methods	5,46±1,32
16	Football fans/viewers have expectations for match analyses	5,02±1,53
17	There is an increase in the number of analysts working at football clubs	5,97±0,60
18	There is an increase in scientific studies on match analysis in football	6,00±0,61
19	Match analysis allows footballers to recognise themselves in sporting terms	6,11±0,49
20	Match analysis allows footballers to improve themselves in sporting terms	6,09±0,43
21	Match analysis contributes to the objective evaluation of individual performances of footballers	6,10±0,44
22	Match analysis helps the tactical development of footballers	6,13±0,46
23	The frequency of use of match analysis methods in football is increasing in the field of sports sciences	6,05±0,55

Figure 2

Football Specific Match Analysis Scale Item Statistics



As seen in Table 7 and Figure 2, in the Football Specific Match Analysis Scale, which was applied to determine the attitudes and opinions of the coaches towards match analysis in football, the statement with the highest mean was item 1, which is one of the items forming the "Development" dimension as "Match analysis helps the professional development of football coaches" (6,26±0,76). It was determined that the statement with the lowest mean was item 8, which is one of the items that constitute the dimension of "Considered Unimportant" as "Match analysis has no importance for the sportive development of football players" (1,74±0,78).

Table 8

Kruskal Wallis-H test results showing the comparison of football academy coaches' opinions on match analysis in football according to age variable

		Age	f	$\overline{X}$	Row Average	Sd	X^2	P	Significant Difference
Development	A	25-29 years old	7	6,71	88,21	2	11,236	**0,004***	**A>B A>C**
	B	30-34 years old	40	6,15	47,30				
	C	35 years and older	65	6,16	58,75				
Being Trivialised	A	25-29 years old	7	6,10	63,36	2	4,819	0,090	-
	B	30-34 years old	40	6,16	64,47				
	C	35 years and older	65	5,71	50,85				
Being Seen as Important	A	25-29 years old	7	6,05	70,79	2	7,687	**0,021***	**B>C**
	B	30-34 years old	40	5,88	64,83				
	C	35 years and older	65	5,54	49,84				
Contribution	A	25-29 years old	7	6,08	55,64	2	2,185	0,335	-
	B	30-34 years old	40	6,03	51,66				
	C	35 years and older	65	6,13	59,57				
Football Specific Match Analysis Scale Total	A	25-29 years old	7	6,24	79,43	2	5,195	0,074	-
	B	30-34 years old	40	6,07	59,76				
	C	35 years and older	65	5,88	52,02				

***p<0,05**

As seen in Table 8, the mean scores of the coaches' Football Specific Match Analysis Scale sub-dimensions of being considered insignificant [$X^2_{(2)}$=4,819; P>0,05], contributing [$X^2_{(2)}$=2,185; P>0,05] and overall [$X^2_{(2)}$=5,195; P>0,05] did not differ significantly according to the age variable; Football Specific Match Analysis Scale development [$X^2_{(2)}$=11,236; P<0,05] and being considered important [$X^2_{(2)}$=7,687; P<0,05] sub-dimension mean scores differed significantly according to age variable.

Table 9

Kruskal Wallis-H test results showing the comparison of football academy coaches' thoughts on match analysis in football according to the variable of working time in the academy league

		Length of Service in the Academy League	n	$\overline{X}$	Row Average	Sd	X^2	P	Significant Difference
Development	A	1-2 years	22	6,25	69,73	3	9,869	**0,020***	**A>C** **B>C**
	B	3-4 years	27	6,20	64,09				
	C	5-6 years	46	6,15	47,74				
	D	7 years and older	17	6,21	51,03				
Being Trivialised	A	1-2 years	22	5,37	39,55	3	8,248	**0,041***	**B>A** **C>A**
	B	3-4 years	27	6,00	59,33				
	C	5-6 years	46	6,05	59,45				
	D	7 years and older	17	5,99	65,97				
Being Seen as Important	A	1-2 years	22	5,41	37,16	3	11,466	**0,009***	**B>A** **C>A** **D>A**
	B	3-4 years	27	5,84	63,76				
	C	5-6 years	46	5,74	60,83				
	D	7 years and older	17	5,68	58,29				
Contribution	A	1-2 years	22	6,00	53,91	3	1,348	0,718	-
	B	3-4 years	27	6,21	61,44				
	C	5-6 years	46	6,05	55,87				
	D	7 years and older	17	6,12	53,71				
Football Specific Match Analysis Scale Total	A	1-2 years	22	5,75	41,84	3	6,662	0,084	-
	B	3-4 years	27	6,06	63,87				
	C	5-6 years	46	6,01	56,75				
	D	7 years and older	17	6,01	63,09				

***p<0,05**

As can be seen in Table 9, the mean scores of the coaches' Football Specific Match Analysis Scale contribution [$X^2_{(3)}$=1,348; P>0,05] sub-dimension and overall [$X^2_{(3)}$=6,662; P>0,05] did not differ significantly according to the variable of working time in the academy league; Football Specific Match Analysis Scale development [$X^2_{(3)}$=9,869; P<0,05], being considered unimportant [$X^2_{(3)}$=8,248; P<0,05] and being considered important [$X^2_{(3)}$=11,466; P<0,05] sub-dimension mean scores differed significantly according to the working time in the academy league.

Table 10

Kruskal Wallis-H test results showing the comparison of football academy coaches' thoughts on match analysis in football according to the education status variable

		Education Status	n	$\overline{X}$	Row Mean	Sd	X^2	P	Significant Difference
Development	A	High School	13	6,03	60,73	2	2,420	0,298	-
	B	Licence	80	6,17	53,73				
	C	Postgraduate	19	6,39	65,29				
Being Trivialised	A	High School	13	5,35	43,08	2	2,591	0,274	-
	B	Licence	80	5,97	58,11				
	C	Postgraduate	19	5,96	58,89				
Being Seen as Important	A	High School	13	5,16	34,23	2	7,925	**0,019***	**B>A C>A**
	B	Licence	80	5,76	59,58				
	C	Postgraduate	19	5,77	58,76				
Contribution	A	High School	13	6,10	59,04	2	1,208	0,547	-
	B	Licence	80	6,07	54,81				
	C	Postgraduate	19	6,16	61,87				
Football Specific Match Analysis Scale Total	A	High School	13	5,65	42,12	2	3,525	0,172	-
	B	Licence	80	6,00	57,16				
	C	Postgraduate	19	6,08	63,55				

***p<0,05**

As can be seen in Table 10, the coaches' mean scores of Football Specific Match Analysis Scale development [$X^2_{(2)}$=2,420; P>0,05], being considered unimportant [$X^2_{(2)}$=2,591; P>0,05], contributing [$X^2_{(2)}$=1,208; P>0,05] sub-dimensions and overall [$X^2_{(2)}$=3,525; P>0,05] did not differ significantly according to the educational status variable, while the mean scores of the Football Specific Match Analysis Scale sub-dimension of being considered important [$X^2_{(2)}$=7,925; P<0,05] differed significantly according to the educational status variable.

Table 11

Kruskal Wallis-H test results showing the comparison of football academy coaches' opinions on match analysis in football according to the monthly income status variable

		Income Status	n	$\overline{X}$	Row Mean	Sd	X^2	P	Significant Difference
Development	A	Low	13	6,52	75,00	2	6,783	**0,034***	**A>C**
	B	Centre	17	6,15	62,50				
	C	Good	82	6,15	52,32				
Being Trivialised	A	Low	13	5,56	40,73	2	3,589	0,166	-
	B	Centre	17	5,80	57,44				
	C	Good	82	5,97	58,80				
Being Seen as Important	A	Low	13	5,76	60,69	2	4,204	0,122	-
	B	Centre	17	5,43	42,68				
	C	Good	82	5,73	58,70				
Contribution	A	Low	13	6,10	51,15	2	1,270	0,530	-
	B	Centre	17	6,00	52,35				
	C	Good	82	6,11	58,21				
Football Specific Match Analysis Scale Total	A	Low	13	5,97	58,77	2	0,196	0,906	-
	B	Centre	17	5,85	58,71				
	C	Good	82	5,99	55,68				

***p<0,05**

As can be seen in Table 11, the mean scores of the coaches' Football Specific Match Analysis Scale for the sub-dimensions of being considered unimportant [$X^2_{(2)}$=3,589; P>0,05], being considered important [$X^2_{(2)}$=4,204; P>0,05], contributing [$X^2_{(2)}$=1,270; P>0,05] and overall [$X^2_{(2)}$=0,196; P>0,05] did not differ significantly according to the monthly income

status variable, whereas Football Specific Match Analysis Scale development [$X^2_{(2)}$=6,783; P<0,05] sub-dimension mean scores differed significantly according to the monthly income status variable.

DISCUSSION & CONCLUSION

It was determined that the football academy coaches who participated in the study had a mean score of 6,19±0,70 in the "Development" sub-dimension of the Football Specific Match Analysis Scale; 5,89±0,77 in the "Considered Unimportant" sub-dimension (the mean score obtained after the negative items were reversed); 5,69±0,67 in the "Considered Important" sub-dimension; 6,09±0,37 in the "Contribution" sub-dimension and 5,97±0,45 in the overall scale (Table 6, Figure 2). When the sub-dimensions and the overall scale of the Football Specific Match Analysis Scale were considered within the framework of the research, it was determined that the coaches had the highest mean score in the "Development" sub-dimension (6,19±0,70).

In order to interpret the mean scores of the football academy coaches who participated in the study from the sub-dimensions and total of the Football Specific Match Analysis Scale; the formula of Interval width (a) = Array width / Number of groups to be made (Tekin 1993) was used [1=Strongly disagree (1,00-1,85 & VERY LOW); 2=Disagree (1,86-2,71 & LOW); 3=Slightly disagree (2,72-3,57 & CLOSE TO LOW); 4=Uncertain (3,58-4,43 & MEDIUM); 5=Partially agree (4,44-5,29 & CLOSE TO HIGH); 6=Agree (5,30-6,15 & HIGH); 7=Fully agree (6,16-7,00 & VERY HIGH)] (Yılmaz and Akgün 2019).

In this context, when the sub-dimension and total score averages of the Football Specific Match Analysis Scale were taken into consideration, it was determined that the level of participation of the coaches participating in the research to the items constituting the "Development" sub-dimension of the Football Specific Match Analysis Scale was "VERY HIGH", and the level of participation to the items constituting the sub-dimensions of "Considered Unimportant (taking into account the mean scores obtained after the negative items were reversed and calculated)", "Considered Important", "Contribution" and all items constituting the overall scale was "HIGH".

Considering these results, it can be concluded that the use of technology in football continues to increase day by day and match analysis, which is one of the most important of these technologies, is described by the coaches participating in the research as an important factor that contributes to their development at a "very high" level in the form of "helping their professional development, enabling them to determine different tactics as a result of the statistical data obtained, helping them to make a positive difference in the field, providing them with information about the field performances of football players, increasing their football knowledge, enabling them to improve their tactical skills".

In the same way, while match analysis is considered to be of "high" importance by the coaches participating in the research in the form of "increasing the development level of football analysts through this method used with the development of technology, club managers having more confidence in football coaches who apply these methods, football fans/ spectators having expectations for the application of this method, an increase in the number of analysts working in football clubs, an increase in scientific studies on this subject"; "it does not contribute to their professional development, it has no importance for sportive development, football players do not take into account the data obtained by this method, this method does not have an important place in winning matches, the development of this method does not affect the number of clubs that need football analysts, coaches do not attach importance to analyses and this method cannot be used in amateur leagues". Again, in parallel with these results, match analysis was described by the coaches participating in the study as a CONTRIBUTIVE factor at a "high" level in the form of "enabling football players to recognise and improve themselves

in a sportive sense, enabling football players to evaluate their individual performances objectively, helping the tactical development of football players and increasing the frequency of use of these methods in the field of sports sciences day by day".

In the Football Specific Match Analysis Scale, which was applied to determine the attitudes and thoughts of football academy coaches towards match analysis in football, the statement with the highest mean was item 1, which is one of the items forming the "Development" dimension as "Match analysis helps the professional development of football coaches" (6,26±0,76). It was determined that the statement with the lowest mean was item 8, which is one of the items that constitute the "Considered Unimportant" dimension as "Match analysis has no importance for the sportive development of football players" (1,74±0,78) (Table 7 and Figure 3).

The 7th, 8th, 8th, 9th, 10th, 10th, 11th, 12th and 13th items in the scale are negative and are scored in reverse order. The sum of these 7 items constitutes the "Perceived Insignificance" dimension of the scale. When analysing the item statistics of the Football Specific Match Analysis Scale, the 7th, 8th, 9th, 10th, 10th, 11th, 12th and 13th items were given in their raw form before they were reverse scored. As can be seen in the analysis given in the findings section, the first 7 items (match analysis does not contribute to the professional development of football coaches; match analysis has no importance for the sportive development of football players; football players do not take into account the data obtained by match analysis method; match analysis methods do not have an important place in winning football matches; the development of match analysis has not affected the number of clubs that need football analysts; football coaches do not attach importance to match analysis; match analysis is not used in amateur leagues) were found to be these items. The fact that the coaches had the lowest average in these 7 items scored in reverse order and in the "Considered Unimportant" dimension of match analysis formed by these items in its raw form before being scored in reverse order, in other words, the fact that they reported that they "disagreed" with these seven items is an approach that shows that their attitudes and opinions towards match analysis in football are positive.

It was determined that the attitudes and opinions of the football academy coaches participating in the research towards the factors of "seeing match analysis as unimportant", "believing that match analysis contributes" and all the statements in the scale including the items that make up these factors did not differ significantly according to the age variable, while their attitudes and opinions towards the factors of "helping their development" and "seeing match analysis as important" differed significantly according to the age variable (Table 8).

As a result of the analysis made over the binary combination of age variables in the factors of "development" and "considered important"; it was found that the level of evaluating match analysis in football as an important factor contributing to their development was significantly higher among the coaches in the 25-29 age range than the coaches in the 30-34/35 and above age range. Again, it was determined that the coaches in the 30-34 age range considered match analysis in football more important than the coaches aged 35 years and above. In accordance with these results, it is possible to say that the attitudes and opinions of football academy coaches who are younger in age are significantly higher than the coaches who are older than them in terms of evaluating match analysis as an "important" factor that contributes to their "development".

It was determined that the attitudes and opinions of the football academy coaches participating in the research towards the factor of "believing that match analysis contributes" and all the statements in the scale including the items that make up this factor did not differ significantly according to the variable of working time in the academy league; while their attitudes and opinions towards the factors of "helping their development" and "seeing match

analysis as insignificant and important" differed significantly according to the variable of working time in the academy league (Table 9).

As a result of the analysis made over the binary combination of the working time in the academy league variable in the factors of "Development", "Considered unimportant" and "Considered important"; it was found that the level of evaluating match analysis in football as an important factor that contributes to their development was significantly higher for the coaches who worked in the academy league between 1-2 years and 3-4 years compared to the coaches who worked in the academy league between 5-6 years.

Again, it was determined that the attitudes and thoughts of the coaches working in the academy league in the range of 3-4 years and 5-6 years were significantly higher than the coaches working in the academy league in the range of 1-2 years.

Finally, it was determined that the coaches working in the academy league for 3-4 years, 5-6 years and 7 years / more have a higher level of SEEING match analysis in football as IMPORTANT than the coaches working in the academy league for 1-2 years.

Within the scope of these results, it can be said that the attitudes and opinions of the coaches who have less working time in the academy league are significantly higher in terms of evaluating match analysis as a factor that contributes to their "development" than the coaches who have worked in the academy league more than themselves; in parallel to this, the attitudes and opinions of the coaches who have less working time in the academy league are significantly lower in terms of "considering match analysis unimportant" in football than the coaches who have worked in the academy league more than themselves. In other words, it can be said that the coaches who have more time working in the academy league have significantly lower thoughts about the contribution of match analysis in football to their development than the coaches who have less time working in the academy league, while their thoughts that match analysis is unimportant are significantly higher.

It was determined that the attitudes and opinions of the football academy coaches participating in the research towards the factors of "helping", "believing that match analysis contributes", "seeing match analysis as "unimportant" and all the statements in the scale including the items that make up these factors did not differ significantly according to the educational status variable; while their attitudes and opinions towards the factor of "seeing match analysis as important" differed significantly according to the educational status variable (Table 10).

As a result of the analysis made on the binary combination of the education level variable in the factor of "perceived important"; it was determined that coaches with undergraduate and graduate degrees perceived match analysis in football as more important than coaches with high school degrees. Within the scope of these results, it is possible to say that football academy coaches with a high level of education have significantly higher attitudes and opinions towards the "importance" of match analysis in football than coaches with a low level of education.

It was determined that the attitudes and opinions of the football academy coaches participating in the research towards the factors such as "seeing match analysis as unimportant and important", "believing that match analysis contributes" and all the statements in the scale including the items that make up these factors did not differ significantly according to the monthly income status variable; while their attitudes and opinions towards the factor that match analysis helps their "development" differed significantly according to the monthly income status variable (Table 11).

In the "Development" factor, as a result of the analysis made on the binary combination of the monthly income status variable; it was found that the level of evaluation of match analysis in football as an important factor contributing to their development was significantly

higher for coaches with low monthly income status than for coaches with good monthly income status. According to these results, it can be said that football academy coaches with low monthly income level have significantly higher attitudes and opinions regarding the evaluation of match analysis as a factor contributing to their "development" than coaches with high monthly income level.

Conclusion

In conclusion, it is important to emphasise that football is not only a game but also a strategic, tactical and emotional experience. Match analysis helps teams to understand their strengths and weaknesses, improve their game strategy and better prepare for future competitions. Beyond statistics, match analysis provides a broader perspective of football by assessing the performances of players, the tactical choices of coaches and the influence of fans. Teams that recognise that football is not only an on-field competition, but also a battle of strategy, team cooperation and emotional bonding can improve and perform better based on the results of match analysis, contributing to the universal appeal and continuous evolution of football.

Future research should seek to build on our findings and analyses by examining each of these areas in more detail as they relate to the day-to-day realities and challenges that performance analysts face when trying to navigate workplace relationships and interactions. Here, consideration should be given to where analysts find themselves interacting with fellow employees, who they find themselves interacting with, how they interact with these individuals to present themselves as credible, as well as the intended and unintended consequences of their decisions and actions (Nelson et al., 2023).

Although it is seen in the relevant literature on match analysis that studies have been conducted to determine the performances of clubs (Erdoğan, 2021, Özçilingir, 2021, Tunç, 2021, Ağyol, 2022, Seyfeli, 2022); there is no research in which the attitudes and thoughts of the participants regarding match analysis are determined. In this context, it is thought that the results of the research will contribute to the relevant literature.

Recommendations

We think that football and match analysis is an important training tool for coaches and managers. The following suggestions can be made to coaches and managers about football-specific match analysis:

For each match analysis, goals such as effective use of analysis tools, determining the scope of the analysis, comprehensive data collection, effective use of technology, etc. should be set. These goals can help athletes to achieve certain improvements and develop their abilities. Detailed examination of matches using video analysis, GPS technology and other advanced technological tools can help to analyse players' physical activity, movement and team strategies.

Personalised Training Programmes: Personalised training programmes can be created for coaches with different demographic characteristics. These programmes can support the development of coaches by targeting their identified weaknesses. For example, trainings focusing on basic match analysis skills can be organised for coaches with less experience.

Mentoring and Coaching Services: The fact that coaches have different demographic characteristics may indicate that their needs and strengths may be different. Therefore, a mentoring or coaching network of experienced coaches can be established. This network can provide support in accordance with the individual needs of coaches.

Learning Opportunities from Multiple Sources: Various learning opportunities can be offered for coaches with different levels of education and experience. By utilising multiple

sources such as online courses, seminars, books and video content, each coach can learn at their own pace and in accordance with their preferences.

Continuous Evaluation and Feedback: Coaches' development processes should be regularly evaluated and feedback should be provided. In addition to emphasising the strengths of the coaches, these evaluation processes can help to create individual development plans by identifying areas of development.

Networking and Communication: Networking events can be organised to encourage communication and information sharing among coaches with different demographic characteristics. These events can create an environment of mutual support and co-operation by enabling coaches to learn from each other and share their experiences.

These suggestions can help coaches with different demographic characteristics to develop and successfully apply their match analysis skills.

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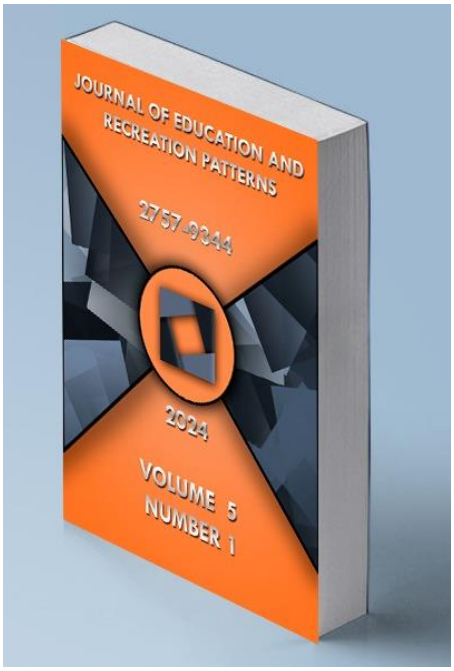

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The Relationship Between Leisure Involvement, Flow Experience, and Life Satisfaction Levels of Fitness Center Members*

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The Relationship Between Leisure Involvement, Flow Experience, and Life Satisfaction Levels of Fitness Center Members

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ABSTRACT

The aim of this study was to compare the leisure involvement, flow experience, and life satisfaction levels of fitness center members according to the gender and physical activity participation frequency variables. At the same time, the correlations between leisure involvement, flow experience and life satisfaction were identified. The research included a total of 309 fitness center members comprising 147 women and 162 men. Participants responded to the Leisure Involvement Scale, Recreational Flow Experience Scale and Satisfaction with Life Scale. Analysis of data used descriptive statistics, t test, ANOVA, MANOVA, correlation and regression tests. According to physical activity participation frequency, the leisure involvement subdimensions, flow experience and life satisfaction mean scores were identified to differ at significant levels ($p<0.05$). For the variables with significant difference identified, fitness center members participating in weekly physical activity more often had higher mean scores compared to others. Correlation analysis results found significant and positive levels of correlation between leisure involvement, flow experience and life satisfaction mean scores ($p<0.05$). According to the results of regression analysis, leisure involvement was a significant predictor of flow experience and life satisfaction. In conclusion, individuals participating in physical activity more frequently had an increase in leisure involvement levels, along with increases in flow experience and life satisfaction levels. Based on this, leisure involvement played a determinative role in the flow experience and life satisfaction levels of fitness center members who are regularly physically active.

Keywords: Flow Experience, Leisure Involvement, Life Satisfaction.

INTRODUCTION

The Industrial Revolution brought sociological, political, technological, economic, cultural and demographic changes in a social context and in this way laid the foundations for modern industrial societies (Ashton, 1997; Hudson, 2014). Industrialization provided the opportunity for more efficient production along with the use of machinery and caused reorganization of people's working hours (Xu et al. 2018). Though the first stage of industrialization involved long working hours and difficult conditions, over time it led to a reduction in people's working hours and the need for more leisure (Cunningham, 2016). From past to present, apart from working life and basic needs, leisure has offered people the opportunity to participate in cultural, artistic, social, touristic and physical activities (Blackshaw, 2010; Mansfield et al., 2020). Individuals can participate in leisure activities based on their interests or by considering the benefits of the activities (Doğan et al., 2023; Li et al., 2021). Activities like going to the theater, chatting with friends, taking vacations, swimming and going to the gym may be observed, varying according to the individual's interests. Researchers (Gürbüz, 2017; Kyle et al., 2007; Sivan et al., 2019) investigate this paradigm under the heading of 'leisure involvement' in social psychology to explain the reasons for choosing, and levels of, leisure activity among individuals.

Leisure involvement represents the psychological status of individuals created within the framework of impulses, motivation, personal and social benefits related to activities in the stages of participation and process of leisure activities (Havitz & Dimanche, 1999). For example, elements increasing involvement and ensuring continuity for individuals related to physical activity are motivation and impulses about its physical, social and psychological benefits (Hoare et al., 2017; Knittle et al., 2018). Kyle et al. (2007) stated that there are five facets comprising individual leisure involvement. a) Attraction represents the elements attracting individuals to leisure activities. b) Centrality represents the importance or central role that the leisure activity experience plays in an individual's life. c) Social bonding represents the development and strengthening of social connections, relationships and feeling of belonging created among individuals participating in common leisure activities. d) Identity affirmation represents the process where individuals use their leisure activities to strengthen different aspects of the self and to discover their personalities. e) Identity expression means that the leisure activities that individuals participate in provide some clues about them to those around them. All these facets are psychological dimensions explaining the level of leisure involvement of individuals (Kyle & Chick, 2002; Matsumoto et al., 2018). High levels of involvement related to leisure activities of individuals means their activities provide by satisfaction (Lee et al., 2023; Sato et al., 2017) and flow experience (Tao et al., 2022). In the literature, there are results showing positive correlations between leisure involvement and flow experience (Chang, 2017; Cheng et al., 2016).

Flow theory, by one of the pioneering scientists in the field of positive psychology Mihaly Csikszentmihalyi, is described as the individual's complete integration with the action they are engaged in, being involved with all their being, using their skills to the fullest, and hence time passes quickly (Nakamura & Csikszentmihalyi, 2009). Flow emerges when there is a balance between the difficulty of the task being met by the abilities of the individual. If the task is very difficult or very easy compared to the individual's abilities, flow does not occur (Csikszentmihalyi et al., 2018). Flow theory is generally associated with activities like sport, art, working, games, etc. (Ahn & Song, 2024; Habe et al., 2021; Perttula et al., 2017). This situation works in the same way during the individual's participation in leisure activities. Freire et al. (2016) emphasized the importance of psycho-social effects provided to people by flow experience during leisure activities. Flow experience, along with variables like leisure activity types and gender, is seen as a factor affecting the life satisfaction of individuals (Hou & Jiang, 2020).

The concept of life satisfaction, associated with the words happiness and welfare, represents how satisfied individuals are with their lives (Maddux, 2018). Life satisfaction is a paradigm measured subjectively as the positive and negative moods an individual feels related to their lives and the degree to which these meet or do not meet their expectations (Veenhoven, 1996). In this context, Brown and Duan (2007) stated that the life experiences of individuals, along with their demographic and psychological features, were determinant factors for life satisfaction. Perhaps the most important of these determinants is leisure participation. Due to the leisure activities that individuals participate in, they sustain a quality life and obtain life satisfaction (Khindri & Tanwar, 2023; Stenseng & Phelps, 2013; Tükel & Temel, 2020). Participation in physical activity during leisure, especially, offers positive contributions to the life satisfaction of individuals (Elçi et al., 2019; Wypych-Ślusarska et al., 2023). An et al. (2020) identified that physical activity was very important in the context of life satisfaction for young, middle-aged and elderly adults and concluded that as the ages of individuals participating in physical activity increase, life satisfaction levels increase.

In terms of participation in physical activities, fitness centers are very important for individuals (Şirin et al., 2023). Fitness clubs offer the opportunity for sustainability of participation in physical activities for individuals who are members (Park & Kwon, 2022). In addition to sustainability of physical activity participation for members, fitness centers are important for leisure involvement (Demirel, 2019; Wang et al., 2022). Regular participation in physical activity during leisure can provide individuals with flow experience and also enable them to achieve life satisfaction. As a result, there may be positive correlations between leisure involvement, flow experience and life satisfaction in the context of physical activity participation by fitness club members. In the literature, there are studies related to the concepts of leisure involvement (Gürbüz et al., 2018; Tao et al., 2022), recreational flow experience (Ayhan et al., 2020; Jackson et al. 2023) and life satisfaction (Russo-Netzer & Tarrasch, 2024). Scientists (Chang, 2017; Cheng et al. 2016; Demirel et al., 2022) relationally investigated leisure involvement and flow experience in different sample groups. There is research in the literature stating the relationship between leisure involvement and life satisfaction (Sato et al., 2017). Additionally, there are studies in the literature expressing the relationship between flow experience in the recreational context and life satisfaction (Chen, 2010; Hou & Jiang, 2020). However, there was no study encountered which correlationally investigated the leisure involvement, recreational flow experience and life satisfaction concepts in the context of physical activity. Given the various health benefits of physical activity, research in these areas can aid in developing strategies aimed at enhancing individuals' overall well-being. Considering the benefits (Callow et al., 2020; Mahindru et al. 2023) provided to human health in social, psychological and physiological contexts by physical activity, investigating the correlations between leisure involvement, recreational flow experience and life satisfaction levels of fitness center members will provide significant contributions to the literature.

In light of this information, the aim of the study was to compare the leisure involvement, flow experience and life satisfaction of individuals participating in physical activity with a variety of independent variables and to identify the correlations between these concepts. In line with this aim, answers were sought for the following questions.

Are there differences in the leisure involvement, flow experience and life satisfaction levels of fitness center members according to the variables of gender and physical activity participation frequency?

Are there correlations between leisure involvement, flow experience and life satisfaction levels of fitness center members?

METHOD

Research Design

In accordance with the aim of the study, the screening model from the quantitative research methods was used. The screening model is defined as 'research models aiming to determine the presence and degree of change between two or more variables' (Karasar, 2023).

Universe and Sample

The research group were participants in physical activity with membership of a fitness club (İstanbul-Beşiktaş). Participants, chosen with the convenient sampling method (mean age 31.21±7.97 years), comprised a total of 309 people including 147 women (47.6%) and 162 men (52.4%). Convenience sampling, also known as availability sampling, is a type of non-probability sampling method where participants are selected based on their easy accessibility and proximity to the researcher (Simkus, 2022). Of the fitness center members participating in physical activity, 11.7% had high school, 64.1% had university and 24.3% had master or doctorate educational level. Among the fitness center members, 43.3% participated in physical activity 1-2 days per week, 49.8% participated 3-4 days and 6.8% participated on 5 or more days. The mean years of membership was 4.73 for the fitness club (Table 1).

Table 1

Descriptive statistics for participants

Variables	N	%
Gender		
Female	147	47.6
Male	162	52.4
Education		
High school	36	11.7
College	198	64.0
Master's or PhD	75	24.3
Physical Activity Participation Frequency (Weekly)		
1-2 day	134	43.4
3-4 day	154	49.8
5 or more days	21	6.8
Total	**309**	**100**

Data Collection Tools & Process

Demographic Information Form: The personal information form created by the researchers was used in this study to obtain some demographic information about participants (age, sex, educational level, physical activity participation frequency and years of membership).

Leisure Involvement Scale (LIS): The scale developed by Kyle et al. (2007) had validity and reliability studies for the Turkish form performed by Gürbüz et al. (2018). The scale comprises 5 subdimensions (attraction, centrality, social relations, identity affirmation and identity expression) and 15 items and is rated from 1 – definitely disagree to 5 – definitely

agree. The Cronbach alpha internal consistency coefficients for the scale adapted to Turkish varied from 0.58 to 0.80.

Recreational Flow Experience Scale (RFES): This scale was developed by Ayhan et al. (2020) and includes a single dimension and 9 items. Items are rated from 1 – definitely disagree to 7 – definitely agree. The Cronbach alpha internal consistency coefficient for the scale was 0.94.

Satisfaction with Life Scale (SWLS): The scale developed by Diener et al. (1985) had validity and reliability examined by Dağlı and Baysal (2016). The scale has a single dimension and 5 items, rated from 1 – definitely disagree to 5 – completely agree. The Cronbach alpha internal consistency coefficient for the Turkish adaptation of the scale was 0.88.

The study was completed within the framework of the "Institutions of Higher Education Scientific Research and Publication Ethics Directive". In accordance with the aim of the research, necessary permissions were obtained from management of five separate fitness centers. Fitness center members who regularly participated in physical activity were included in the research on a voluntary basis. Participants participated in the research through face-to-face interviews, e-mail and online internet tools. Completion of the application form, which included information related to the aim of the research and data collection tools, took about 10 minutes for each participant. The data collection process took approximately three weeks to complete. Data with valid and acceptable quality were transferred to the SPSS statistical program for analysis.

Ethical Procedures

Approval related to the suitability of the research in ethical terms was obtained from the Scientific Research and Publication Ethics Committee of the National Defense University Rectorate (12.04.2023/E-54589112-824.99-2268067).

Data Analysis

Data collected related to the research were analyzed with SPSS 22 statistical program. Analysis of data in line with the aim of the research used frequency, t test, MANOVA, ANOVA, Pearson correlation and regression tests. To determine whether data met the preconditions for parametric tests, the decision was made to examine skewness and kurtosis values (Kline, 2011) and equivalence of variance (Levene) test (Büyüköztürk, 2012). The skewness (-1.25 to -0.05) and kurtosis (-0.21 to 1.87) values for the research variables were within the ±2 interval and the data was shown to have normal distribution (George and Mallery, 2020). The Cronbach alpha internal consistency coefficients were calculated to determine reliability of the scales. The Cronbach alpha internal consistency coefficients varied from 0.72 to 0.89 for the LIS. Internal consistency coefficients were identified as 0.94 for the RFES and 0.84 for the SWLS.

FINDINGS

In this section, findings related to the leisure involvement, recreational flow experience and life satisfaction levels with gender and physical activity participation frequency variables are given. Additionally, the analysis results revealing the correlations between leisure involvement, flow experience and life satisfaction are included.

Table 2

Analysis results according to gender variable

Scales Sub-Dimensions	Female (N= 147)		Male (N= 162)		p
	Mean	Sd.	Mean	Sd.	
LIS					
Attraction	3.91	0.93	3.80	0.84	0.28
Centrality	3.27	0.99	3.11	0.92	0.13
Social bonding	3.66	0.85	3.68	0.87	0.84
Identity affirmation	3.56	0.92	3.39	0.90	0.10
Identity expression	3.19	1.03	2.98	1.00	0.08
RFES	5.78	1.10	5.74	1.07	0.76
SWLS	3.17	0.85	3.20	0.92	0.73

LIS= Leisure Involvement Scale, RFES= Recreational Flow Experience Scale, SWLS= The Satisfaction with Life Scale.

According to MANOVA analysis results, the mean scores for the LIS factors of fitness center members were not identified to differ by a statistically significant level according to the gender variable ($p>0.05$). The t-test analysis results show there were no significant differences in mean RFES and SWLS scores for male and female fitness center members ($p>0.05$) (Table 2).

Table 3

Analysis results according to physical activity participation frequency (weekly) variable

Scales Sub-Dimensions	1-2 day (1) (n= 134)		3-4 day (2) (n= 154)		5 or more day (3) (n= 21)		p	Significant Difference (Tukey)
	Mean	Sd.	Mean	Sd.	Mean	Sd.		
LIS								
Attraction	3.45	0.89	4.09	0.76	4.68	0.46	0.00*	1-2 / 1-3 / 2-3
Centrality	2.83	0.94	3.38	0.84	4.12	0.91	0.00*	1-2 / 1-3 / 2-3
Social bonding	3.42	0.85	3.84	0.81	4.00	0.82	0.00*	1-2 / 1-3
Identity affirmation	3.19	0.93	3.61	0.85	4.25	0.57	0.00*	1-2 / 1-3 / 2-3
Identity expression	2.85	0.93	3.17	1.04	3.85	0.92	0.00*	1-2 / 1-3 / 2-3
RFES	5.29	1.21	6.03	0.82	6.69	0.48	0.00*	1-2 / 1-3 / 2-3
SWLS	2.98	0.86	3.34	0.89	3.41	0.82	0.00*	1-2

LIS= Leisure Involvement Scale, RFES= Recreational Flow Experience Scale, SWLS= The Satisfaction with Life Scale.

According to MANOVA analysis results, the basic effect of physical activity participation frequency on LIS was significant. There were statistically significant differences identified between the mean scores for the attraction ($F_{(2.306)}= 34.67$; $p<0.05$), centrality ($F_{(2.306)}= 26.04$; $p<0.05$), social bonding ($F_{(2.306)}=10.65$; $p<0.05$), identity affirmation ($F_{(2.306)}=17.17$; $p<0.05$), and identity expression ($F_{(2.306)}=10.56$; $p<0.05$) subscales. For all LIS subscales with significant differences identified, fitness center members who participated in physical activity more frequently had higher mean scores compared to other groups. ANOVA analysis and later Tukey HSD test showed the physical activity participation frequency variable caused a significant difference in mean RFES ($F_{(2.306)}= 29.44$; $p<0.05$) and SWLS ($F_{(2.306)}= 5.05$; $p<0.05$) of fitness center members. Both RFES and SWSL mean scores were higher for

individuals who participated in physical activity more frequently compared to other groups (Table 3).

Table 4

Correlation analysis results (LIS, RFES, SWLS)

	LIS (F1)	LIS (F2)	LIS (F3)	LIS (F4)	LIS (F5)	RFES	SWLS
LIS (F1)	1						
LIS (F2)	0.66**	1					
LIS (F3)	0.42**	0.50**	1				
LIS (F4)	0.62**	0.66**	0.52**	1			
LIS (F5)	0.55**	0.62**	0.40**	0.60**	1		
RFES	0.74**	0.61**	0.51**	0.64**	0.52**	1	
SWLS	0.33**	0.29**	0.27**	0.25**	0.19**	0.37**	1

Note: **= p<0.01, LIS= Leisure Involvement Scale (F1= Attraction, F2= Centrality, F3= Social bonding, F4= Identity affirmation, F5= Identity expression), RFES= Recreational Flow Experience Scale, SWLS= The Satisfaction with Life Scale.

According to Pearson correlation analysis results, leisure involvement, flow experience and life satisfaction mean scores were found to have statistically high, moderate and partially low level significant and positive correlations (Table 4).

Table 5

The power of leisure involvement to predict flow experience and life satisfaction

	Recreational Flow Experience				**Life Satisfaction**			
	B	**S. Error**	**β**	**p**	**B**	**S. Error**	**β**	**p**
Constant	1.540	0.199	-	0.00	1.568	0.249	-	0.00
Attraction	0.616	0.061	0.505	0.00	0.249	0.076	0.249	0.00
Centrality	0.058	0.063	0.051	0.35	0.089	0.078	0.096	0.25
Social bonding	0.212	0.053	0.168	0.00	0.155	0.067	0.150	0.02
Identity affirmation	0.232	0.062	0.196	0.00	-0.002	0.078	-0.002	0.98
Identity expression	0.023	0.051	0.022	0.64	-0.059	0.064	-0.068	0.35
	R= 0.795, R^2= 0.631				**R= 0.374, R^2= 0.140**			
	$F_{(5.303)}$= 103.767, p= 0.00				**$F_{(5.303)}$= 9.851, p= 0.00**			

Regression analysis results found the LIS attraction (β= 0.505; p= 0.00), social bonding (β= 0.168; p= 0.00), and identity affirmation (β= 0.196; p= 0.00) subscales positively and significantly predicted RFES (R^2= 0.631; $F_{(5.303)}$= 103.767). There was a positive and high level of correlation between the leisure involvement of fitness center members and recreational flow experience (R= 0.795), while leisure involvement explained 63% of the total variance in recreational flow experience. The LIS attraction (β= 0.249; p= 0.00) and social bonding (β= 0.150; p= 0.02) scales positively and significantly predicted SWLS (R^2= 0.140; $F_{(5.303)}$= 9.851). There was a positive and moderate correlation between leisure involvement and life satisfaction of participants (R= 0.374), with leisure involvement explaining 14% of the total variance in life satisfaction (Table 5).

DISCUSSION & CONCLUSION

The aim of the study was to determine the differences in leisure involvement, flow experience and life satisfaction levels of fitness center members. At the same time, the aim was

also to identify the correlations between leisure involvement, flow experience and life satisfaction levels.

Within the scope of the research, leisure involvement, flow experience and life satisfaction scores were not found to differ according to the gender variable (Table 2). Leisure involvement, emerging as an important concept in the literature with the aim of understanding behavior related to leisure participation, has received very little interest in the context of gender. Wiley et al. (2000) explained differences in leisure activity choices of individuals in the context of gender with social ideologies. Considering the positive outcomes of physical activity (Bayrakdar et al., 2019; Lee et al., 2023), social ideologies provide consensus without differentiating men and women (World Health Organization, 2019). Research about extreme athletes identified the attraction, centrality and identity expression dimensions of leisure involvement and the flow experience related to the activity were significantly different in favor of male participants (Chang, 2017). However, Demirel et al. (2022) concluded that there was no significant difference according to the gender variable for leisure involvement and flow experience of individuals playing tennis for recreational purposes. There is evidence in the literature showing no significant difference according to the gender variable for individuals participating in physical activity during leisure (Busing & West, 2016; Küçük Kılıç et al., 2016). These results overlap with the findings of our research. When the type of physical activity during leisure is assessed in the social context, the emergence of significant differences according to the gender variable may be due to the meaning given to that activity by women and men, along with the degree of difficulty (Brajša-Žganec et al. 2011). At the point of participation in physical activity in fitness centers, offering equal opportunities by considering customer satisfaction without regard to gender may have removed the differences between male and female members in the context of leisure involvement, flow experience and life satisfaction.

Within the scope of the research, scores for leisure involvement, flow experience and life satisfaction were found to differ by significant levels in favor of individuals participating more frequently in physical activity (Table 3). Individuals may gain many acquirements by being involved in physical activity during leisure (Maher et al., 2015; Singh et al., 2023; Warburton & Bredin, 2017). Havitz et al. (2013) identified that physical activity caused an increase in the leisure involvement of individuals and offered both physical and psychological outcomes according the involvement level. A study of fitness center members (Serdar, 2019) determined that individuals participating more frequently in physical activity had significantly higher leisure involvement compared to others. Additionally, there are results in the literature showing that physical activity participation provides flow experience for individuals (Huang et al., 2018; Jackman et al., 2019). Metin & Düşmezkalender (2022) identified results related to the feeling of flow experienced when individuals participating in mountain climbing activities overcame difficulties they experienced during the activity. Researchers (Bum et al. 2022) concluded that individuals playing golf in the virtual environment experienced more flow than those physically playing; however, there was no significant difference between the two groups in terms of life satisfaction. The concept of life satisfaction had been very comprehensively investigated in the literature within the scope of physical activity (An et al., 2020; Maher et al., 2015). The results of the investigations found that regular participation in physical activity is a positive reflection of the life satisfaction of individuals (Kim et al., 2021; Skałacka & Błońska, 2023). The most basic factor affecting the leisure involvement levels of people is the activity they participate in. The opportunities provided to people by fitness centers and customer satisfaction may cause an increase in involvement in physical activity. When people feel the physical and psychological benefits from the activities they participate in, their involvement may increase. At the same time, when individuals gain optimal balance by succeeding in physical activities at fitness centers, flow experience may emerge. Involvement in physical activity and flow experience may provide satisfaction within the life of the individual.

Within the scope of the research, leisure involvement, flow experience and life satisfaction levels of fitness center members had positive and significant correlations (Table 4). At the same time, leisure involvement was found to predict flow experience and life satisfaction at significant levels (Table 5). Scientists (Ekkekakis, 2023; Isidoro-Cabañas et al., 2023; Remme et al., 2021; Yarımkaya & Esentürk, 2022) state that physical activity involvement during leisure is very important for human health and psychology. Involvement in physical activity during leisure provides important contributions to peoples' life satisfaction (An et al., 2020). Sato et al. (2017) found that leisure involvement in the context of walking provided positive contributions to life satisfaction of people. Domestic research (Aktop and Göksel, 2023; Çevik et al., 2021) provided evidence of a strong relationship between leisure involvement and life satisfaction. Additionally, when the relevant literature is investigated, positive correlations were identified between leisure and flow experience (Chang, 2017; Ding et al., 2023). High levels of leisure involvement were related to stronger flow experience (Tao et al., 2022). Cheng et al., (2016) also demonstrated how leisure involvement positively influences the flow experience, specifically in hiking activities, showing that greater psychological commitment during leisure leads to higher flow experiences. Another result that overlaps with the findings of our research is that flow experience is related to life satisfaction. A positive and high level of correlation was identified between flow experience and life satisfaction of recreational runners (Tian et al., 2022). Parallel to this research result, there are studies showing positive correlations between flow experience and life satisfaction in the literature (Bum et al., 2022; Hou & Jiang, 2022; Tian et al., 2022). All these results support our research findings. Fitness center members participate in activity based on their involvement in physical activity in line with their own wishes. In this context, this means that time will pass in a fun and more rapid way for people with high involvement in physical activity. Considering the benefits provided by physical activity, activities with high involvement and flow experience are brought to a point where they affect life satisfaction.

Conclusion & Recommendation

In conclusion, leisure involvement, recreational flow experience and life satisfaction levels of fitness center members were in favor of individuals participating more frequently in physical activity. There were positive correlations between leisure involvement, recreational flow experience and life satisfaction levels of fitness center members. Additionally, leisure involvement was concluded to be an effective factor on recreational flow experience and life satisfaction of fitness center members. When the results are considered, studies related to individual participation in physical activity may be increased. Policies related to increasing leisure involvement levels of individuals participating or wanting to participate in physical activity may be developed in fitness centers. Additionally, following developments and innovations related to fitness centers in order to ensure time passes in more entertaining and quality ways for individuals participating in physical activity in fitness centers is included among the recommendations of the research.

Additionally, fitness center management should develop various strategies to enhance members' fitness involvement, flow experience, and life satisfaction levels. These strategies may include offering high-quality and diverse services, creating programs tailored to individual members' needs, and establishing continuous feedback mechanisms (Sevilmiş et al., 2024). Additionally, the physical environment of fitness centers directly impacts members' experiences. Clean, organized, and modern facilities increase members' interest in the center and facilitate their experience of flow (León-Quismondo et al., 2020).

Although this research contributes to the leisure literature in the context of fitness center members, it has some limitations. Primarily, the study was tested using data obtained from Turkey's largest metropolis (İstanbul-Beşiktaş). Data were collected from six different fitness centers, and members with at least six months of membership were included in the research.

The research parameters can be tested in studies encompassing fitness center members from different countries using various sampling methods. In this context, future research utilizing data from different countries will help generalize the findings of the current study. This study examined leisure involvement, flow experience, and life satisfaction in the context of fitness center members. Future research with different sample groups investigating the relationships between these parameters will also contribute to the literature by providing model studies. Additionally, significant differences can be observed between personal variables such as gender, visit frequency, and membership duration of fitness participants and their levels of involvement, flow, and life satisfaction. In future research, it will be important to increase these personal variables to better understand the topic within a socio-psychological context.

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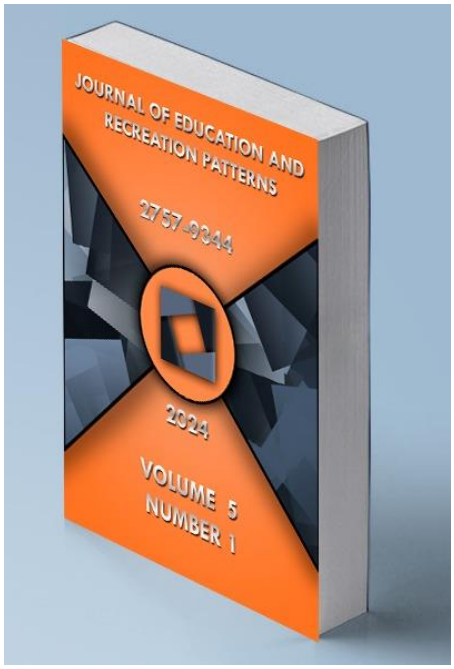

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Investigation of the Effect of Sports Participation Motivations of Students of Faculty of Sports Sciences on Their Leadership Orientations

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ABSTRACT

In this study, it was aimed to determine the relationship between motivation to participate in sports and leadership orientations of students of the faculty of sports sciences. A relational survey model was used in this study. The study group consisted of students studying in the Faculty of Sports Sciences. The questionnaire part of the study consists of three parts. Firstly, includes demographic information. Secondly, the "Leadership Orientations Questionnaire", which was developed by Bolman and Deal (1990) and adapted into Turkish by Dereli (2003), is explored. Thirdly, consists of the Participation Motivation Questionnaire, which was developed by Gill et al. (1983) and adapted into Turkish by Oyar et al. (2001). For the determine normality assumption skewness and kurtosis values was used. Skewness and kurtosis values were found to be between ±2 and it was determined that the data had a normal distribution (George and Malley, 2003). Afterward, an independent samples t-test was used between paired groups, and a one-way analysis of variance was used for paired variables. Moreover, reliability coefficient, frequency and percentage and mean and standard deviation calculations were conducted. Simple regression analysis was used to determine the effect between the dependent and independent variables. The findings, a statistically significant difference was found in the variables of leadership orientation and age, income level, and frequency of weekly sports participation in sports participation motivation. As a result, it was determined that there was a low-level significant and negative relationship between the participants' motivation to participate in sports and their leadership orientations.

Keywords: Leadership, Motivation, Sports

INTRODUCTION

Sports cover extraordinary efforts that aim to improve the physical and mental health of individuals while encouraging them to compete, get excited, rival, challenge, win, and achieve success in the real sense as well as aiming to maximize personal care (Kılıçaslan, 2015). Sports, which constitute an integral part of modern life, constantly evolve by realizing their importance and place in people's lives day by day (Altınışık et al., 2020). The evolution of sports has taken place in parallel with the advances in sports sciences, which has led people to gain more awareness and participation in sports every day (Ünsal and Ramazanoğlu, 2013). The perspective of sports activities worldwide aims to contribute to the education systems of countries by raising healthy and useful individuals without harming them. In Turkey, it is observed that individuals are encouraged to participate in sports activities by giving importance to their physical and mental health, which is a main goal (Keten, 1993). The term "sports participation" is traditionally used in sports psychology to encourage individuals to be physically active (Acar, 2012). Considering the impact of sports on individuals' lives, sports aim to increase participation in sports by encouraging individuals to be active. Sports positively affect not only physical health but also social and mental well-being. Therefore, encouraging participation in sports is a rather important step to increase the overall well-being of society.

Motivation to participate in sports increases the general health and well-being of individuals by enabling them to choose sports willingly, to do sports regularly, and to adopt healthy lifestyles. For this reason, it is important to strengthen motivation to participate in sports to popularize sports and increase individuals' desire to do sports. The term motivation is a concept derived from the Latin word "movere" which means "to act", "to encourage", or "to move" in Turkish (Richard, 1975). Motivation is the name given to the process of taking action under the influence of an impulse. The term motivation, which is used as "willingness" and "encouragement" in Turkish, means that a person moves towards a goal or takes action (Ataman, 2001). Motivation to participate in sports is a force that encourages individuals to do sports and mobilizes them.

While living as a social being, human beings often need to take part in a group. Leadership becomes an inevitable necessity in the process of achieving and managing the goals of groups. Leadership is a phenomenon that has a long history and has been scientifically studied and conceptualized since the early 20th century (Ağralı Ermiş & Dereceli, 2023). Historically, the concept of leadership can be traced back to the 1300s in writings examining the political and social influence of individuals who influence and mobilize communities. Leadership is a subject that has been studied for many years and has been addressed based on various perspectives (Akbaba & Erenler, 2008). An individual's life performance can significantly affect their physical, mental, and emotional capacity in other areas such as sports activities (Parlak, 2023). Also "School principals' democratic leadership behaviors were found to be a significant predictor of their diversity management skills" (Çayak, 2023). Participation in sports contributes not only to physical health but also to the development of leadership skills. Studies show that sports can play an important role not only in individual health but also in social effects and the development of leadership potential

The main purpose of this study is to investigate the effect of sports participation motivations of students of the faculty of sports sciences on their leadership orientations. In this context, it is important to understand the effect of the motivation of the students of the faculty of sports sciences to participate in sports on their leadership orientations. Thus, the study aims to analyze the effect of students' motivation to participate in sports on their leadership orientations in terms of different variables such as gender, age, department, income level, sports branch, and frequency of doing sports. These analyses can help us to better

understand how the impact of motivation to participate in sports on leadership orientations depends on various factors.

To analyze the problem in detail, answers to the following questions were sought:

1) Do sports participation motivations and leadership orientations of students of the faculty of sports sciences differ significantly according to gender variable?

2) Do sports participation motivations and leadership orientations of students of the faculty of sports sciences differ significantly according to age variable?

3) Do sports participation motivations and leadership orientations of students of the faculty of sports sciences differ significantly according to the department variable?

4) Do sports participation motivations and leadership orientations of students of the faculty of sports sciences differ significantly according to the income level variable?

5) Do sports participation motivations and leadership orientations of students of the faculty of sports sciences differ significantly according to the Sports branch variable?

6) Do sports participation motivations and leadership orientations of students of the faculty of sports sciences differ significantly according to the frequency of doing sports?

METHOD

Research Design

In this study, the relational survey model was used. In this model, a situation or event is directly described and the relationship, effect, and degrees of the variables that cause these situations are determined (Karasar, 2005).

Population and Sample/Study group

The convenience sampling method was utilized while forming the sample group of this study. The participant group consisted of students studying at the Faculty of Sports Sciences in Aydın Adnan Menderes University during the 2023-2024 academic year.

Table 1
Demographic characteristics of the participants

Variable		f	%
Gender	Female	122	48.8
	Male	128	51.2
Age	18-22 years	174	69.6
	23-27 years	59	23.6
	28-32 years	8	3.2
	33 years and above	9	3.6
Department	Coaching	51	20.4
	Teaching	101	40.4
	Recreation	87	34.8
	Management	11	4.4
Income Level	10000 TL and below	150	60.0
	10001-20000 TL	63	25.2
	20001-30000 TL	14	5.6
	30001 TL and above	23	9.2
Sports Branch	Individual Sports	122	48.8
	Team Sports	128	51.2
Frequency of Sports	1 day	41	16.4

	2 days	65	26.0
	3 days	53	21.2
	4 days and above	91	36.4
Total		**250**	**100**

Table 1 shows the highest categorical variables of the participants. The gender variable includes male participants (51.2%) while the age variable includes the age range of 18-22 years (55.0%). The department variable includes the teaching department (40.4%) while the sports branch variable includes participants who do team sports (51.2%). Lastly, the frequency of doing sports variable includes participants who do sports 4 days a week or more (36.4%).

Data collection tools

Information Form: A personal information form consisting of six items was prepared by the researchers to obtain information about the personal characteristics of the students.

Participation Motivation Questionnaire (PMQ): The original scale developed by Gill et al. (1983) was validated for the Turkish population after a validity and reliability study conducted by Oyar et al. (2001). The scale, which is used to determine the reasons that are effective in individuals' participation in sports and exercise, consists of 30 items, and the evaluation is made as "extremely important (1)", "moderately important (2)" and "not at all important (3)". Lower scores indicate that the item is of greater importance. Cronbach's alpha internal consistency coefficients for the subscales ranged from 0.61 for skill development to 0.78 for achievement/status. The total scale internal consistency was calculated as 0.86. In the reliability analysis conducted for this study, Cronbach's alpha internal consistency coefficients ranged between 0.47 for friendship and 0.74 for team affiliation. The total scale internal consistency was determined as 0.83.

Leadership Orientations Questionnaire (LAS): The scale used to determine the leadership orientation levels of the participants is the "Leadership Orientations Questionnaire" developed by Bolman and Deal (1990) and the Turkish adaptation and validity and reliability study of the scale was conducted by Dereli (2003). This scale is a 5-point Likert-type scale to evaluate the leadership behaviors of the participants and it is evaluated from never (1) to always (5). The scale consists of 4 subscales and 32 items in total (Dereli, 2003).

Data Analysis

In the study, SPSS 25.0 software was used to analyze the data. Whether the data had a normal distribution was determined by considering the skewness and kurtosis values. As a result of the examinations, it was found that the skewness and kurtosis values were between ±2 and it was concluded that the data had a normal distribution (George and Malley, 2003). Then, an Independent samples t-test was conducted between paired groups while a one-way analysis of variance (ANOVA) was conducted between two or more groups. Furthermore, reliability coefficient calculations, frequency and percentage calculations, and mean and standard deviation calculations were conducted. Simple regression analysis was used to determine the effect between variables. Analyses were performed at a 95% confidence interval.

FINDINGS

In this section, the relationships between sports participation motivations and leadership orientations of sports science students and various demographic and other variables are examined and analyzed.

Table 2

Reliability Analysis Results for the Scales

Scale	Alpha
PMQ	0.956
LAS	0.848

PMQ: Participation Motivation Questionnaire; LAS: Leadership Orientations Questionnaire

Table 2 shows that both the total scale and all its subscales are highly reliable.

Table 3

Descriptive Statistics of the Scales

Variable	$\bar{x}$	Sd	Kurtosis	Skewness
PMQ	1.19	0.194	1.710	1.509
LAS	4.06	0.625	-0.569	0.290

PMQ: Participation Motivation Questionnaire; LAS: Leadership Orientations Questionnaire

Table 3 shows that while the participants' motivation to participate in sports is low, their leadership orientation is high.

Table 4

Pearson Correlation Analysis Results between Variables

Variable		1-	2-
1- PMQ	r	1	
	p	-	
2- LAS	r	-0.221**	1
	p	0.000	-

PMQ: Participation Motivation Questionnaire; LAS: Leadership Orientations Questionnaire

Table 4 shows that there is a low level of significant and negative relationship between the participants' motivation to participate in sports and their leadership orientation ($r= -0.221$; $p<0.05$).

Table 5

Results of Simple Regression Analysis to Determine the Effect of Sports Participation Motivation on Leadership Orientation

Independent Variable	Dependent Variable	β	t	p	F	R^2	Durbin Watson
Constant	Constant	4.91	0.24	20.27	12.77	0.045	2.12
LAS	PMQ	-0.71	0.20	-3.57			

PMQ: Participation Motivation Questionnaire; LAS: Leadership Orientations Questionnaire

In Table 5, as a result of the simple regression analysis conducted to determine the effect of participants' motivation to participate in sports on leadership orientation, it was determined that the rate of explanation of leadership orientation was 4.5% ($R^2=0.045$). An increase of 1 unit in the motivation to participate in sports variable causes a decrease of -0.714 in leadership orientation ($\beta=-0.714$).

Table 6

Independent Samples t-test Results of Sports Participation Motivations and Leadership Orientations of Students of Faculty of Sports Sciences According to Gender Variable

Scale	Gender	n	$\overline{X}$	Sd	t	p
PMQ	Female	122	1.21	0.21	1.292	0.198
	Male	128	1.18	0.16		
LAS	Female	122	4.07	0.63	0.413	0.680
	Male	128	4.04	0.61		

p<0.05* PMQ: Participation Motivation Questionnaire; LAS: Leadership Orientations Questionnaire

In Table 6, it is seen that there is no statistically significant difference in any variable as a result of the t-test between the motivations for sports participation and leadership orientations and the gender variable (p>0.05).

Table 7

ANOVA Analysis Results of Sports Participation Motivations and Leadership Orientations of Students of Faculty of Sports Sciences According to Age Variable

Scales	Age	N	$\underline{X}$	Sd	F	p	Difference
PMQ	[1]18-22 years	174	1.19	0.19	0.845	0.470	-
	[2]23-27 years	59	1.21	0.19			
	[3]28-32 years	8	1.10	0.11			
	[4]33 years and above	9	1.16	0.10			
LAS	[1]18-22 years	174	4.01	0.64	2.745	**0.044***	3>1
	[2]23-27 years	59	4.09	0.60			
	[3]28-32 years	8	4.57	0.24			
	[4]33 years and above	9	4.31	0.39			

p<0.05* PMQ: Participation Motivation Questionnaire; LAS: Leadership Orientations Questionnaire

In Table 7, a significant difference was found in leadership orientation between motivations for sports participation and leadership orientation and age variable (p<0.05). In the Bonferroni analysis applied to determine the source of the difference, it was determined that the leadership orientations of the participants between the ages of 28-32 were higher than the students between the ages of 18 and 22.

Table 8

ANOVA Analysis Results of Sports Participation Motivations and Leadership Orientations of Students of Faculty of Sports Sciences According to Department Variable

Scales	Department	N	$\underline{X}$	Sd	F	p
PMQ	Coaching	51	1.20	0.21	0.413	0.744
	Teaching	101	1.20	0.19		
	Recreation	87	1.19	0.19		
	Management	11	1.13	0.09		
LAS	Coaching	51	4.02	0.70	0.378	0.769
	Teaching	101	4.10	0.52		
	Recreation	87	4.02	0.70		
	Management	11	4.13	0.46		

p<0.05* PMQ: Participation Motivation Questionnaire; LAS: Leadership Orientations Questionnaire

In Table 8, no significant difference was found between the motivations for sports

participation and leadership orientations and the department variable (p>0.05).

Table 9

ANOVA Analysis Results of Sports Participation Motivations and Leadership Orientations of Faculty of Sports Sciences Students According to Income Level Variable

Scale	Income Level	N	$\underline{X}$	Sd	F	p	Difference
PMQ	[1]10000 TL and below	150	1.19	0.18	0.181	0.909	-
	[2]10001-20000 TL	63	1.21	0.20			
	[3]20001-30000 TL	14	1.17	0.32			
	[4]30001 TL and above	23	1.18	0.12			
LAS	[1]10000 TL and below	150	3.94	0.61	5.124	**0.002***	2>1
	[2]10001-20000 TL	63	4.28	0.55			
	[3]20001-30000 TL	14	4.26	0.51			
	[4]30001 TL and above	23	4.08	0.74			

p<0.05* PMQ: Participation Motivation Questionnaire; LAS: Leadership Orientations Questionnaire

In Table 9, a significant difference was found in leadership orientation between motivations for sports participation and leadership orientations and the income level variable (p<0.05). In the Bonferroni analysis conducted to determine the source of the difference, it was determined that the leadership orientation of the participants with an income between 10001-20000 TL was higher than the students with an income of 10000 TL and below.

Table 10

Independent Samples t-test Results of Faculty of Sports Sciences Students' Motivations for Participation in Sports, Leadership Orientations According to the Variable of Sports Branch

Scale	Sports Branch	n	$\overline{X}$	Sd	t	p
PMQ	Individual sports	122	1.21	0.20	1.445	0.150
	Team sports	128	1.18	0.17		
LAS	Individual sports	122	4.07	0.61	0.338	0.736
	Team sports	128	4.04	0.64		

p<0.05* PMQ: Participation Motivation Questionnaire; LAS: Leadership Orientations Questionnaire

In Table 10, no significant difference was found between the motivation to participate in sports and leadership orientations and the Sports branch variable (p>0.05).

Table 11

ANOVA Analysis Results of the Faculty of Sports Sciences Students' Motivations for Participation in Sports, Leadership Orientations According to the Variable of Weekly Sports Frequency Level

Scale	Sports Frequency	N	$\underline{X}$	Sd	F	p	Difference
PMQ	1 day	41	1.30	0.23	5.420	**0.001***	1>2,3,4
	2 days	65	1.18	0.22			
	3 days	53	1.14	0.14			
	4 days or more	91	1.18	0.16			
LAS	1 day	41	4.03	0.55	0.796	0.497	-
	2 days	65	4.01	0.66			
	3 days	53	4.17	0.47			
	4 days or more	91	4.03	0.70			

p<0.05* PMQ: Participation Motivation Questionnaire; LAS: Leadership Orientations Questionnaire

In Table 11, a significant difference was found between the motivation to participate in sports and leadership orientations and the frequency of weekly sports participation ($p<0.05$). In the Bonferroni analysis applied to determine the source of the difference, it was determined that the motivation to participate in sports of the participants who do sports 1 day a week is higher than the students who participate 2, 3, 4, and more times a week.

DISCUSSION

In our study, which was conducted to examine the relationship between the variables of gender, age, department, income level, sports branch, and frequency of doing sports, the following results were obtained.

As a result of the analysis, it is seen that there is no statistically significant difference in any variable as a result of the t-test between the participants' motivation to participate in sports and leadership orientations and gender variable. However, some studies in the literature suggest that sports participation motivation and leadership orientations may differ according to gender (Aslan & Uslu, 2014; Bozkurt, 2014; Şirin et al. 2008; Aktop & Akkoyun, 2011). These findings contradict the previous studies that support our study (Kurtyemez, 2021; Aydın, 2016; Çetintaş 2019; Özdenk, 2015; Öztürk, 2017; Semiz, 2011; Hayri, 2010; Cengiz & Güllü, 2018). Factors such as different research methods, sample selection, and measurement tools used can be cited as the source of this contradiction. For example, while some studies focus on a specific group, others may cover a wider population. In addition, differences in the measurement tools used may also lead to conflicting results. Furthermore, cultural differences and changing social norms over time may contribute to the diversity of results.

A significant difference was found in leadership orientation between motivations for sports participation and leadership orientations and the age variable. In the Bonferroni analysis applied to determine the source of the difference, it was determined that the leadership orientation of the participants between the ages of 28-32 was higher than the students between the ages of 18 and 22. Ibicioğlu et al. (2009), in their research on leadership behaviors, found that leadership behavior differed significantly according to the age variable. This finding is consistent with some studies such as Arslan & Uslu (2013), Kurtyemez (2021), Çetintaş (2019), Koçak & Özüdoğru (2012). However, no significant differences were found in studies such as Ermiş & Dereceli (2023), Özdemir et al. (2018), Beltekin and Kuyulu (2019), Sarıkol & Ustaoğlu Hoşver (2023), Korkmaz (2017), Direk (2020) & Dereceli et al. At this point, potential factors that may play a role in this difference include sample selection, research methods, and measurement tools used, and the contradictory findings show the multifaceted and complex nature of the effect of age on leadership characteristics.

No significant difference was found between the motivation to participate in sports and leadership orientations and the department variable. When the relevant literature is examined, certain studies that support the results of our study can be mentioned (Hayri, 2010; Aydın, 2016; Sevinç & Kapçak, 2021; Öztürk, 2017). However, studies such as Atar & Özberk (2009), Direk (2020), Cengiz and Güllü (2018) may have obtained results that are different from our study. The reasons for such differences may include some factors such as research methods and measurement tools used.

There was a significant difference in leadership orientation between motivations for sports participation and leadership orientations and the income level variable. In the Bonferroni analysis applied to determine the source of the difference, it was determined that the leadership orientations of the participants with an income between 10001-20000 TL were higher than the students with an income of 10000 TL and below. This finding seems to be consistent with some studies in the existing literature (Çetintaş, 2019; Zengin & Somoğlu,

2022). However, when a study conducted by Sarıkol & Hoşver (2023) was analyzed, unlike the current study, no significant difference was found. This may indicate the complexity and variability of the relationship between income level and leadership orientation.

No significant difference was found between the motivation to participate in sports and leadership orientations and the Sports branch variable. When the literature is examined, the studies conducted by Aydın (2016), Çar (2013) support the results we have obtained. However, in other studies such as Bozkurt (2014), Cengiz & Güllü (2018), different results were obtained and these results do not support the findings of our study. This may indicate the complexity and diversity of the effect of the sports branch variable on motivation to participate in sports and leadership orientations.

A significant difference was found between the motivation to participate in sports and leadership orientations and the frequency of weekly sports participation. In the Bonferroni analysis conducted to determine the source of the difference, it was determined that the motivation to participate in sports of the participants who do sports 1 day a week is higher than the students who participate 2, 3, 4, or more times a week. According to this result, it can be concluded that people who do sports regularly have stronger motivation to participate in sports and it can be thought that participants who do sports frequently have a higher level of commitment to sports. This finding emphasizes the important effect of the frequency of doing sports on the motivation to participate in sports.

Conclusion & Recommendations

In this study, the relationship between various demographic variables and the participation motivation and leadership orientations of sports science students was examined. The findings of the study indicate that demographic variables such as age and income level can significantly influence leadership orientations, whereas variables such as gender, department, and sports branch do not have a significant effect. These results highlight the complexity of the relationship between demographic factors and sports participation motivations and leadership orientations.

While the lack of a significant difference according to the gender variable aligns with some studies, other studies have reported different results. This suggests that factors such as cultural differences, research methods, and sample selection may play a role in these varying outcomes. Similarly, the significant difference found according to the age variable is supported by some studies but contradicted by others, highlighting the multifaceted nature of age's impact on leadership characteristics.

This study aims to examine the effect of sports participation motivations on the leadership orientations of the students of the Faculty of Sport Sciences. The study, which was conducted on university students studying in the field of Sports Sciences, can contribute to the literature thanks to being conducted in different age groups and different departments.

University students can be encouraged to participate in sports through activities to be organized on campuses. Moreover, it may be useful to conduct studies with larger sample groups including different demographic groups, and to conduct similar research in different cultural contexts. In this way, a more comprehensive understanding of the relationship between motivations for sports participation and leadership orientations may be possible. As a recommendation, it is important to use more comprehensive and consistent methods in future research to gain a deeper understanding of these contradictory findings.

Limitations of the Study

The findings of this study should be evaluated and interpreted within the context of certain limitations. The limitations of the research are as follows:

- The study was conducted solely on students from the Faculty of Sport Sciences at a specific university. Therefore, the findings cannot be generalized and may not be applicable to students from other universities or different educational levels.
- The questionnaires used in the study are based on self-reports. The responses given by the participants reflect their own perceptions, which may not fully represent the reality.
- The research was conducted within a specific time frame, and the participants' motivation and leadership orientations may change over time. Consequently, the study does not provide information about the changes in these variables over time.
- The research was carried out in a specific cultural and social context. Similar studies conducted in different cultural and social contexts may yield different results.
- The study examined only certain demographic variables (age, gender, income level, department, sports branch). Other potentially influential demographic or psychosocial variables (e.g., family structure, social support) were not included in the research scope.
- More in-depth and detailed information about the participants' motivation and leadership orientations could be obtained using qualitative research methods.
- Including other potentially influential demographic and psychosocial variables such as family structure, social support, and personality traits in the research could allow for a more comprehensive analysis.

Considering these limitations, it is suggested that future research could provide a broader and more comprehensive perspective.

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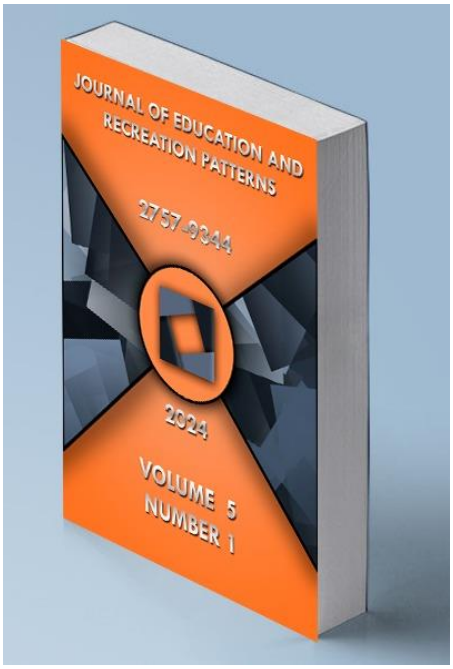

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Finding Meaning via Contemplative Leisure

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Find Meaning via Contemplative Leisure

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ABSTRACT
The relationship between leisure and meaning lacks a clear, well-developed, philosophical underpinning. To address the situation, this article reports the results of a qualitative investigation aimed at formulating and articulating such a foundation. Hermeneutics, the investigation's guiding methodology, involved the researcher reading multiple works authored by two prominent philosophers who studied meaning, Viktor Frankl and Martin Heidegger, as well as two works authored by Josef Pieper, a philosopher who extensively studied meaning and leisure. Based on his interpretation of the texts, the present author generated a philosophically based foundation conveying the importance of finding meanings, outlining how meanings come about, and describing contemplative leisure's role in discovering meanings. The article concludes with two practical applications aimed at helping recreation practitioners support people's pursuit of meaningful lives.

Keywords: Josef Pieper, Leisure, Martin Heidegger, Recreation, Viktor Frankl

INTRODUCTION

A common definition of leisure is free time during which people engage in freely-chosen recreation activities (e.g., McLean et al., 2019). Unfortunately, this simple conceptualization fails to capture and convey the role leisure plays in helping people find meaning in their lives. Iwasaki and his colleagues conclusively verified a connection between the two concepts based on a series of conceptual and empirical research studies emanating from diverse populations such as older adults, people living with mental illness or physical disabilities, and people from a variety of cultures (Hopper et al., 2020; Iwasaki, 2008, 2017; Iwasaki et al., 2013, 2015, 2018). Though extensive, the assemblage of studies demonstrates two shortcomings. First, the studies failed to articulate an explicit, comprehensive, philosophical foundation for the link. Second, the investigations exhibit an almost exclusive concentration on meanings generated by particular leisure activities while largely ignoring leisure conceived as a contemplative activity people engage in to discover the meanings of activities and entities. The present study addressed both shortcomings by developing a foundation that communicates the importance of finding meanings, how meanings form, and leisure's role in revealing meanings. The article concludes with preliminary explorations of two potential practical applications derived from the foundation.

METHOD

This qualitative study employed hermeneutic methodology which nurtures deeper understanding of written texts through interpretation (Gadamer, 1960/1975; Laverty, 2003). Hermeneutics is not a particular method or technique nor a system of strict rules. It is a "creative approach to [gaining] understanding, using …. good judgement and responsible principles rather than rules" (Laverty, 2003, p. 28). Simplistically, a researcher reads selected texts and interprets the contents based on his/her pre-understandings. Pre-understandings include what the researcher knows of the topic, and particular authors and their texts.

With this approach, a researcher reviews a text from two perspectives, moving back and forth from one perspective to another, gaining insights on the text's meaning. One perspective considers the *individual details* while the second perspective considers the *whole* created by the details. Initially, the researcher concentrates on discovering meaning in sentences, paragraphs, and sections. Then the discovered meaning directs deliberation of the corresponding text in its entirety. Next, the process reverses direction. The researcher considers the meaning derived from the entire text when rereading individual sentences, paragraphs, and sections. The reciprocal process continues until the researcher and text "co-create" a coherent understanding (Laverty, 2003, p. 28).

In the present study, the researcher selected several germane texts from each of three philosophers, Viktor Frankl (1959/1992, 1969/2014), Martin Heidegger (1927/1962, 1961/2008, 1984), and Josef Pieper (1952, 1990), who resolutely believed finding meaning is a central task of living and that meditative thinking or contemplative leisure serves as an illuminative environment where people can more readily see meanings. The researcher's pre-understanding stemmed from teaching university level courses on leisure for more than two decades, spending considerable time prior to the present study reading and ruminating on each of the consulted texts, and reflecting on his goal of fusing aspects from each author's works into a comprehensive understanding of the relationship between leisure and meaning.

FINDINGS

This article proceeds by summarizing the researcher's interpretation of each philosopher's applicable works. The procession begins with establishing the importance of finding meaning via Frankl's core tenets. Then it transitions to Heidegger's explanation of meaning formation and his notion of aletheia as a means for discovering meaning. The sequence culminates with purporting Pieper's version of contemplative leisure as well-suited for revealing meanings because it fosters Alethia.

Frankl

Frankl's philosophy rests on three tenets (Frankl, 1959/1992, 1969/2014). First, people are not wholly pre-determined by instincts or innate drives. They are free to exist, and a distinguishing feature of human existence consists of finding and fulfilling meanings. Second, *human beings' primary motivation is finding meaning* in their actions and projects, and the situations they encounter. Furthermore, over time, these discrete, individual meanings can coalesce into an overarching, supra-meaning that guides the person through life, influencing his/her decisions and the contents of discovered meanings. Finally, life has meaning even under the most horrific conditions as amply demonstrated by Frankl's (1959/1992) account of his internment in Nazi concentration camps which he recounted in the book *Man's Search for Meaning*.

Frankl (1969/2014) emphasized meaning not leisure, so he literally only penned a couple of lines on leisure, distinguishing two types: centrifugal and centripetal. Centrifugal leisure consists of participating in free time activities such as playing trivial games and watching inconsequential videos because doing so keeps people from fixating on the absence of and associated struggle to find meaning in their lives. In sharp contrast, centripetal leisure consists of free time activities that contain a contemplative element encouraging the discovery of meaning. Frankl's recognition of an association between leisure and meaning supplies a starting point for ascertaining meaning formation and discovery. The discussion now turns to Heidegger and Pieper who furnish enlightenment on these points.

Heidegger

Meanings arise from people interacting with entities which include all existing things (Heidegger, 1927/1962). Interactions that lead to achieving personally relevant and desired goals imbue the corresponding entities with significance, value, and meaningfulness. Similarly, Frankl (1959/1992) listed three categories of interactions leading to meaning. Specifically, 1) creating a work or performing a deed, 2) directly experiencing truth, nature, and beauty or loving someone, and 3) choosing a stance or attitude toward life situations, especially those involving unavoidable suffering. The third manner of interaction calls for elaboration. Deciding how to perceive and interpret horrendous situations is the only freedom external forces cannot involuntarily take from people. In every such situation, people are free to acquiesce to environmental conditions or see the possibility of demonstrating his/her worthiness to bear the suffering.

According to Heidegger (1927/1962), once formed, meanings require discovery due to natural concealment. A transcendent structure he called aletheia enables people to uncover, discover, or reveal meanings of entities (Heidegger, 1927/1962, 1961/2008, 1984). Envision the discovery process metaphorically as walking in a dense stand of trees and coming upon "an opening, a clearing" containing the entity of interest (King, 2015, p. 108). Compared to the surrounding forest, people can more easily see the entity and concomitant meaning because fewer items obstruct their view, and the sparse canopy admits additional sunlight. A

constellation of cognitive attributes foster aletheia by creating a clearing (Heidegger, 1961/2008, 1984). Attributes include a sense of wonder, openness to thinking about entities differently, and suspension of judgment regarding discovered meanings.

Pieper

The contemplative form of leisure forwarded by Josef Pieper (1952) facilitates aletheia, acting as a clearing where people can 'see' meanings. As identified previously by Heidegger, a clearing results from a constellation of mental characteristics. Namely, people engaging in contemplative leisure adopt an attitude of "non-activity, of inward calm, of silence" (Pieper, 1952, pp. 26-27) which serves as "the prerequisite of the apprehension of" meaning (p. 27), helping people open their "eyes receptively to … [meaning which] offers itself to one's vision" (p. 7). They wait patiently to see an entity's meaning which "offers itself like a landscape to the eye" (p. 9) and do not force meaning upon nor wrestle it from an entity.

Contemporary philosophers support Pieper's claim regarding contemplative leisure's role in finding meaning. Blackshaw (2010) asserted leisure performs "the function of rendering meaning" (p. 141) while Bouwer and Van Leeuwen (2017) declared leisure is "fundamentally … the search for the *important*, for meaning in and of life" (p. 230).

DISCUSSION of PRACTICAL APPLICATIONS

The researcher's interpretation of selected philosophical texts established the importance of finding meanings, how meanings come about, and the manner of discovering meanings. Now, attention turns toward translating the philosophical foundation's contents into two practical applications for recreation practitioners. Please note the application descriptions are preliminary and require substantial development, formal implementation, and efficacy testing.

The first application involves recreation professionals creating and delivering a multiple session program based on the generated philosophical foundation and works of experts in contemplative seeing (Dustin & Ziegler, 2007; Gradle, 2011, 2012). Contemplative seeing consists of behaviors that increase the likelihood of finding deep, personally relevant meanings of an entity. These behaviors include people slowing down, opening up, and gazing in wonder at the entity. The sequence of sessions begins with instructors teaching that the human condition entails people finding meanings, that meanings are naturally hidden, and employing contemplative seeing during leisure leads to revealing those meanings. Once participants gain requisite knowledge, they learn the steps of and practice contemplative seeing with works of art, nature-based entities, or objects of their choice. These interactions follow an established schedule and take place in tranquil settings. After each interaction, the instructor asks participants to describe what they saw, thought, and felt. As they become more competent, participants also discuss their evolving ability to see meanings. During the last few sessions, they individually contemplate the same entity and then, as a group, they present their perspectives of the entity, and listen to others' perspectives in order to gain insights into various meanings associated with the entity.

Limited empirical evidence indicates the efficacy of contemplative seeing. Gradle (2011) reported the impacts of a university art course designed to encourage contemplative seeing among undergraduate and graduate students. Students spent a semester following the aforementioned guidelines. At the end of the semester, they reported increased competency with contemplatively seeing. They also disclosed they increased their ability to find meanings; and learned that the meaning of an entity can change, contemplative seeing works with non-art entities, and discovering meaning is what makes us human. Overall, students acquired "a deeper and more receptive vision, a more intense awareness, a sharper and more discerning

understanding, a more patient openness for all things quiet and inconspicuous, an eye for things previously overlooked" (Pieper, 1990, p. 36).

The second application calls on practitioners to provide community members with opportunities for accessing environments that foster contemplative leisure and stimulate contemplative seeing (Wise, 2023). A suggested resource is the book *Contemporary Landscapes of Contemplation* (Krinke, 2005). Drawing upon empirical studies and architects' firsthand experiences, each chapter presents detailed examples of blending natural and built elements to promote contemplation. To illustrate, Hermann (2005), who authored a chapter, described several "environments … with poetic/spiritual, contemplation-inducing qualities" (p. 70). Specifically, he explained how selecting and combining various elements such as paths, buildings, vegetation, natural light, water, and topography trigger "insights of subtle or deep meaning" (Hermann, 2005, p. 69).

Conclusion

Viktor Frankl, Martin Heidegger, and Josef Pieper believed finding meaning is a, if not *the*, fundamental task of human beings and contemplative leisure serves as a luminous environment where people can more easily see meaning. Beginning with these commonalities, the current author integrated selected elements from the different philosophical frameworks into a straight-forward, non-esoteric exposition on the relationship between meaning and leisure. In addition, heeding the words of Kurt Lewin, a famous psychologist in the 1950s, who said, "There is nothing more practical than a good theory," led to two professional applications. The applications exemplify praxis or using theory "as a *tool* for action" (Barker, 2006, pp. 491-492). In this case, the philosophical foundation guides recreation practitioners' efforts aimed at helping people discover meanings through leisure and maximizes existing resources because practitioners know with certainty what they are doing, why they are doing it, and the consequences of their actions.

Limitations

The contents of this study hold promise for helping people live meaningful lives but there are two limitations. First, the researcher and reader must exhibit a relatively high degree of commitment because understanding via interpretation is an ongoing process due to changes in pre-understanding (Gadamer, 1960/1975). To illustrate, as the current author continues studying leisure, teaching, and reading pertinent texts, his understanding of the consulted texts likely changes. Thus, he needs to periodically interpret the texts and alter the foundation. Relatedly, readers must stay connected with the topical literature in order to keep abreast of alterations to the foundation. A waning commitment of either party can be problematic, leading to arrested development of the foundation and dated knowledge possessed by readers.

Second, this author is unaware of a currently existing curriculum designed to enhance people's ability to employ contemplative leisure. Constructing such a document and empirically demonstrating its validity increases the practical value of the foundation by bolstering practitioners' ability and confidence toward helping people find meanings and live meaningful lives.

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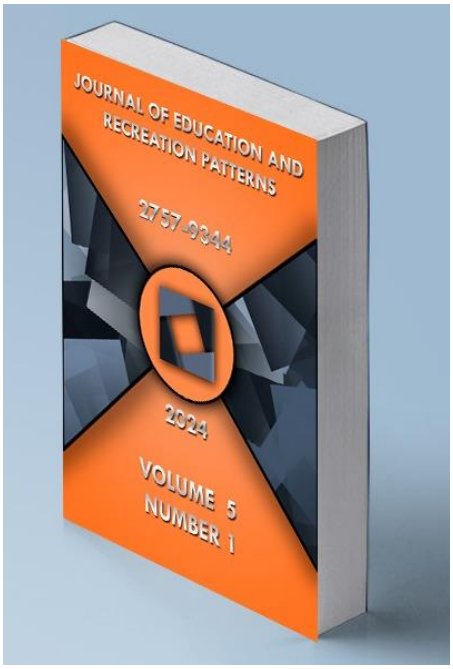

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Investigation of Balance Assessment of TecnoBody Devices in Athletes

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ABSTRACT

Virtual reality (VR) is an advanced user-computer interface that includes real-time simulation and interactions through visual and auditory senses. VR is increasingly being used on athletes for assessment and training. Balance refers to maintaining the position of the body's center of gravity. Static and dynamic balance is the basis of postural stability and mobility and is an important skill in sport. Balance impairment increases the risk of falls and is clinically assessed using the Berg Balance Scale. However, more objective methods need to be developed. For this purpose, technologies such as posturography, which measures the center of pressure trajectory, are used. TecnoBody devices play an active role in the assessment and rehabilitation processes. In particular, proprioceptive and stability analyses are performed with ProKin devices, dynamic balance analyses are performed with D-Wall device and audiovisual feedback is provided with exergame. These devices are effective in rehabilitation and can increase patients' interest in treatment. As a result of the studies conducted in the literature review, TecnoBody Prokin has also been used in the field of sports sciences. In the studies conducted with Prokin, it was seen that it was generally used in dynamic and static balance evaluations. However, no studies on TecnoBody's other devices were found in the literature. In addition, in the studies examined, it was seen that TecnoBody devices were used as a evaluation tool instead of being used in exercises. With the advancement of technology, it is thought that TecnoBody devices can be more effective in people through exercise feedback.

Keywords: Athlete Balance, Balance, TecnoBody,

INTRODUCTION

Virtual reality (VR) is an innovative technology featuring a sophisticated user-computer interface incorporating real-time simulation and interactions via visual and auditory sensory channels (Mazurek, et al., 2019). Moreover, VR is a foundational technology that enables users to immerse themselves completely in a simulated environment, experiencing a genuine sense of presence through multimodal stimuli (Li et al., 2011). Evaluations and exercises on athletes using virtual reality are increasingly being used in technology development. It is observed to be more effective than classical/conventional assessments and exercises (Fandim et al., 2021, Gazendam et al., 2022, Rutkowski et al., 2020). TecnoBody (SRL, Dalmine, 24044 Bergamo, Italy) produces effective devices in the field of assessment and exercise in virtual reality, and these devices are becoming widespread.

Our study's hypothesis is that the data from TecnoBody devices are effective, objective, and detailed in athletes undergoing balance assessment. Therefore, this study examined the effectiveness and objective data of balance evaluations applied to athletes with TecnoBody devices.

Balance

Balance is the ability of visual feedback and vestibular and somatosensory systems to position the body's center of gravity (Nashner, 2014). Static or dynamic balance is among the factors limiting performance and skill in some sports branches, and rapid adjustment of sport-specific balance is expressed as an important skill (Zemková & Hamar 2006). Balance is the basis of the ability to provide postural uprightness and movement (Chaudhry et al., 2008). Impaired dynamic balance is an important fall risk factor for athletes. Balance is evaluated in two ways: static and dynamic. Different clinical assessment methods, such as the Berg Balance Scale (BBS) (Berg et al., 1992) and Timed Up and Go Test (TUG) (Podsiadlo & Richardson, 1991), have been developed to evaluate static and dynamic balance functions and are widely used in rehabilitation. Although these methods are used clinically, more detailed objective methods and devices will be needed to provide better and more objective assessments for the impairment of the balance mechanism. Posturography, which measures the trajectory of the center of pressure (COP), is used for a more objective measurement of the balance mechanism (Visser et al., 2008). In the dynamic balance function, the control of the center is usually referred to as the stability of the acceleration of gravity (COG) (Menz et al., 2003; Toebes et al., 2012). In light of these scopes, TecnoBody devices play an active role in assessment and rehabilitation.

TecnoBody

TecnoBody devices are particularly involved in the assessment processes. ProKin devices are used to perform proprioceptive and stability analyses, while the D-Wall device performs balance analyses. It is seen that the D-Wall device is effective in rehabilitation, exergame, and treatments by providing audio-visual feedback. The data seen on a monitor controlled by the individual is analyzed by a special algorithm. This analysis allows the evaluation of proprioceptive and balance parameters. The ability to control the individual during Tecnobody virtual exercises and tips on performing the exercises can be presented with realistic images through digital screens (Üzümcü et al., 2024). The D-Wall digital display instantly shows the strengths and weaknesses of the users with objective biological feedback and real-time data provided by the software. TecnoBody's D-Wall device allows users to perform each movement with maximum control and share the results with experts (Fizzotti et al., 2022).

Figure 1

TecnoBody ProKin (Arol, 2018).

Postural stability is evaluated using a stabilometric platform known as the TecnoBody ProKin (Figure 1), a force platform designed to measure postural sway by analyzing the center of pressure (Toprak et al., 2019).

METHOD

This study was meticulously searched in Pubmed, Dergipark, Google Scholar and ResearchGate search engines between 2010-2024 using the keywords 'TecnoBody', 'Static Balance', 'Dynamic Balance' and 'Balance' in Turkish and English. The literature review was conducted by G. A., analysed in detail by B. Ü. and checked by S. S. This comprehensive process took 3 months for the search, 4 months for analysis, and 2 months for checking. In total, data analyses took 9 months. Articles whose full texts were found as a result of the searches were included, ensuring a comprehensive and thorough review.

From the extensive search, 21 studies were found. Of these, 13 were meticulously included because they were conducted on healthy people and athletes. The exclusion criteria of the studies were; not being related to athletes (4 articles), not mentioning the data of the study in detail (1 article), uncertainty of the study data (2 articles) and incomplete entry of the study data (1 article). This careful selection process ensures the reliability and relevance of the studies included in our research.

DISCUSSION & CONCLUSION

Balance Evaluations with Tecnobody Devices

In a 2019 study by Aktaş, the relationship between isokinetic leg strength and dynamic balance in elite male volleyball players was investigated. Thirteen players, averaging 26.50 ± 4.10 years old, participated. Isokinetic muscle strength was assessed using the IsoMed system, and body composition was measured with a Bioelectrical Impedance Measurement Device. Dynamic balance was evaluated using the TecnoBody ProKin device. During strength assessment, players warmed up on a bicycle ergometer before performing stretches. Isokinetic leg strength was measured for five repetitions at 60°/s and ten repetitions at 120°/s for both legs. In dynamic balance assessment, participants balanced on a moving platform for 25 seconds in a flat and double-leg squat position, preceded by 10-second repetition tests. Results showed no significant relationship between dynamic balance and bilateral differences in quadriceps and hamstring muscles at 60°/s ($p>0.05$) but a significant relationship at 120°/s ($p<0.05$). Additionally, no significant relationship was found between dynamic balance and the

Hamstring/Quadriceps (H/Q) strength ratio ($p>0.05$) (Aktaş, 2019). Dülger and Baş examined leg strength and jump performance's influence on handball players' balance. Forty male handball players were studied. Balance was assessed statically and dynamically using TecnoBody ProKin, analyzing postures with open/closed eyes and bipedal stances. Jump parameters in horizontal and vertical dimensions were measured, along with muscle strength using a dynamometer. Anaerobic power in kg-m/s was calculated. Findings revealed negative correlations between vertical jump values, bipedal mean track error (ATE), and balance indicators, as well as between horizontal jump values, bipedal ATE, leg strength, and mean medial-lateral velocity values with closed eyes. Anaerobic power correlated negatively with mean forward-backward velocity with closed eyes, closed-eye PM, and bipedal ATE values ($p<0.05$). Analysis indicated decreasing balance values with increasing vertical jump, horizontal jump, leg strength, and anaerobic power (Dülger & Bas, 2021). In a study by Kesilmiş and Akın, the influence of gymnastics training on dynamic balance ability and hypermobility in preschool children was examined. A total of 162 children participated, with 76 males and 86 females. Among them, 47 children underwent 12 weeks of gymnastics training, while 115 followed regular school programs. Dynamic balance was assessed using the TecnoBody ProKin device, and hypermobility was evaluated using the Beighton test. Significant differences in dynamic balance skills were found between 6-year-old children who received gymnastics training and those who did not ($p<0.001$). Additionally, girls displayed significantly better dynamic balance skills than boys ($p<0.005$). There was a notable difference in hypermobility between children in gymnastics training ($p<0.05$). Hypermobility rates were 23.7% in males, 43% in females, 51.1% in gymnasts, and 27% in non-gymnasts. However, no correlation was found between dynamic balance ability and hypermobility. Despite similar age groups and physical characteristics, children's dynamic balance performance and hypermobility varied based on participation in gymnastics training. Furthermore, girls exhibited higher dynamic balance performance compared to boys (Kesilmiş & Akın, 2018). In a study by Demir and Akın, dynamic balance performances were compared among healthy boys aged 11-12 years based on somatotype characteristics. A total of 123 boys participated, with a mean age of 11.66 ± 0.699 years. Somatotype characteristics were determined using the Heath-Carter Anthropometric Somatotype Calculation technique. Dynamic balance was measured using the TecnoBody Prokin device, assessing postural limit (PL) values on both right and left feet and various anthropometric measurements such as skinfold thickness (SCT), diameter, length, and circumference. The mean somatotype of the boys was determined as endomorph=4.17, mesomorph=4.38, and ectomorph=2.62. Participants were grouped based on dominant endomorph, mesomorph, and ectomorph characteristics, and dynamic balance comparisons were conducted. It was found that the group with dominant mesomorph characteristics exhibited a statistically significant difference in dynamic balance compared to the other groups (Demir & Akın, 2019). In a study by Kaya and Peker, the impact of core training on static balance and vertical jump performance in male football players was investigated. Twenty amateur male football players participated, divided into two groups. The first group (n=10) underwent core training three days a week for eight weeks, alongside regular training, while the second group (n=10) did not perform core exercises. Body composition was assessed using the Bodystat®1500 body analyzer, balance was evaluated using the Tecnobody ProKin device, and vertical jump performance was measured with the Powertimer PC 1.9.5 Version Newtest device. Pre-test and post-test evaluations were conducted for both groups. Results revealed a significant improvement in static balance and jump performance among participants who received core training (Kaya & Peker, 2024). In a study by Kesilmiş and Akın, the impact of Kangoo jump shoes on plantar flexion-dorsiflexion strength and dynamic balance in female badminton players was explored. Sixty participants, with a mean age of 12.78 ± 0.88 years, were divided into three groups: Kangoo badminton (KBG) group (n=20), badminton (BG) group (n=20), and control group (CG) (n=20). The KBG group wore Kangoo jump shoes during badminton training, the BG group received only badminton training, and the CG did not engage

in any specific training as the control group. Dynamic balance assessment was conducted using the TecnoBody Prokin device, evaluating bipedal, right, and left foot balance, while Lafayette's manual muscle strength test was employed for muscle strength evaluation. Pre-test and post-test assessments were conducted for each group over eight weeks, with training sessions lasting 2 hours a day, twice a week. Results revealed significant improvements in bipedal dynamic balance skill, right-left plantar flexion peak, and left dorsiflexion peak in the KBG group. Significant differences were observed between pre-test and post-test comparisons in various dynamic balance measures and plantar flexion-dorsiflexion forces across all three groups. The study concluded that training with Kangoo jump shoes increased balance and plantar flexion-dorsiflexion muscle strength development in badminton players (Kesilmiş & Akın, 2019). In another study by Vora et al. (2019), which focused on the biomechanics of squat jumps in young badminton players, 100 participants (59 males and 41 females) aged 8-15 years were involved. Biomechanical assessment of the squat jump was conducted using the TecnoBody Iso Lift system, comprising a sensorized platform equipped with four load cells for real-time detection of load distribution. Athletes stood on the Iso Lift platform and were scanned with a 3D camera. Parameters such as maximum height, force, acceleration, and relative power were recorded during each squat jump. The analysis revealed no significant difference in maximum strength and maximum relative strength of squat jumps concerning body mass index and competitive level. Furthermore, various other factors did not significantly affect the squat jump (Vora et al., 2019). In a study by Erkılıç and Şener, the relationships among body composition, anaerobic performance, and balance in wrestlers were investigated. Fourteen wrestlers aged 17 to 20 years participated in the research. Anaerobic performance was assessed using the Wingate Anaerobic Power Test (WAnT), balance was evaluated using the Tecnobody ProKin device, and body composition analysis was conducted using Tanita scales. Results revealed significant correlations between lower body absolute peak power values and body height, weight, left and right leg muscle mass, as well as left and right arm muscle mass ($p<0.01$). However, no significant correlation was found between balance and other variables ($p>0.05$). The findings suggested that leg and arm muscle mass play a crucial role in balance and may influence anaerobic performance (Erkılıç & Şenel, 2019). In a study by Isbilir et al., the relationship between dominant and non-dominant ankle muscle strength and dynamic balance in football players was explored. Seventeen amateur football players participated, and the Waterloo Foot Endurance Questionnaire-Revised (WFQ-R questionnaire) was used to determine limb dominance. Dynamic balance assessment was conducted using the Tecnobody ProKin device, while ankle joint muscle strength was measured with the Cybex Norm isokinetic dynamometer. Results revealed significant differences between limbs for ankle plantar flexors, indicating greater strength in plantar flexors on the non-dominant side. Additionally, dynamic balance ability was found to be superior for the dominant foot compared to the non-dominant foot. Correlations were observed between ankle plantar flexors, evertors, inverters, and dorsal and plantar flexors for both limbs (Isbilir et al., 2015). In a study by Kesilmiş et al., the correlation between ankle range of motion and dynamic balance was explored in rhythmic gymnasts. The study involved 17 female rhythmic gymnasts (8.82 ± 1.42 years) and 19 sedentary females (8.73 ± 1.36 years). Active dorsiflexion and plantar flexion range of motion were measured in both ankles of all participants using a goniometer. Monoaxial dynamic balance scores were evaluated with the Tecnobody Prokin device for an anteroposterior swing on a monoaxial basis for both feet. Additionally, a slalom test was conducted for 30 seconds. In rhythmic gymnasts, results showed a significant correlation between slalom circumference length, right dorsiflexion, and left plantar flexion. However, no correlation was found between balance and ankle range of motion in sedentary females. Significant differences were observed in rhythmic gymnasts compared to sedentary females regarding bipedal circumference, right foot circumference, right plantar-dorsal flexion, left plantar flexion, and left dorsal flexion ($p<.05$) (Kesilmiş et al., 2017). A 2018 study by Kesilmiş and Akın investigated the hypermobility, broad jump, and dynamic balance skills of 240 children (120 boys and 120 girls) aged 11 to 14

years. Hypermobility was assessed using the Beighton criteria with a cut-off point of 5, while dynamic balance was evaluated using the TecnoBody Prokin device. Standing broad jump measurements and leg length assessments were also conducted. Non-hypermobile participants in both genders demonstrated better dynamic balance results for right-left circumference length, whereas hypermobile participants exhibited superior explosive leg strength. Female participants achieved better dynamic balance test results ($p<.005$), while males outperformed females in standing broad jump results, with no significant difference observed when corrected for leg length. However, no correlation was found between hypermobility and other variables (Kesilmiş & Akın, 2018). In a 2020 study by Akın and Kesilmiş, the effects of blood flow restriction and plyometric training on dynamic balance in taekwondo athletes were explored. Thirty-one taekwondo athletes (19 males and 12 females) aged 15 to 19 years were divided into blood flow-restricted exercise, plyometric training, and control groups. Dynamic balance was assessed using the TecnoBody Prokin device for bipedal dynamic balance measurements. Results revealed a statistically significant difference between pre-test and post-test values for dynamic balance (anteroposterior swing) in the blood flow-restricted exercise group ($p<.05$). However, no significant difference was found in the plyometric training group ($p>.05$), and no gender difference was observed ($p>.05$) (Akin & Kesilmiş, 2020). A study by Arol and Kolayış examined the effect of balance exercises on amateur canoe athletes. Twenty-five women (mean age 14.92 ± 0.39 years) were divided into intervention and control groups. Balance exercises were conducted for 40 minutes a day, three days a week for eight weeks, alongside ski training twice a week. Dynamic and static balance assessments were performed using the TecnoBody Prokin device, and balance testing was conducted using a ski prototype. Both groups showed improvements in static and dynamic balance as well as kayak-specific balance values. The intervention group exhibited significantly higher kayak-specific balance improvements ($p<0.05$) (Arol, 2018).

The studies have shown that TecnoBody devices provide objective and effective data in the field, especially in balance assessment, because they are accessible, portable, low-cost, simple, and readable.

However, when the studies were examined, the results of the studies conducted with low sample groups were heterogeneous. Therefore, scientific studies need to be conducted with a larger sample group.

Conclusion

When the studies were examined, it was found that TecnoBody devices were used in the literature before and after training or exercise or instant evaluations in athletes. It was observed that these evaluations were generally made on balance evaluations. However, it was observed that no exercise or training was performed on the performance or balance parameters of athletes with TecnoBody devices. However, it is thought that exercises or training with TecnoBody devices may be effective on athletes' performance and balance, and these effects may increase bio-motor skills. It is thought that using TecnoBody devices in exercises or training and evaluation in future studies may be effective.

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