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YAZIM KURALLARI

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Öz: Çalışmalar İngilizce/Türkçe dillerinde gönderilmelidir. Her çalışmanın baş kısmında Türkçe ve İngilizce öz bulunmalıdır. Öz, makalenin amacına, yöntemine ve sonuçlarına ilişkin kısa ve net bilgileri içermelidir. 10 punto büyüklüğünde, tek satır aralıklı, iki yana yaslı ve en çok 250 sözcük olmalıdır. "Öz" metni içinde kaynak verilmemelidir.

***Anahtar Kelimeler**:* Anahtar Kelimeler başlığı italik ve 10 punto olmalı, en az 3 en çok 5 kelimeden oluşmalıdır. Anahtar kelimeler virgül (,) işareti ile birbirinden ayrılmalı, küçük harfle yazılmalıdır. Giriş ile anahtar kelimeler arasına 1 satır boşluk bırakılmalıdır.

Giriş: Makalenin ana bölüm başlıkları Giriş, Yöntem, Bulgular, Sonuç ve Tartışma olmak üzere numaralandırma yapmadan sola dayalı, 11 punto, kalın ve büyük harflerle yazılmalıdır. Çalışmada paragraf başı yapılmamalıdır. Paragraf sekmesinde girintiler bölümünde; önce ve sonra alanı 6 nk satır aralığı 1 olmalıdır. Problem durumu, giriş bölümü içinde açıkça belirtilmelidir. Makale MS Office Word programında uzantısı .doc ya da docx olacak şekilde kaydedilmelidir. Metin, A4 boyutuna üst, alt, sağ ve sol boşluk 2,5 cm. bırakılarak tek satır aralıklı yazılmalıdır. Times New Roman yazı karakteri kullanılmalı ve tek sütun olmalıdır.

İkinci düzey başlıklar numaralandırma yapmadan sola dayalı, 11 punto, ilk harfleri büyük, kalın ve italik olarak yazılmalıdır. Kendinden önceki paragraftan bir satır boşluk ile ayrılmalıdır. Biçimlendirmeyi bozmadan bu kısmı silip makale metnini yazabilirsiniz.

Yöntem: "Giriş" bölümünü sırasıyla "Yöntem", "Bulgular", "Sonuçlar ve Tartışma" bölümleri izlemelidir. Belirtilen yazım esaslarına uygun olarak hazırlanan ve inceleme kurulu tarafından onaylanan makaleler yayımlanır.

Örneklem/Çalışma Grubu/Katılımcılar: Araştırmada, grubun oluşturulma biçimine göre Örneklem, Çalışma Grubu ya da Katılımcılar başlıklarından biri kullanılmalıdır. Araştırmanın çalışma grubunun kimlerden oluştuğu ve örnekleme yöntemine ilişkin bilgiler bu bölümde belirtilir.

Veri Toplama Araçları/Veri Toplama Yöntemleri / Veri Toplama Teknikleri: Araştırmada kullanılan veri toplama araçları ile ilgili bilgiler bu bölümde belirtilebilir. Başlıktaki üç ifadeden tercih edilen bir tanesi kullanılmalıdır.

Üçüncü Derece Başlık (Ölçme Aracı) : Sola dayalı, 11 punto, italik ve sadece ilk kelimenin ilk harfi büyük olacak biçimde yazılmalıdır. Kendinden önceki paragraftan bir satır boşluk ile ayrılmalıdır.

Verilerin Analizi: Araştırma kapsamında elde edilen verilerin analizleri ile ilgili bilgiler bu bölümde belirtilebilir. Aşina olunan istatistiklere ilişkin açıklayıcı bilgilere yer verilmemelidir. Ancak aşina olunmayan istatistikler hakkında açıklayıcı kısa bilgilere yer verilmesi yararlı olacaktır.

Bulgular: Kullanılacak referanslar, tablolar, şekiller APA 6'ya uygun şekilde hazırlanmalıdır. Yazım kuralları ve APA'ya uygun olmayan makaleler ilk aşamada editör tarafından yapılan değerlendirmede elenir. Referanslarınızı gözden geçirmeniz ve APA 6'ya uygunluğunu kontrol etmeniz gerekmektedir. Tablolara, tablo numarasıyla birlikte metin içinde mutlaka atıfta bulunulmalıdır. Tablolar gerekirse tek sütun yapılabilir.

Tablolar, rakamla numaralandırılmalı ve Tablo başlığı tablonun üstünde kelimelerin baş harfleri büyük, sola dayalı 11 punto ile yazılmalıdır. Tablo başlığı kalın veya eğik yazı şeklinde olmamalıdır. Tablo numarasından sonra nokta işareti konup tablo adı yazılmalıdır. Tablo içi değerler/yazılar ise 9 punto olmalıdır. Tablo başlığı ile tablo arasında boşluk bırakılmamalıdır. Tablolar metin içinde tablo sayısı verilerek belirtilmelidir. Tablolar, metin içinde kullanıldıkları veya izleyen sayfada yer almalıdır.

İlgili not ve kaynaklar, tablonun altında, "Not:" veya "Kaynak:" ifadelerinden sonra, belirtilmelidir. Tablodan önce ve sonra metin ile tablo arasındaki boşluk 1 satır olmalıdır.

Şekiller sola dayalı olmalı ve rakamlarla numaralandırılmalıdır. Şekil başlığı numarası ile birlikte, 11 punto, şeklin altında, kelimelerin baş harfleri büyük sola dayalı yazılmalıdır. Kalın veya eğik yazı şeklinde olmamalıdır. Şekil numarasından sonra nokta işareti konup şekil adı yazılmalıdır. Şekil içindeki yazılar ise 9 punto olmalıdır. Şekil ile şekil başlığı arasında boşluk, bırakılmamalıdır. Şeklin başlığı, şeklin altında yer almalıdır. Kaynak kullanılmış ise parantez içinde şekil altına yazılmalıdır. Şekillere, metin içinde mutlaka atıfta bulunulmalıdır. Şekilden önce ve sonra metin ile şekil arasındaki boşluk 1 satır olmalıdır.

Tartışma ve Sonuç: Buraya sonuç, tartışma ve öneriler kısmı eklenmeli ve yukarıda verilen yazım kurallarına dikkat edilmelidir. Metin içi 11 punto, tek satır aralıklı ve burada verilen biçime uyularak hazırlanmalıdır.

Kaynakça: Kaynakça, APA 6 Publication Manual yayın ilkelerine uygun olarak hazırlanmalıdır. Daha fazla bilgi için; http://www.apa.org bakınız. Kaynaklar başlık dahil 10 punto ile tek satır aralığında hiç boşluk bırakmadan alfabetik sıralı yazılmalıdır. Paragraf girintisi sağdan asılı 1,16 cm'dir. Her kaynakçanın bu metinde gösterildiği şekilde ikinci ve daha sonraki satırlar içe 1.16 cm girintili olacak şekilde hazırlanmalıdır.

Sayfa alt üst bilgileri makale kabulünden sonra düzenlenebilir. Dergi sistemindeki şablondaki hali ile çalışmanızı sisteme yükleyebilirsiniz. Burada açıklanan yazım kurallarına uymayan makaleler editörler tarafından reddedilir, incelenmek üzere hakemlere gönderilmez.

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2)Telif Hakları Devir Formu (doc)

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To Examine the Work Engagement and Psychological Flexibility Levels of University Stuff Who Participate in Yoga Activities as A Recreational Experience

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A B S T R A C T

The aim of this research is to examine the work engagement and psychological flexibility levels of university stuff who participate in yoga activities. In this study, a random design with pretest-posttest control group, which is one of the real experimental designs, was used. The sample of the study consisted of 24 female staff working at the university. There were 13 female in the experimental group and 11 female in the control group. Data collection tools to be used in the research are Utrecht Work Engagement Scale and Psychological Flexibility Scales. The study lasted for 12 weeks. Data were analyzed with SPSS program, Wilcoxon and Correlation tests were applied. As a result, there is a significant difference between the participants in the experimental groups Psychological Flexibility pre-test and post-test scores. ($p<.05$). There was no significant difference between the participants in the experiment groups Work Engagement pre-test and post-test scores. It can be said that regular yoga practices can have positive effects on psychological flexibility as well as increase work engagement. Longer and more frequent applications are recommended.

Keywords: Yoga, Work Engagement, Psychological Flexibility

INTRODUCTION

The word yoga simply means "getting together, putting it together." (Desikachar, 2019). It's an ancient philosophy that contains health and well-being (Desikachar, 2005). The goal of yoga is to make consciousness whole. Yoga includes eight branches (Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana, Samadhi) that start with applications that include breathing techniques and physical postures and lead to spiritual liberation (Büssing et al., 2012). Thanks to yoga, it is possible to explore the feeling of integrity, inner peace and freedom. Yoga is open to everyone, although India is a philosophy that comes out and it has a universal approach that does not belong to any culture (iyengar, 2020). Studies (Biman et al., 2021; Birdee et al., 2008; Cocchiara, 2019; Gothe et al., 2019; Dağaşan, 2019; Fields, 2001; Puerto Valencia et al.,2019; Wadhen & Cartwright, 2021; Young-Sook Yook, Soo-Jin Kang & InKyoung Park, 2017) reveal the physical, mental and emotional benefits of yoga and meditation practices. General well-being, coping with stress, improvements in mood, physical health and brain health are some of these benefits and demonstrates that yoga can be used for therapeutic purposes. Yoga has thus become a popular practice that can be used as auxiliary therapy (Büssing et al., 2012). In particular, it can be used to improve the professional performance of working individuals, increase their participation in activities in the work environment and reduce depression (Schmid et al., 2019). While work stress and exhaustion are one of today's common discomfort (De Bruin, Formsma,

Frijstein & Bögels, 2017), it is possible to avoid or reduce these discomfort through yoga and meditation practices (De Bruin, Formsma, Frijstein & Bögels, 2017; Ross & Thomas, 2010; West et al., 2004). It has been revealed that the general health (Dağaşan, 2019), job satisfaction and life satisfaction levels (Duyan, 2008) of individuals who participate in yoga exercises are positively affected. In another study, it was found that there was a positive relationship between yoga exercises, perception of well-being and quality of life (Güler, 2010). In addition to being an important part of maintaining general health and well-being, practicing yoga is a system that can help protect mental health and the musculoskeletal system (Birdee, 2008). Consciously applied yoga practices can reduce the effects of stress by showing a relaxing effect, bring the nervous system to a balanced state and provide psychological flexibility (Benson, 1975; cited in Jeter, 2015). Psychological flexibility can be defined as a conscious human being touching the present moment and acting in accordance with individual values. Helps people learn how to do their jobs more effectively (Bond, Hayes & Barnes-Holmes, 2006). Psychological flexibility includes many talents such as adapting, changing the structures of thought and behavior, maintaining balance in life (Kashdan & Rottenberg, 2010). Being able to exhibit flexible behavior in difficult conditions is very important for a healthy functioning. Psychological flexibility is especially beneficial in the face of stress-inducing difficulties that we encounter on our way to our goal (Doorley, 2020). Psychological flexibility also has a positive relationship with mindfulness (Silberstein, 2012). Mindfulness means unprejudiced attention and is about staying in the moment (Kabat-Zinn, 2015). Psychological flexibility is positively associated not only with professional performance but also with job satisfaction, self-compassion, and well-being (Bond, Hayes, & Barnes- Holmes, 2006; Kashdan & Rottenberg, 2010; Yadavaia, Hayes, & Vilardaga, 2014). In a study, it was mentioned that psychological flexibility can increase work engagement by positively affecting performance in the workplace (Yang, Ma, Wang, Chen, Xie & Chang, 2022). The fact that individuals enjoy their work, concentrate on their work and feel energetic while working is related to their work commitment (Salanova et al., 2000; cited in Eryılmaz & Doğan, 2012). Individuals who can focus on their work are more likely to be lively, positive, self-sacrificing, creative and productive. Job opportunities can also affect individuals' commitment to their jobs (Ateşoğlu & Erkal, 2018; Bakker & Demerouti, 2008; Schaufeli et al., 2002). There are also studies showing that there is a relationship between work engagement and being healthy. According to these studies, the health status of individuals who are engaged in their work is better than those who are not. (Demerouti et al., 2001; Hakanen, Bakker & Schaufeli, 2006; Schaufeli et al., 2008). Similarly, there are studies that reveal the positive effect of individuals' well-being on their commitment to work. (Savrun, 2019). In addition, participation in physical activity is one of the factors that positively affect work engagement (Kiema-Junes et al.,2022). Thanks to yoga and mindfulness practices applied together, employees can not only reduce their work stress, but also learn to cope with the demands at work more easily (Torre et al., 2020; Della Valle et al., 2020). In addition, the professional performance and psychological well-being of the employees can be positively affected (Trent et al.,2019). Yoga exercises differentiate from other types of exercise with the benefits it provides in its spiritual aspects, coping, stress management, mind-body interaction. Therefore, yoga practices have a holistic approach that includes much more than poses (Cagas, Biddle & Vergeer, 2022). Because of all of these aspects of yoga, it has become a question of whether it will have an impact on emotional situations such as psychological flexibility and work engagement. Especially after pandemic, the fact that yoga is one of the most appropriate exercises for individuals to feel both physically and spiritually good (Nagarathna et al., 2021; Mendo et al., 2022) is the main reason why yoga exercises are preferred in this study. The reasons, such as the researcher herself being a certified yoga instructor, limited exercise opportunities, and the demands of the participants are in the direction of static exercise, have also made yoga preferable. Therefore, in this study "To Examine The Work Engagement And Psychological Flexibility Levels of University Stuff Who Participate In Yoga Activities As A Recreational Experience" is aimed.

METHOD

In this study, a random design with pretest-posttest control group, which is one of the real experimental designs, was used. Experimental research is the research in which the most precise results are obtained among scientific methods In this design, firstly, two groups, experimental and control groups, are formed from the previously determined sample group. Dependant variable measurements of both groups are taken. Independent variable is applied to the experiment group. Finally, the same dependent variable measurements are taken again from both groups (Büyüköztürk et al., 2016). This study aims to examine the levels of work engagement and psychological resilience of university staff who participate in yoga activities as a recreational experience.

Hypotheses:

H1. There is a difference between the psychological flexibility pre-test and psychological flexibility post-test scores of the participants in the experimental group.

H2. There is a difference between job commitment pre-test and job commitment post-test scores of the participants in the experimental group.

The sample of the study consisted of 24 female academic and administrative staff working at Düzce University. Participants were reached by easy sampling method. In this sampling method, people close to the researcher and easily accessible are included in the sample. (Baştürk & Taştepe, 2013). The announcement was made with the permission of Düzce University Rectorate. People who want to participate in the study have reached the researcher and they are informed about the work. Study is started after their approval has been received. The distribution of the participants according to different variables is given below (Table 1)

Table 1. Frequency and Percentage Distribution of Participants' Demographic Information

Variables	Subcategories	Frequency (f) (Experimental)	Percent (%) (Experimental)	Frequency (f) (Control)	Percent (%) (Control)
Age	20-30	2	15,4	2	18,2
	31-40	7	53,8	6	54,6
	41-50	4	30,8	3	27,3
	Total	13	100,0	11	100,0
Education Status	High school graduates	-	-	2	18,2
	Degree graduates	4	30,8	2	18,2
	Postgraduates	9	69,2	7	63,6
	Total	13	100,0	11	100,0
Duty Unit	Biochemistry	1	7,7	2	18,2
	Education	4	30,8	1	9,1
	Hospital	1	7,7	1	9,1
	Business	1	7,7	-	-
	Engineering	1	7,7	1	9,1
	Rectorate	1	7,7	-	-
	Health Service	2	15,4	-	-
	Sport Sciences	-	-	5	45,5
	Foreign Language	2	15,4	1	9,1
	Total	13	100,0	11	100,0
Working Position	Academic	7	53,8	7	63,6
	Administrative	6	46,2	4	36,4
	Total	13	100,0	11	100,0
Term of Office	0-1 year	-	-	1	9,1
	2-5 years	3	23,1	2	18,2
	5-10 years	1	7,7	1	9,1
	10 years and above	9	69,2	7	63,6
	Total	13	100,0	11	100,0
Yoga Experience	Yes	3	23,1	1	9,1
	No	10	76,9	10	90,9
	Total	13	100,0	11	100,0

When Table 1 is examined, it is seen that more than half of the participants in the experimental group are in the 31-40 age group (53.8%), which constitutes the middle age group. It was seen that the 41-50 age group (30.8%) took second place and the 20-30 age group (15.4%) took the last place. When the education level is considered, the rate of undergraduate graduates is 30.8%, while postgraduate graduates constitute the majority with 69.2%. In terms of their duty unit, it was determined that the personnel of the faculty of education took the first place (30.8%), while the personnel of the health services and foreign language departments (15.4%) took the second place. These people 53.8% are academic staff, 46.2% are administrative staff. The vast majority of them are working for 10 years or more (69.2%). Only 3 of them (23.1%) had previous yoga experience.

Participants in the control group are mostly between the ages of 31-40 (%54.6). When the education level is considered, the rate of high school graduates is %18.2, the rate of undergraduate graduates is 18.2% and postgraduate graduates constitute the majority with 63.6%. In terms of their duty unit, it was determined that the personnel of the Sport Sceiences departments took the first place (45.5%), while the personnel of the Biochemistry departments (18.2%) took the second place. These people 63.6% areacademic staff, 36.4% are administrative staff. The vast majority of them are working for 10 years or more (63.6%). Only one of them had previous yoga experience.

Data Collection

The data of the research were obtained from the participating personnel working at Düzce University in the spring semester of the 2021-2022 academic year. Pre-tests were applied at the beginning of the study and post-tests were applied at the end of the study. The data were obtained by filling in a face-to-face environment. Hatha yoga practices were performed for 12 weeks. Hatha yoga is generally a type of yoga comprised of asana (yoga poses), pranayama (breathing techniques) and meditation practices (Riley, 2004). These practices were performed with a certified yoga instructor for 60-90 minutes once a week. 12-weeks hatha yoga program is listed in the table below (Table 2)

Table 2. Hatha Yoga Program for 12 Weeks.

Weeks	Poses	Breathing Techniques
1	Warm up, Surya Namaskar (3 Reps), Balasana, Savasana, Pratyahara	Sama Vritti Pranayama
2	Warm up, Surya Namaskar (2 Reps), Utkatasana, Vrksasana, Trikonasana, Setu Bandha Sarvangasana, Ardha Chandrasana, Parsvottanasana, Janu Sirsasana, Anjaneyasana, Baddha Konasana, Ananda Balasana, Savasana, Pratyahara	Sama Vritti Pranayama
3	Warm up, Chandra Namaskar, Salabhasana, Chaturanga Dandasana, Bhujangasana, Bitilasana Marjaryasana, Ardha Pincha Mayurasana, Utthita Hasta Padangusthasana, Vrksasana, Vasisthasana, Halasana, Savasana, Pratyahara	Nadi Shodhana Pranayama
4	Warm up, Surya Namaskar, Utkatasana, Parivrtta Utkatasana, Bitilasana Marjaryasana, Purvottanasana, Navasana, Vrksasana, Vasisthasana, Dhanurasana, Uttanpadasana, Savasana, Pratyahara	Bhramari Pranayama
5	Warm up, Chandra Namaskar, Bhujangasana, Anjaneyasana, Parsvottanasana, Paschimottanasana, Utthan Pristhasana Kapotasana, Salabhasana, Ustrasana, Dhanurasana, Upavistha Konasana, Balasana, Halasana, Baddha Konasana, Ananda Balasana, Savasana, Pratyahara	Nadi Shodhana Pranayama
6	Warm up, Surya Namaskar Vrksasana, Utkatasana, Vrksasana, Trikonasana, Setu Bandha Sarvangasana, Ardha Chandrasana, Parsvottanasana, Janu Sirsasana, Anjaneyasana, Baddha Konasana, Ananda Balasana, Savasana, Pratyahara	Bhramari Pranayama
7	Warm up, Surya Namaskar, Salabhasana, Chaturanga Dandasana, Bhujangasana, Bitilasana Marjaryasana, Ardha Pincha Mayurasana, Vasisthasana, Utthita Hasta Padangusthasana, Halasana, Savasana, Pratyahara	Bhastrika
8	Warm up, Chandra Namaskar, Utkatasana, Parivrtta Utkatasana, Bitilasana Marjaryasana, Purvottanasana, Navasana, Vrksasana, Vasisthasana, Dhanurasana, Uttanpadasana, Savasana, Pratyahara	Shiitali Kumbhaka
9	Warm up, Surya Namaskar, Bhujangasana, Anjaneyasana, Parsvottanasana, Paschimottanasana, Utthan Pristhasana, Upavistha Konasana, Salabhasana, Ustrasana, Dhanurasana, Balasana, Ananda Balasana, Halasana, Kapotasana, Vrksasana, Savasana, Pratyahara	Ujjayi
10	Warm up, Surya Namaskar, Salabhasana, Chaturanga Dandasana, Bitilasana Marjaryasana, Purvottanasana, Navasana, Vrksasana, Vasisthasana, Dhanurasana, Halasana, Savasana Savasana, Pratyahara	Bhastrika
11	Warm up, Chandra Namaskar, Utkatasana, Parivrtta Utkatasana, Bitilasana Marjaryasana, Purvottanasana, Navasana, Vrksasana, Vasisthasana, Dhanurasana, Uttanpadasana, Savasana, Pratyahara	Nadi Shodhana Pranayama
12	Warm up, Surya Namaskar, Salabhasana, Bitilasana Marjaryasana, Purvottanasana, Navasana, Vrksasana, Vasisthasana, Dhanurasana, Uttanpadasana, Halasana, Savasana, Pratyahara	Ujjayi

Data Collection Tools

Personal information form developed by the researchers, Utrecht Work Engagement Scale and Psychological Flexibiliy Scale were used as data collection tools in our study.

Psychological Flexibiliy Scale

It was developed by Francis, Dawson and Golijani-Moghaddam (2016). It was adapted into Turkish by Karakuş and Akbay (2020). Psychological Flexibiliy Scale is a 7's Likert type and consists of five sub-dimensions. These are, behavior (1, 7, 9, 13, 16, 19, 21, 26, 27, 28), be in the moment (8, 14, 18, 20, 22, 23, 25), acceptence (2, 3, 5, 6, 24), contextual personality (4, 10, 12) and dissociation (11, 15, 17). Items 2, 3, 5, 6, 8, 18, 20, 22, 23, 24 and 25 are reverse scored. In the study, the Cronbach Alpha internal consistency coefficient of the Psychological Flexibility Scale was calculated as .79. The lowest score that can be obtained from the scale is 28, and the highest score is 196. High scores from each subscale in the evaluation of scale items reflect high psychological flexibility. In this study, the Cronbach Alpha coefficient was determined as 0.703 (Karakuş & Akbay, 2020).

Utrecht Work Engagement Scale

Utrecht Work Engagement Scale (UWES): UWES was develeped by Schaufeli et al. (2002) to measure employee engagement. It was adapted into Turkish by Eryılmaz and Doğan (2012). The reliability of UWES-TR was examined by internal consistency and test-retest methods. Accordingly, the Cronbach alpha reliability coefficient calculated for the entire scale was .94. Scale has 3 sub-dimensions. These are, Vigor (1,4,8,12,15,17) Dedication (2,5,7,10,13) and Absorption (3,6,9,11,14,16). The reliability coefficients obtained for the sub-dimensions were calculated as .87 for the "Vigor" sub-dimension, .87 for the "Dedication" sub-dimension, and .84 for the "Absorption" sub-dimension. There is no reverse item in the scale. High scores from the scale indicate high work engagement. The lowest possible score is 17, and the highest score is 85 (Eryılmaz & Doğa, 2012). In this study, the Cronbach Alpha coefficient was determined to be 0.878 in total, 0.687 in the Vigor Sub-Dimension, 0.759 in the Dedication Sub-Dimension, and 0.847 in the Absorption Sub-Dimension.

Analysis of Data

The data obtained from the scales were analyzed with the SPSS 22 package program. Frequencies and percentages were taken for personal information, and descriptive statistics were made for other data. Cronbach Alpha coefficients were calculated for reliability. Wilcoxon test, one of the non-parametric tests, was applied to the data that did not show normal distribution. Spearman correlation test was used to examine the relationship between the two variables. Statistical significance level was accepted as $p<0.5$.

RESULTS

The participants' work engagement and psychological flexibility data are given in the tables below (Table 3).

Table 3. Comparison of Participants in The Experimental Groups Pre-Test and Post-Test Data Means of the Psychological Flexibility Scale

Scales	Pre-Test		Post- Test		Wilcoxon	
	$\bar{X}$	SD	$\bar{X}$	SD	Z	p
Psychological Flexibility Scale Total Score	**126,53**	13,37	**145,38**	13,94	-3,061	**0,02**
Behavior Sub-Dimension	61,92	5,46	64,00	4,06	-1,791	0,07
Be in the moment Sub-Dimension	33,61	6,15	37,38	4,11	-1,609	0,10
Acceptence Sub-Dimension	**12,23**	5,61	**16,30**	6,71	-2,482	**0,01**
Contextual personality Sub-Dimension	12,30	5,72	14,30	3,63	-1,179	0,23
Dissociation Sub-Dimension	10,84	3,78	13,38	4,31	-1,379	0,16

When Table 3 is examined, it is seen that there is a significant difference (p=0.02, p<0.05) between the psychological flexibility levels of the participants and their pretest and posttest "total" scores. Post-test averages are higher than pre-test averages. This significant statistical difference was also determined in the "acceptance sub-dimension" (p=0,01, p<0,05). There is no significant difference in other dimensions (p>0.05).

Tablo 4. Comparison of Participants in The Control Groups Pre-Test and Post-Test Data Means of the Psychological Flexibility Scale

Scales	Pre-Test		Post- Test		Wilcoxon	
	X̄	SD	X̄	SD	Z	p
Psychological Flexibility Scale Total Score	128,00	13,06	130,54	17,07	-,952	,341
Behavior Sub-Dimension	54,18	13,16	53,90	12,74	-,179	,858
Be in the moment Sub-Dimension	34,72	7,28	33,90	7,70	-,742	,458
Acceptence Sub-Dimension	16,18	7,46	16,54	8,48	-,422	,673
Contextual personality Sub-Dimension	12,54	5,33	13,36	5,12	-,841	,400
Dissociation Sub-Dimension	10,36	3,85	12,81	5,28	-1,863	,063

When Table 4 is examined, it has been determined that there is no significant difference between the psychological flexibility levels of the participants in the control group and their pretest and posttest "total" scores

Table 5. Comparison of Pre-Test and Post-Test Data Means of the Participants in The Experimental Groups Utrecht Work Engagement Scale

Scales	Pre- Test		Post-Test		Wilcoxon	
	X̄	SD	X̄	SD	Z	p
Utrecht Work Engagement Scale Total Score	63,53	10,564	66,61	5,909	-1,534	0,12
Vigor	21,30	4,289	22,61	2,902	-1,379	0,16
Dedication	20,61	3,330	21,46	2,025	-1,029	0,30
Absorption	21,61	4,925	22,53	2,875	-0,457	0,64

When Table 5 is examined, it has been determined that there is no significant difference between the pre-test and post-test "total" and sub-dimension scores according to the participants in the experimental groups Work Engagement levels (p>0.05). However, when the averages are considered, total score (X̄=63.53/66.61) and vigor (X̄=21.30/22.61), dedication (X̄=20.61/21.46) and absorption (X̄= 21.61/22.53) sub-dimensions were determined to increase.

Tablo 6. Comparison of Pre-Test and Post-Test Data Means of the Participants in The Control Groups Utrecht Work Engagement Scale

Scales	Pre- Test		Post-Test		Wilcoxon	
	X̄	SD	X̄	SD	Z	p
Utrecht Work Engagement Scale Total Score	63,00	8,41	59,72	6,11	-1,402	,161
Vigor	21,63	3,29	20,54	2,46	-1,706	,088
Dedication	19,81	2,75	18,81	2,08	-1,497	,134
Absorption	21,54	3,64	20,36	3,61	-1,018	,309

When Table 6 was examined, it was determined that there was no significant difference between the pretest and posttest "total" and sub-dimension scores according to the levels of Work Engagement of the participants in the control group (p>0.05).

Table 7. The Relationship Between the Participants in The Experimental Groups Work Engagement and Psychological Flexibility Data

Scales		Pre-Test Psychological Flexibility Total Score	Pre-Test Work Engagement Total Score	Post-Test Psychological Flexibility Total Score	Post-Test Work Engagement Total Score
Pre-Test Psychological Flexibility Total Score	rho	1,000	,642*	,419	,340
	p	.	**,018**	,155	,256
	N	13	13	13	13
Pre-Test Work Engagement Total Score	rho	,642*	1,000	,426	,596*
	p	**,018**	.	,147	**,031**
	N	13	13	13	13
Post-Test Psychological Flexibility Total Score	rho	,419	,426	1,000	,753**
	p	,155	,147	.	**,003**
	N	13	13	13	13
Post-Test Work Engagement Total Score	rho	,340	,596*	,753**	1,000
	p	,256	**,031**	**,003**	.
	N	13	13	13	13

When Table 7 is examined, it is seen that there is a statistically significant relationship (p=0.018, p<0.05) between the work engagement pretest and the psychological flexibility pretest. A significant relationship was also determined between the work engagement post-test and the psychological flexibility post-test. (p=0,003, p<0,01). Again, while a significant relationship was found between the work engagement pre-test and the work engagement post-test (p=0.031, p<0.05), there was no relationship between the psychological flexibility pre-test and post-test.

Tablo 8. The Relationship Between the Participants in The Control Groups Work Engagement and Psychological Flexibility Data

Scales		Pre-Test Psychological Flexibility Total Score	Pre-Test Work Engagement Total Score	Post-Test Psychological Flexibility Total Score	Post-Test Work Engagement Total Score
Pre-Test Psychological Flexibility Total Score	rho	1	,331	,734	-,133
	p	.	,320	**,010**	,697
	N	11	11	11	11
Pre-Test Work Engagement Total Score	rho	,331	1	,375	,472
	p	,320	.	,256	,143
	N	11	11	11	11
Post-Test Psychological Flexibility Total Score	rho	,734	,375	1	,068
	p	**,010**	,256	.	,843
	N	11	11	11	11
Post-Test Work Engagement Total Score	rho	-,133	,472	,068	1
	p	,697	,143	,843	.
	N	11	11	11	11

According to Table 8, there is a significant relationship between the psychological flexibility pretest and posttest of the participants in the control group (p=0.01; p<0.05), while there is no significant relationship between work engagement and psychological flexibility data.

DISCUSSION

The personnel who participated in this applied study, which was conducted to examine the work engagement and psychological flexibility levels of university personnel participating in yoga activities as a recreational experience, are between the ages of 20-50. They are personnel with mostly undergraduate and graduate education, most of whom work at the university for 5-10 years.

The success and happiness of the personnel at work depends on being satisfied with the environment they are in as well as achieving their goals. Recreational activities are activities that help people relax and make them look at life more positively. This is related to the perception of events and is also related to psychological flexibility.

Considering that psychological flexibility is the behavior of the individual in accordance with the moment she is in (Karakuş & Akbay, 2020), thoughts and actions that transition from negativity to positivity make life more livable.

It is stated that psychological flexibility has a significant effect on life satisfaction (Mutlu & Tasa, 2022) and the level of psychological flexibility of individuals also differ according to the level of happiness they perceive themselves and to have a clear purpose in life. (Demirci, Serek & Ersanlı, 2017).

In our study, no significant difference was found between the pre-test scores and the post-test scores of psychological flexibility levels of the control group. In the experimental group, it was determined that there was a statistically significant difference between the pre-test scores and the post-test scores of psychological flexibility levels. This difference was determined in the "acceptance sub-dimension". Post-test averages are higher than pre-test averages. There is no significant difference in other dimensions. The reason for the significant difference in the "acceptance" sub-dimension may be due to the fact that the sense of acceptance is supported by yoga activities. Acceptance is a skill that is emphasized in yoga (Riley, 2004; Valante & Marotta, 2005). There are also studies that overlap with this research.

In Wendling's (2012) study, it was observed that the psychological flexibility scores of individuals who practice meditation regularly are higher than those who do not. In the studies of Yaşar and Aydoğdu (2022), it was stated that the negative effect of rumination on solution-oriented thinking in female teachers can be reduced through psychological flexibility. In Koç's (2017) study, it was shown that the organizational commitment levels of research assistants affect their psychological well-being.

In our study, it was determined that there was no significant difference between the pre-test and the post-test scores and sub-dimension scores according to both group levels of Work Engagement ($p>0.05$). However, when the averages of the experimental group scores are considered, total score ($\bar{X}$=63.53/66.61) and vigor ($\bar{X}$=21.30/22.61), dedication ($\bar{X}$=20.61/21.46) and absorption ($\bar{X}$= 21.61/22.53) sub-dimensions were increased. It can be said that the yoga activity has positive effect on the employees. The fact that the activities can continue more in terms of frequency and duration suggests that the result may increase its positive effect. In this case; It can be said that the establishment of a recreational activity environment that allows the employees to relax will increase their level of work engagement and create a positive environment.

It is stated that recreational activities have positive effects on work performance, that individuals participating in sports and social activities are relieved by getting away from work stress (Tezcan, 2007), and the level of emotional commitment of individuals within the institution increases as leisure time increases (Soyer, 2020). Mercanoğlu's (2019) study revealed that the workplace recreation program has a positive and great effect on employee productivity. In Bayraktar's (2017) study, it was determined that recreational activities have a positive effect on job satisfaction dimensions, and there is a significant relationship between job satisfaction and organizational commitment. In the study of Ayar (2021), it was seen that the organizational citizenship behaviors and organizational commitment of individuals participating in workplace recreation activities positively affect their organizational commitment. In the studies of Ayyıldız, Duran and Karakucuk (2021), it was stated that the recreation-oriented work efficiency of municipal employees is high and certain variables change this level.

Savrun (2016) conducted a study involving 308 tennis coaches. As a result of his study, it was reported that there were significant relationships between psychological well-being and work engagement dimensions, and that the psychological well-being of tennis coaches had a positive effect on work engagement.

In our study, while there was no significant relationship between work engagement and psychological flexibility data in the control group, there was a statistically significant relationship

(p=0.018, p<0.05) between the work engagement pre-test and the psychological flexibility pre-test in the experimental group. A significant relationship was also determined between the work engagement post-test and the psychological flexibility post-test (p=0,003, p<0,01). Again, a significant relationship was found between the work engagement pre-test and the work engagement post-test (p=0.031, p<0.05), while no correlation was found between the psychological flexibility pre-test and post-tests. However, a significant relationship (p=0.01; p<0.05) was found between the psychological flexibility pre- test and post-tests of the control group. It is thought that the reason for the relationship between the psychological flexibility pretest and the posttest is due to the absence of a factor affecting psychological flexibility. For this reason, it is possible that the results were close to each other.

CONCLUSION

As a result of our study, it was determined that yoga practices had a positive effect on the psychological flexibility levels of university staff. A significant difference was found between psychological flexibility pre-test and psychological flexibility post-test. This difference is in favor of the post-test. In this context, we can emphasize that the psychological flexibility levels of the participants increased positively. On the other hand, although there was no significant difference on work engagement levels, an increase was observed in all dimension averages. Based on this, we can say that if the frequency or duration of yoga experiences is increased, significant results can be obtained on work engagement. In conclusion, it is understood that yoga practices as a recreational experience have beneficial effects on employees. It is recommended that such activities should be done more frequently and for longer periods of time, as well as diversifying them with different activities.

Conflict of Interest

No potential conflict of interest was reported by the authors.

Ethical Approval

Approval for this study was obtained from Kocaeli University Social Sciences and Humanities Scientific Research and Publication Ethics Committee (decision dated 29/03/2022 and numbered 2022/04).

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Examining The Attitudes of E-Sports Players Towards Artificial Intelligence Techologies*

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A B S T R A C T

This study aimed to examine the attitudes of e-sports participants toward artificial intelligence (AI) based on a variety of socio-demographic variables. A total of 206 e-sports participants selected through convenience sampling were administered the "Attitude Towards Artificial Intelligence Scale" adapted by Kaya et al. (2022). SPSS 29.0.1.0 (171) was used to analyse the data. For data analysis, the Whitney U and Kruskal Wallis tests were utilized. According to the results of the analysis, there was no significant difference in the age variable, whereas the gender variable produced results that favoured male e-sports participants. In addition, it was discovered that individuals who used technological devices during exercise more frequently had a more positive attitude towards AI. In conclusion, men participants have a more optimistic view of artificial intelligence than female participants. These results illustrate the connection between technology usage and perception of artificial intelligence. It can be hypothesized that individuals who frequently use technological devices during exercise are more conversant with technology and, as a result, have a more favourable attitude towards artificial intelligence. These results indicate that technology utilization influences the adoption and acceptance of AI technologies.

Keywords: Artificial Intelligence, E-Sports, Technology and Sports

INTRODUCTION

The rapid development of technology has spawned new innovations in athletics. The proliferation of competitive computer and video games has given rise to the concept of electronic sports (e-Sports) (Kirriemuir, 2021). In the sphere of sports, technological advancement has not only contributed to existing sports but also paved the way for entirely new sports disciplines. In this context, the term e-Sports (electronic sports) has emerged as a novel concept. E-sport competitions are typically held on online platforms or local area networks, and physical movement is not required. This sport brings players from all around the globe together using the opportunities offered by the digital realm, allowing them to compete in a competitive environment (Jenny et al., 2016). E-Sports offer a unique experience compared to traditional sports and introduce a thrilling technological dimension to the world of sports.

LITERATURE REVIEW

E-Sports

The domain of e-Sports incorporates both physical and mental abilities. This sport is played in a virtual or computer environment and has characteristics such as being less expensive in terms of facilities or equipment than traditional sports, being easy to play anywhere in the world, allowing

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for both individual and team participation, and utilizing specialized tools and equipment (Mustafaoğlu, 2018). E-Sports is a sport that requires both physical and mental exertion. E-Sports can be played by people from different parts of the globe over the internet, or by individuals from different regions in major electronic sports competitions. This new sports discipline breaks down boundaries, bringing together players from various cultures and geographies, while requiring e-sports athletes to use their mental skills and hand-eye coordination to develop strategies within the game. In addition, athletes must engage in consistent exercise and training to maintain their physical health and fitness. In addition, both sports offer the opportunity to participate in competitions in both individual and team disciplines (Güler, 2022).

Consequently, e-Sports share similarities with traditional sports while utilizing the technological capabilities of the digital world to provide participants with a new and exciting experience (Argan et al., 2006).

Artificial Intelligence

Artificial Intelligence (AI) is a technology aimed at enabling computer systems to think and perform like humans. AI is the study of enhancing cognitive activities (both requiring and not requiring intellect) performed by natural systems to artificial systems, and even to higher levels of success (Say, 2018). Artificial Intelligence (AI) usage is on the rise, and its impact on various aspects of people's daily existence is growing. AI is utilized in numerous industries and disciplines as a result of rapid technological advancements (Makridakis, 2017; Olhede and Wolfe, 2018). Individuals' attitudes toward AI can significantly influence their adoption of AI (Schepman and Rodway, 2020).

In this context, the Turkish Electronic Sports Federation (TESFED), which was founded in 2023 with the intention of serving as the country's national and international representative, has partnered with the Turkish Artificial Intelligence Initiative SenpAI.GG, which operates globally with the same objective, to provide players with advanced algorithms and statistics. SenpAI.GG is an artificial intelligence-based gaming assistant created by Turkish entrepreneurs and engineers, making it the first native AI technology utilized in the esports industry. The mission of SenpAI.GG is not only to provide language support for players, but also to create a global impact by collaborating with players from all over the globe. SenpAI.GG's intelligent algorithms are demonstrated with an intuitive interface. Through this platform, players can identify areas for personal growth, acknowledge their mistakes, and benefit from videos compiled using SenpAI.GG technology, which include the experiences of professional players from around the globe. In this manner, they can enhance their gaming skills and participate effectively in the competitive gaming scene.

Understanding the attitudes of esports participants toward artificial intelligence is crucial, both for providing more effective services and solutions to the esports industry and for assessing the potential of AI technology in the sports industry. It is believed that the potential of artificial intelligence in esports offers significant advantages, such as enhancing players' tactical abilities, optimizing game strategies, and gaining a competitive edge. Examining the attitudes of esports participants toward artificial intelligence can provide insight into their thoughts and expectations, thereby guiding the application of this technology in the esports industry. In addition, considering esports participants' perspectives on artificial intelligence can help the esports industry develop more successful and efficient AI-based solution development and implementation strategies.

METHOD

This investigation is conducted using a descriptive methodology, the relational survey paradigm. The purpose of this model is to reveal the interrelationships between variables or how variables change in tandem (Karasar, 2018). Using the relational survey model, the study intends to provide a comprehensive comprehension of the factors that influence the subject of the study. Using this methodology, the study will be able to draw conclusions about the intricate relationships between the variables.

Research Group

In this study, data was collected from 206 esports participants selected using the convenience sampling technique. The survey participants were chosen based on their availability and willingness to participate. The scope of this study encompasses esports athletes who engage in professional competitive esports. The aforementioned athletes have developed and specialized talents that are directly relevant to the specific esports in which they participate. Moreover, they are actively involved in structured team-based and league-based settings. We engaged in a collaborative effort with federation authorities to identify possible survey respondents. The data was subsequently gathered via an online survey, specifically administered to professional athletes within the esports industry.

Convenience sampling is a non-probabilistic technique used to collect data from individuals who

are readily accessible during the data collection process; in other words, this convenience accessibility principle is applied until the required sample size is attained (Coşkun et al., 2017).

Data Analysis

The data collected was analyzed utilizing the SPSS 29.0.1.0 (171) software program. Descriptive statistical methods were employed to assess the demographic information of the individuals. The reliability of the Attitudes Toward Artificial Intelligence scale was assessed by the examination of Cronbach's Alpha coefficient values. Following that, a normalcy test was conducted. Non-parametric statistical methods were employed to analyse measurements that had non-normal distribution. The study employed the Kruskal-Wallis and Mann-Whitney U tests to analyze the data, and subsequently, the results were interpreted.

Data Collection Tools

Personal Information Form

The personal information form included inquiries aimed at gathering socio-demographic data from the research participants. These inquiries encompassed age, gender, the use of electronic devices during sporting activities, and the frequency of exercise. The purpose of the age question was to ascertain the age distribution of the participants, with the intention of gaining insights into potential generational disparities in their technological attitudes. Data on gender was gathered in order to examine potential disparities in technology usage in the context of sporting activities. The inquiry into the utilization of technological equipment sought to ascertain the degree to which individuals integrate technology into their physical fitness regimens. Finally, the inquiry regarding exercise frequency sought to assess the participants' comprehensive level of physical activity, which may conceivably impact their utilization of technological equipment during athletic pursuits.

General Attitude towards Artificial Intelligence Scale

The research group's perspectives on artificial intelligence were evaluated using the "General Attitude towards Artificial Intelligence Scale," which was originally established by Schepman and Rodway (2020) and then converted into Turkish by Kaya et al. (2022). Confirmatory Factor Analysis (CFA) was employed to evaluate the structural validity of the scale, while the Cronbach's Alpha Internal Consistency Coefficient was utilized to measure its reliability. The measurement instrument used to assess individuals' views towards artificial intelligence comprises two distinct subscales, namely 'positive attitudes towards artificial intelligence' and 'negative attitudes towards artificial intelligence'. Positive attitudes can be acquired by aggregating the items labeled 1 to 12, whilst negative attitudes can be obtained by summing the ones labeled 13 to 20 after reversing their scoring. The inclusion of reverse-scoring for items 13 to 20 in the assessment guarantees the comprehensive and precise measurement of negative sentiments. The scale consists of a total of 20 items and is administered using a 5-point Likert scale.

Ethics

The Yalova University Human Research Ethics Committee granted ethical permission for this research. The ethical permission was officially obtained on July 20, 2023, under the protocol number 2023/130. The study participants were informed that the utilization of their personal information, research title, and topic matter would be exclusively for scientific purposes. Furthermore, it was explicitly indicated that participants possessed the prerogative to discontinue their involvement in the study at any point in accordance with their own preferences.

Prior to their participation in the trial, all individuals were offered with informed consent. The participants received comprehensive explanations regarding the research objectives and methodology. Furthermore, participants were provided with the assurance that their confidentiality and identity would be rigorously upheld during the entirety of the research endeavour. Prior to expressing their consent to participate, the participants were had sufficient time to inquire about any uncertainties and seek clarification.

RESULTS

Table 1. Kolmogorov-Smirnov Test

	Kolmogorov-Smirnov		
	Statistic	**df**	**Sig.**
AI MEAN	.140	206	0.000

*P<0.005

The statistical analysis of the data using the Kolmogorov-Smirnov test revealed that the data did not exhibit a normal distribution. The statistical significance level was set at p<0.005.

Table 2. Mann-Whitney U Test Results for Gender Variable

Mann-Whitney U	3262.000
Wilcoxon W	5032.000
Z	-2.795
Asymp. Sig. (2-tailed)	0.005

a. Grouping Variable: Gender
*P<0.05

The Mann-Whitney U Test yielded statistically significant results indicating that there was a variation in the overall views towards artificial intelligence among the participants based on their gender. Specifically, this difference was observed among male participants. There exists a disparity in the positive sentiments towards artificial intelligence between men and women, with males generally exhibiting higher levels of positivity.

Table 3. Mann-Whitney U Test Results for the Frequency of Exercising Variable

Mann-Whitney U	3327.500
Wilcoxon W	10230.500
Z	-4.461
Asymp. Sig. (2-tailed)	0.000

a. Grouping Variable: Frequency of exercise
*P<0.05

The Mann-Whitney U test revealed a significant difference between the participants' frequency of exercise and their general attitudes toward artificial intelligence. It was determined that as the frequency of physical activity increases, so does the positive attitude towards artificial intelligence.

Table 4. Kruskal-Wallis Test Results for Age Variable

Test Statistics[a]	**AI MEAN**
Kruskal-Wallis	0.861
Df	2
Asymp. Sig.	0.650

a. Kruskal Wallis Test
a. Grouping Variable: Age
*p>0.05

The Kruskall-Wallis Test revealed no statistically significant difference between the age variable and the general attitude towards artificial intelligence. (P>0.05).

Table 5. Kruskal-Wallis Test Results for the Variable of Using Technological Devices While Doing Sports

Test Statistics[a]	**AI MEAN**
Kruskal-Wallis	72.217
df	2
Asymp. Sig.	0.000

a. Kruskal Wallis Test
b. Grouping Variable: Frequency of using techonological devices when playing sports
*P<0.05

The Kruskal Wallis Test revealed a statistically significant difference between the variable of using technological devices while participating in sports and the attitude towards artificial intelligence. Those who utilize technological devices while participating in sports have a more favorable view of artificial intelligence than those who do not

DISCUSSION

In this study, which sought to examine the attitudes of e-Sports athletes towards artificial intelligence, Mann Whitney-U and Kruskall Wallis Tests were used for the analysis of the collected data. According to the results of the analysis, there was no significant difference in the age variable, whereas the gender variable produced significant results in favor of male e-sports participants. In addition, the frequency of using technological devices while exercising was associated with a more positive attitude towards artificial intelligence.

These results indicate that men participants have a more optimistic view of artificial intelligence than their female counterparts. It also emphasizes the relationship between the use of technology and the perception of artificial intelligence. It can be hypothesized that individuals who frequently use technological devices during exercise are more conversant with technology and, as a result, have a more favourable attitude toward artificial intelligence. These findings emphasize the significance of technology usage as a significant factor in the acceptance and adoption of artificial intelligence technologies. This contributes to our comprehension of the factors that influence the opinions of e-Sports athletes and sports consumers in general regarding artificial intelligence. According to research on gender differences in technology usage and attitudes (Rosen et al., 2013; Lozano et al., 2021), male participants have a more optimistic view of artificial intelligence than their female counterparts. Studies on trust in AI (Yakar et al., 2022) and perception levels regarding artificial intelligence applications (Khalf et al., 2022) also support the relationship between technology usage and the perception of artificial intelligence. These results suggest that societal factors and gender biases may influence how people perceive and interact with artificial intelligence. It is essential to address these disparities and work toward creating a more inclusive and equitable environment for the development and deployment of AI technologies. In addition, additional research is required to investigate the specific causes of these gender differences and to identify methods for bridging the divide in perceptions and attitudes towards AI.

The current era is characterized by the rapid consumption of what is produced, the rapid adoption of discoveries, and a heightened interest in new and different things, which is frequently motivated by a desire to be popular. Individuals' requirements, curiosities, and pursuits of satisfaction have served as the foundation for exploration and innovation throughout human history. AI is currently one of the most significant initiatives (Aydın and Değirmenci, 2018), comparable to the importance of the discovery of fire in the past.

Rapidly advancing technology is widely adopted by societies in the modern world, and this process of adoption is causing profound changes in the field of sports. It is believed that the rapid advancement of technology, specifically the use of Artificial Intelligence (AI) in sports, presents new and thrilling opportunities (Atasoy et al., 2021).

In 2017, the global market for digital games generated revenues of $109 billion. This figure represents a substantial increase in the digital gaming market's revenue, which was approximately $70 billion in 2012 and has increased by 56% over the past five years. This growth can be attributed not only to the introduction of new customer-entertainment techniques by gaming companies, but also to their adoption of new commercial business models in the digital age. Many games provide entertainment on three distinct levels: participating, observing, and creating. As a result, gaming companies are rapidly transforming into entertainment businesses. Games are distorting the lines between traditional industries such as media, telecommunications, and sports, attracting interest in new partnerships, mergers, and acquisitions (NewZoo, 2017).

In games such as PUBG and League of Legends, big data is used for significant processes, such as matching players and teams based on their abilities, storing, and analyzing game and player data, and generating online statistics. The purpose of these processes is to create personalized and authentic gaming experiences. In addition, realistic simulations are utilized in games such as FIFA and NBA to construct characters, fields, and items that closely resemble reality (Çağlayan and Uygur, 2022).

In addition to these advancements, the e-sports industry increasingly employs artificial intelligence (AI) technologies. AI is utilized for a variety of crucial duties, such as analyzing player behavior, optimizing in-game decisions, and providing players with personalized recommendations. As a result, the e-sports industry is becoming increasingly competitive, entertaining, and engrossing. AI is

becoming a significant factor that will influence the future of e-sports by enriching and enhancing the gaming experience. Additionally, the impact of AI may vary depending on e-sports branches. But overall, there are many application areas where AI can assist athletes across the training and development spectrum and improve the performance of teams. Artificial intelligence has the potential to improve individual and team performance, but this depends on how players and teams use it.

New technologies such as AI have had a substantial impact on the expansion and development of the digital gaming industry. Here are some relevant considerations:

- Personalized Experiences: AI aids game developers in comprehending player preferences and play patterns, allowing games to provide more personalized experiences. For instance, games can alter enemy difficulty or recommend in-game content based on the player's skills and preferences.

- Player Behavior Analysis: AI can analyze player behaviors in order to improve the gaming experience. Understanding where players may be getting stuck in certain sections or struggling to complete specific duties can be used to optimize game design.

- Creative Games: Artificial intelligence can assist game designers in developing inventive game mechanics and narratives. For instance, games can create narratives that are more complex and dynamic, or they can include systems that recognize players' creative concepts.

- AI Difficult and intelligent opponents: AI that provides players with more difficult and intelligent opponents contributes to the competitiveness and enjoyment of video games. This encourages players to utilize additional strategies and enhances the engagement of games.

- Game Development Process AI can accelerate and simplify the game development process. Specifically, the use of autonomous AI characters during game testing makes it simpler to detect and correct imbalances.

These considerations highlight the importance of artificial intelligence in shaping the digital gaming industry by enhancing user experiences, fostering creativity, and enhancing development processes.

In this context, artificial intelligence is crucial to the digital gaming industry because it can make games more immersive, interactive, and individualized. This technology not only provides game developers with new opportunities, but also enhances the player experience. Therefore, artificial intelligence has contributed significantly to the expansion and development of the digital gaming industry.

Their approach to technology and in-game AI is determined by how they feel about artificial intelligence. A positive outlook suggests that e-sports participants can utilize artificial intelligence to enhance their strategies, comprehension of the game, and performance. A positive outlook can assist e-sports players in utilizing artificial intelligence to obtain a competitive advantage over their opponents and enhance the gaming experience. A negative attitude, on the other hand, may entail biases and concerns regarding artificial intelligence. Concerned that artificial intelligence may negatively impact the gaming experience or upset the competitive balance, E-sports participants may reject or avoid using the technology.

Consequently, the attitudes of e-sports participants toward artificial intelligence are a crucial factor that can influence the gaming experience and competitive performance. For future success and growth, the e-sports industry should prioritize this relationship by integrating artificial intelligence technology according to the requirements of players and promoting a positive attitude. Additionally, it is essential to educate and enlighten e-sports players about artificial intelligence in order to help them understand and implement it.

RECOMMENDATIONS

This study is essential for comprehending the relationship between e-Sports players and artificial intelligence and for highlighting the potential of this field. The findings can aid in tailoring solutions to the requirements of e-sports players and propelling the e-sports industry forward.

The e-Sports industry is a sector that is continuously expanding and changing. Understanding the attitudes of e-sports players toward artificial intelligence can help the industry evaluate its potential and provide better services to meet the requirements of players.

AI based data analysis can assist e-sports players in analyzing rival teams and individuals. These analyses can provide valuable insight into the game strategies and performances of opponents. Based on this information, teams and athletes can gain greater insight into their opponents, make more informed decisions, and better prepare for matches.

An e-Sports team can obtain a competitive advantage by utilizing an analysis and training tool based on artificial intelligence. This tool can analyze

the game performance of the team, process data to determine game strategies, and identify the team's assets and weaknesses. Therefore, the team can perform more effectively and strategically than its competitors.

E-Sports participants can gain a competitive edge using solutions based on artificial intelligence. This study can serve as a guide for enhancing competitiveness by incorporating the perspectives and expectations of e-sports participants regarding artificial intelligence technology.

LIMITATION AND FUTURE STUDIES

The sample size and composition of the study were relatively limited, concentrating on a particular age group and level of esports participation. As a result, the findings may not provide a complete picture of attitudes toward AI in the e-Sports community. Future research efforts should prioritize larger and more diverse samples to capture a more comprehensive perspective on AI-related attitudes in e-Sports. This may entail diversifying the age groups, experience levels, and backgrounds of esports enthusiasts and professionals included in the study.

Ethical Approval

For this type of study, formal consent is not required.

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Examining the Relationship between Body Image and Psychological Resilience in Individuals Who Do Fitness as Recreational Activity

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A B S T R A C T

The aim of the study is to examine the relationship between body image and psychological resilience in individuals who do fitness as recreational activity. The study group consists of individuals residing in Sakarya who do fitness as recreational activity. In this context, a total of 197 voluntary participants, including 50 females (25.4%) and 147 males (74.6%), took part in the research. The data collection tools employed in the study included a Personal Information Form, Body Appreciation Scale (BAS), and Psychological Resilience Scale (PRS). The Personal Information Form gathered information on age, gender, years of exercise experience, weekly exercise frequency, and daily exercise duration. Skewness and kurtosis test results were examined to determine whether the scales were normally distributed. Based on the test results, it was established that the collected data exhibited normal distribution, and therefore, pearson correlation test was applied for the relationship analysis. Descriptive analyses involved calculating percentages, frequencies and arithmetic means. The findings revealed a low-level positive correlation between BAS and PRS. Consequently, it was determined that as the body image scores of individuals who do fitness as recreational activity increased, their psychological resilience scores also exhibited an increase. As a result, as the body image scores of individuals who do fitness as recreational activity increase, their psychological resilience scores also increase

Keywords: Fitness, body image, psychological resilience, recreational activity

INTRODUCTION

Leisure time is the time spent by an individual outside working hours to meet their basic needs. Additionally, individuals use this time of their own free will to maintain and further enhance their physical and mental well-being (Ardahan, 2016). For this purpose, activities carried out during leisure time encompass recreational activities. These types of activities cover various branches, including examples such as exercise, music, dance, painting, social activities, outdoor activities, indoor activities, and many more. Fitness is one of these branches. The Turkish Language Association (TDK) defines the word "fitness" as "healthy living" (TDK, 2023). Conceptually, it signifies physical fitness, meaning "the capacity of the body to perform physical activities without pain or injury" (Demir, 2023). Fitness primarily involves exercises aimed at specific muscle work to improve muscle performance and enhance physical appearance (Pulur and Gedik, 2021).

Considering the impact of fitness on external appearance, the concept of body image comes into play. According to Grogan (2008), body image is related to how a person's body is perceived by others or how an individual perceives their own body. Featherstone (2010) describes body image as a

mirror held up to one's external appearance. Evaluating one's own body parts and having positive or negative thoughts about them is also defined as body image (Gündoğan, 2006). Additionally, body image encompasses various factors such as age, gender, weight, health, and social environment (Neagu, 2015). Furthermore, having a positive body image implies being satisfied with one's body (Cash, 2004). The ability of individuals to be content with their bodies is closely tied to maintaining a healthy psychology. At the core of being content with one's body is how individuals perceive their bodies. Studies have shown that individuals with a higher body image and satisfaction with their bodies generally have more positive thoughts about maintaining and improving their health (Khorshid et al., 2007).

Another variable, psychological resilience, is examined under the umbrella of the term "health." The intriguing aspect of the term health is that it encompasses meanings such as well-being, positive and negative emotional states, quality of life, life satisfaction, psychological well-being, and personal well-being, which, while not entirely the same, are highly interconnected terms. This is because each of these terms is contingent on conditions for the positive functionality of the individual (Özen, 2010). The ability of an individual to lead a healthy life, to go through various developmental stages in a healthy manner throughout their life, and to exhibit behavior appropriate for social responsibilities is dependent on a healthy self and self-development. From this perspective, psychological resilience is formed by several elements, including the development process evaluated with each individual's demonstrated competence and psychological forms, the nature of challenges faced by the individual, personal and societal values, personal disappointments, risks or protective factors, responsibilities or health-preserving elements imposed on the individual by the environment, and the ability to adapt. The adaptation of individuals in terms of the mentioned components can be measured in a healthy manner (Bahadır, 2009). Considering that a healthy psychology fundamentally exists in a healthy body, fitness, body image, and psychological resilience are interlinked.

When reviewing the relevant literature, research exploring the individual and combined workings of body image and psychological resilience can be found (Young et al., 2022; Zaccagni and Gualdi-Russo, 2023; Toselli et al., 2022; Tsitskari, 2023; Aydemir et al., 2023; Kim et al., 2023; Zhao et al., 2022). However, the lack of studies on individuals who do fitness as recreational activity has highlighted the need for the current research. It is considered important to contribute to the literature and serve as a source for future studies. Based on this information, this study aims to examine the relationship between body image and psychological resilience in individuals who do fitness as recreational activity.

METHOD

Research Model

The "relational scanning model" was employed in the study. "Relational scanning models are research models designed to determine the presence and/or degree of co-variation among two or more variables" (Karasar, 2018).

Participants

The study group consists of individuals residing in Sakarya province who do fitness as recreational activity. A total of 197 participants, including 50 females (25.4%) and 147 males (74.6%), volunteered to participate in the research using the convenience sampling method.

Table 1. Istatistical description of the participants

	N	Min	Max	$\bar{x}$	Sd
Age	197	17	50	22,62	5,57
History of exercise (In years)	197	0,6	18	3,50	3,31
Weekly frequency of exercise (In days)	197	1	7	4,22	1,21

The participants had an average of age 22.62 ± 5.57; history of exercise average 3.50 ± 3.31; weekly frequency of exercise of 4.22 ± 1.21; and avarage daily duration of exercise 1.70 ± 0.65.

Data Collection

Prior to commencing the research, the necessary research approval was obtained from the Sakarya University of Applied Sciences of Ethics Committee

on September 8, 2023, with document number E.96235. Data were collected online through Google Forms.

Measurement Tools

The "Personal Information Form," "Body Appreciation Scale (BAS)" and "Brief Resilience Scale (BRS)" were utilized for data collection.

Personal Information Form:

This form includes information such as gender, age, exercise history, weekly exercise frequency of exercise and daily duration exercise.

Body Appreciation Scale (BAS):

This scale aims to determine individuals' feelings, thoughts, and attitudes towards their bodies, as well as their levels of body appreciation. The original version of the scale was developed by Tylka and Wood-Barcalow (2015), by Anlı, Akın, Eker and Özçelik (2015) the Turkish version was adapted. The Body Appreciation Scale consists of a total of 10 items and is a single-dimensional scale without reverse-coded items. The scale is in a 5-point Likert format, with the lowest possible score being 10 and the highest score being 50. An increase in the obtained score indicates an increase in the individual's level of body appreciation (Anlı et al., 2015).

Brief Resilience Scale (BRS):

To determine the participants' levels of psychological resilience, the Brief Resilience Scale (BRS), developed by Smith et al. (2008) and adapted into Turkish by Doğan (2015), was utilized. The scale is a single-dimensional scale consisting of a total of 6 items, with the 2nd, 4th, and 6th items being reverse-coded. The scale is in a 5-point Likert format, with the lowest possible score being 6 and the highest score being 30. An increase in the obtained score indicates an increase in the individual's level of psychological resilience (Doğan, 2015).

Table 2. Reliability analysis results of the scales.

Scales	Item Numbers	Cronbach Alpha
Body Appreciation Scale	10	,90
Brief Resilience Scale	6	,71

When Table 2 is examinated, it is observed that the Cronbach's alpha coefficient for the Body Appreciation Scale is 0.90, while for the Brief Resilience Scale, it is 0.71. Both scales having values above 0.70 indicate the reliability of the scales (Bland and Altman, 1997).

Statistical Analyses

The data collected online were transferred from an Excel file to the SPSS 22.0 package program and prepared for analysis. Percentages, frequencies, and arithmetic means were calculated for descriptive statistics. Before deciding on statistical analyses, skewness and kurtosis values were examined to assess whether the scales exhibited a normal distribution. According to the test results, it was determined that the existing data fell between +1.5 and -1.5, indicating conformity to a normal distribution (Tabachnick and Fidell, 2013). Therefore, Pearson Correlation analysis was applied.

Table 3. Distribution of scale scores.

Scales	Item Numbers	Mean	Sd.	Sk.	Kr.
Body Appreciation	10	40,85	6,87	-0,53	-0,58
Brief Resilience	6	20,44	4,15	0,17	1,17

Sk.: Skewness; Kr.: Kurtosis

When Table 3 is examinated it is observed, the mean value for the Body Appreciation Scale is 40.85, while the mean value for the Brief Resilience Scale is 20.44.

RESULTS

This section includes, tables of research findings.

Table 4. Analysis results between scale scores and age

Age	Brief Resilience	Body Appreciation
r	.128	.107
p	.074	.134

When Table 3 is examinated it is observed there was no significant relationship found between age and psychological resilience and body image.

Table 5. Analysis results between scale scores and duration of exercise

History of exercise (In Years)	Brief Resilience	Body Appreciation
r	.144*	.008
p	.044	.915

Table 5 shows while there was a positively low-level significant relationship between years of exercise and psychological resilience, no significant relationship was found with body image.

Table 6. Analysis results between scale scores and weekly frequency of exercise

Weekly frequency of exercise	Brief Resilience	Body Appreciation
r	.113	.027
p	.114	.706

Table 6 shows there was no significant relationship found between weeklyfrequency of exercise and psychological resilience and body image.

Table 7. Analysis results between scale scores

		Brief Resilience
Body Appreciation	r	.155*
	p	.029

Table 7 shows a positively low-level significant relationship was found between body image and psychological resilience.

DISCUSSION AND CONCLUSION

In this study, conducted to examine the relationship between body image and psychological resilience in individuals do fitness as recreational activity, a positive and low-level significant relationship was found between body image and psychological resilience. Therefore, it can be said that as the psychological resilience of individuals who do fitness as recreational activity increases, their body image also improves.

The concept of psychological resilience expresses the positive aspects of responses to events in a stressful life. Numerous studies demonstrating the effects of both sports and recreational activities have concluded that they reduce stress, positively affect happiness and life satisfaction (Yeltepe and Yargıç, 2011; Khazaeepool et al., 2015; Delextrat et al., 2016; Bağcı et al., 2019; Önmen, 2021; Yoon et al., 2020; Sarıkan, 2021). Studies also exist indicating that individuals who do sport have positive effects on their psychological resilience (Çelik and Çelik, 2019; Demir & Çifçi, 2020; Düzen and Özçelik, 2022) or positive body image (Sabiston et al., 2019; Özyıldırım et al., 2023; Yılmaz and Ağgön, 2023). Considering individuals who do fitness as recreational activity within this context, it is thought that individuals' psychological resilience increases.

Psychologically resilient individuals tend to have coping skills against various factors, contributing to positive feelings. Studies have shown that

individuals with a higher body image and satisfaction with their bodies generally have more positive thoughts about maintaining and improving their health (Khorshid et al., 2007). The positive relationship found between psychological resilience and body image is thought to stem from this situation. Examining the literature reveals studies demonstrating the relationship between psychological resilience and body image.

Kılıç (2019) identified a positive relationship between body image and psychological resilience in adolescents. Bergeron (2007) examined the relationship between body image dissatisfaction and psychological health in young men, finding that as body image dissatisfaction increased, psychological distress levels also increased. Zhang et al. (2021) determined that physical activity applied to alleviate body image concerns in elderly women who survived cancer was effective in increasing psychological resilience. In contrast, Amissah et al. (2015) found a negative relationship between body image and psychological resilience in sedentary university students.

No significant relationship was found between age and psychological resilience. It can be said that psychological resilience does not change with age. Tönbül (2020) did not find a significant relationship between age and psychological resilience levels, supporting this finding. In contrast to this finding, Atik (2013) found a statistically significant and positive relationship between psychological resilience and age. Çutuk et al. (2017) found a negative relationship between the psychological resilience levels of Judo athletes and their ages. Tutal and Efe (2020) examined the correlation between psychological resilience levels and age, reaching the conclusion that as participants' age increased, their psychological resilience levels also increased.

No significant relationship was found between age and body image. It can be said that the perception of body image does not change with age. Similarly, Alagül (2004) found no significant relationship between body image and age in their study. In contrast to this finding, Karagöz and Karagün (2015) stated that as the age of the participants increased, their body image showed a positive increase.

A positively low-level significant relationship was found between the years of exercise and psychological resilience. It can be said that psychological resilience increases with the increase in the years of exercise. In contrast to this finding, Çelik et al. (2019) found in their study that the years of exercise (sports age) did not have an effect on the psychological resilience levels of adolescent athletes. Similarly, Yavuz (2019) noted in their study on physically disabled athletes that there was no significant relationship between sports age and psychological resilience.

No significant relationship was found between the years of exercise and body image. It can be said that the perception of body image does not change depending on the years of exercise. Karagöz and Karagün (2015) found that despite the absence of significant results in their study, the body image scores of participants who had been exercising for 1-3 years were higher than those of participants who had been exercising for 13-15 years. In contrast, several studies have shown that participants with a longer sports history have higher body image scores than participants with no or less experience, and there are significant differences (Alagül, 2004; Aşçı et al., 1993; Koca et al., 2003).

No significant relationship was found between weekly exercise frequency and psychological resilience. It can be stated that the level of psychological resilience does not change based on weekly exercise frequency. This finding is supported by the qualitative nature of the study conducted by Düzen and Özçelik (2022), indicating that there is no significant relationship between weekly exercise frequency and psychological resilience. In the same study, it is noted that participants who exercise two or three days a week have higher levels of psychological resilience compared to non-exercisers. Similarly, Seçer and Çakmak Yıldızhan (2020) reported a low-level positive relationship between the physical activity levels and psychological resilience of university students. According to the results of the study, it can be said that as the level of physical activity increases, psychological resilience also increases.

No significant relationship was found between weekly exercise frequency and body image. It can be said that the perception of body image does not change depending on weekly exercise frequency. In a study by Köroğlu et al. (2023), it is mentioned that the body images of those who exercise for five days are higher than those who exercise for one day, indicating a significant difference in body image based on the frequency of going to the gym.

As a result, research results confirmed that liking oneself positively affects psychological health. Therefore, the physical appearance should not be overlooked in enhancing psychological resilience in individuals. One way to improve physical appearance is through regular exercise. Indeed, regular exercise enables weight control, a pleasing body image, and fosters self-acceptance. Consequently, creating

awareness and promoting the regular engagement of individuals in exercise is crucial.

It is important to note that this research is limited to individuals engaging in recreational fitness in the Sakarya province. To provide stronger evidence and contribute to the literature, it is recommended to conduct research that includes different disciplines, exercise groups, and even regions or provinces.

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Conflict of Interest

No potential conflict of interest was reported by the authors.

Ethical Approval

Approval for this study was obtained from Kocaeli University Social Sciences and Humanities Scientific Research and Publication Ethics Committee (decision dated 29/03/2022 and numbered 2022/04).

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Investigation of Freestyle Performance in Swimmers with Different Equipments

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A B S T R A C T

The present study sought to examine the freestyle proficiency of juvenile swimmers deploying various accessories, namely fins, kickboard, and pull-buoy. Twenty-three participants, comprising 14 females and 9 males aged between 10 and 11 years, who reside in Istanbul, pursue activities in exclusive clubs, have held an athlete license for no less than three years, and expressed a keen interest in swimming opted to take part in the study. The research was implemented voluntarily in a private club's indoor swimming pool (25 m short lane). First, the swimmers' body weight, height, and arm length were measured. They then demonstrated their freestyle performance at distances of 25 m, 50 m, 75 m, and 100 m using different equipment: maximal, fins, pull-buoy, and kickboard-only flutter kick. Swimming performances with each piece of equipment were performed two days apart, and all swimmers' performances were recorded with an SJCAM 4k external camera. After conducting the test, the captured images were transferred to the computer and processed using the Kinovea 0.9.5 program in MP4 format. Individual calculations were made for each swimmer's finish time, lap times and velocity for each distance and equipment. The data were evaluated using the IBM SPSS 24.0 analysis program. It was ensured that the data followed a normal distribution ("±1.5"). The comparison of finish times, lap times and velocity of swimmers using different equipment was analyzed using repeated measures variance. There was a statistical difference between the fins, kickboard and pull-buoy in finish time, lap times and velocity ($p<0.05$). While 100 m finish time (108.58±14.99 s) and lap times (21.73±2.71 s - 28.47±3.73 s) performed with fins were found lower than the other equipment, velocity (0.94±0.13 m/s) and lap velocity (1.17±0.14 m/s - 0.89±0.12 m/s) performed with fins were found higher than the other equipment. Therefore, it was concluded that the equipment used in training affected the performance of short-distance freestyle swimming.

Keywords: Swimming equipments, freestyle, performance

INTRODUCTION

Swimming necessitates well-coordinated motions of both upper and lower extremities for propulsion through water. It is widely sought after as a competitive and leisurely sport encompassing every age group as per Peyton and Krabak (2023). Research studies indicate swimming's potential of promoting physical growth in children. Before adolescence, motor control, coordination, and balance are developed by children. Therefore, in addition to swimming training, land-based training can aid in improving the development of a range of motor skills, enhancing coordination between nerves and muscles in swimming techniques, and ultimately increasing efficiency (Burac, 2015; Gelinas and Reid, 2000; Oh et al., 2011; Roj et al., 2016).

Swimming is the proficiency to execute freestyle, backstroke, butterfly, and breaststroke in the shortest possible time in an individual lane, utilizing only body strokes and kicks, in pools that meet international criteria (50 metres (m), 8 lanes) (Gonjo et al., 2022). The freestyle stroke is the swiftest swimming technique based on arm and leg movements, breath control, and head position. In this technique, the body remains balanced parallel to the water while propelling forward by consecutive arm movements and excessive flutter kick in a horizontal direction (Yanai and Wilson, 2008; Hagem et al., 2013). The critical factor for increasing distance covered is achieving the perfect posture. This stance comprises three conditions: 1) Appropriate head position. 2) Straightened back and hip position. 3) Gradual flutter kick. During freestyle swimming, the swimmer's position is not fixed horizontally and may rotate up to 30-40 degrees along the extension axis, depending on the breathing technique used (Bíró et al., 2015). The arms and legs assist the swimmer in making progress and the strokes provide the greatest speed, while the feet contribute only 10% of the speed (Cohen et al., 2015).

Various equipment, such as fins, kickboard, snorkel, and pull-buoy, is used in freestyle swimming training to enhance performance. Swim coaches include fins in training to enhance the ankle flexibility of swimmers. In contrast, the pull-buoy enables swimmers to stabilize their upper body and move through the water by solely using their strokes. The researchers aimed to improve swimming speed by examining its association with the training medium via the pull-buoy. A floating aid frequently employed for training children; the pull-buoy is a type of swimming equipment. The kickboard is designed to facilitate swimmers' concentration on the flutter kick only (Smith et al., 2002; Zamparo et al., 2002; Guzik-Kopyto et al., 2021; Rozi et al., 2020; Mujika & Crowley, 2019).

Swimming performance in juvenile athletes is influenced by efficient movement, motor control, coordination of simultaneous forward movement of body segments and anthropometric characteristics (Fone & van den Tillaar, 2022). Many of these factors are hard to measure, so it is important to study the effect of the equipment used for the development of good performance in juvenile swimmers. Previous studies have investigated the effects of training equipment on swimmers' performance. It is proposed that equipment plays a crucial role in enhancing speed and muscle strength in younger age groups (Zamparo et al., 2002; Matos et al., 2013). Nonetheless, the immediate effects of commonly used equipment such as fins, kickboards, and pull-buoys on freestyle swimming performance, and whether performance differs depending on the equipment used, have yet to be explored. Following a review of the literature, a gap was identified concerning the potential impact of training equipment on freestyle swimming performance among swimmers in different age groups, as well as any performance differences between equipment. To address this gap, the present study aimed to investigate the freestyle performance of young swimmers using different equipment, including fins, kickboards, and pull buoys.

METHOD

The study utilized the descriptive research model, which is one of the quantitative research approaches.

Research Group

The research cohort was made up of male and female swimmers between the ages of 10 and 11 who reside in Istanbul. The sample size of this study was determined to be 23

swimmers using G-Power analysis (G-Power 3.1.9.4) with statistical power set at 90% and the probability of Type I error at 5%. For participant selection, the convenience sampling method was applied (Karagöz, 2021). In total, 23 swimmers who actively engage in swimming at a private club willingly took part in the study, comprising of 14 girls and 9 boys. The study ensured that the swimmers had displayed at least three years of interest in this sport and held a valid licence or athlete card for a minimum of two years. As the subjects were under 18 years of age, they retained the right to withdraw from the study at any time without citing a reason. Table 1 presents the mean and standard deviation of the swimmers' age, height, body weight, body mass index, and arm length.

Tablo 1. Descriptive characteristics of the swimmers

Variables	X̄±S
Age (years)	10.57±0.51
Body Height (m)	1.43±0.09
Body Weight (kg)	35.61±8.87
Body Mass Index (kg/m²)	17.29±2.78
Arm length (m)	1.41±0.12

Data Collection Tools

Height: The subjects' height was measured with a stadiometer with an accuracy of ±1mm with the body in an upright position and barefoot.

Body Weight: The body weight of the subject was measured with an electronic scale with an accuracy of ±0.1kg with the body in an upright position, in a bathing suit, and barefoot.

Body Mass Index (BMI): It was calculated according to the formula body weight/height² (kg/m²) using height and body weight measurements.

Arm Length: The arm length of the subject was measured with a stadiometer with a sensitivity of ±1mm while the subject was barefoot with his/her back against the wall, arms spread to the sides, and parallel to the ground with palms facing forward.

Swimming Performance with Equipment: The study took place in an indoor swimming pool with a short lane measuring 25m, situated within a private club. Participants were instructed to perform freestyle swims at 25m, 50m, 75m, and 100m distances using only fins, a pull-buoy or a kickboard for each swim. The swimmers themselves chose the order in which they used the equipment. The swimmers had trained with the fins, pull-buoys and kickboards for a minimum of one year. Nabaiji's pink or blue fins, Light 500 pull-buoys, and pink or blue kickboards were utilized for measurements. Swimmers conducted swimming performances with each equipment separately on different days. To guarantee a complete rest interval between distances, a minute of passive in-water rest was provided to the swimmers. During the maximal swimming performance, expert coaches used a Casio stopwatch to monitor proximity values of swimmers to 95% of their best race finish time. The objective of this trial is to establish the swimmers' maximum performance levels. Prior to the trial, the swimmers were duly informed of this. All swimmers attained their maximum performance levels during their initial attempt. During the trial, the SJCAM 4k camera was used to record the performances of all swimmers. Following the test, the images were subsequently transferred to a computer and then to the Kinovea 0.9.5 program in MP4 format for video analysis. Images were captured at 1280x720 pixels and 120.01 frames per second (120 fps). The analysis program utilized forward-backward, pause,

slow-down, and stopwatch features (Puig-Diví et al., 2017). Finish times, lap times, and velocity values for each distance and equipment were calculated individually for every swimmer. A representation of an image within Kinovea is displayed in Figure 1.

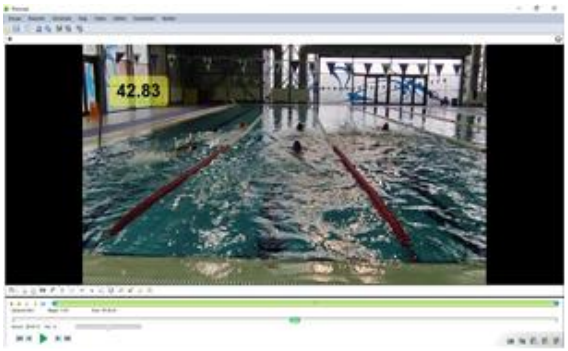

Figure 1. An example of an image in Kinovea 0.9.5

Data Collection

Data was collected from May 2, 2023, to May 23, 2023. To prevent any positive or negative effects on the swimmers' performance, their training was avoided before the measurements were taken throughout the study. Additionally, the swimmers were instructed not to consume any food until two hours before the measurements.

Statistical Analysis

The study employed IBM SPSS 24.0 (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0, Armonk, NY: IBM Corp.) software to determine the normal distribution conformity of the data. Skewness and Kurtosis values were assessed, indicating that they lay between "-1.5" and "+1.5," thus, it was concluded that the data displayed normal distribution (Hair et al., 2014). The swimmers' finishing times, lap times and velocities were compared using different types of equipment. The analysis was carried out with repeated measures of variance. The p-value from the Mauchly's Test of Sphericity was used to determine whether to use the p-value from the Sphericity Assumed test (if $p > 0.05$) or Wilks' Lambda test from Multivariate tests (if $p < 0.05$). Using the partial eta squared coefficient ($\eta 2p$) produced by the analysis, effect sizes were categorized as small (~0.01), medium (~0.06), and large (~0.14) following Cohen's (1988) guidelines. Statistical significance was determined at $p<0.05$.

Limitations of the study

One of the limitations of the study is that the swimmers in the study were only 10-11 age group. In addition, the maximum distance swum was determined as 100 meters. In addition, the use of three equipment in the study can be considered as one of the limitations of the study.

RESULTS

Table 2. Comparison of mean and standard deviation values of swimmers' finish time and velocity according to different equipment

Variables		Maximal	Fins	Pull-buoy	Kick	p	η^2p
Finish Time (s)	25 m	24.17±3.46	20.85±2.37	28.43±3.65	29.96±3.32	0.001*abcde	0.961
	50 m	56.66±10.94	48.33±5.94	63.22±9.95	69.54±6.67	0.001*abcdef	0.967
	75 m	89.52±13.62	78.52±10.23	102.92±22.73	112.44±13.31	0.001*abcde	0.953
	100 m	125.13±18.44	108.58±14.99	140.53±23.61	154.12±16.10	0.001*abcde	0.970
Velocity (m/s)	25 m	1.05±0.15	1.22±0.14	0.89±0.11	0.84±0.10	0.001*abcde	0.816
	50 m	0.91±0.16	1.05±0.13	0.81±0.12	0.73±0.07	0.001*abcdef	0.965
	75 m	0.86±0.13	0.97±0.13	0.76±0.15	0.67±0.07	0.001*abcde	0.948
	100 m	0.82±0.12	0.94±0.13	0.73±0.12	0.66±0.07	0.001*abcdef	0.945

*p<0.05; a: Maximal vs Fins; b: Maximal vs Pull-buoy; c: Maximal vs Kick; d: Fins vs Pull-buoy; e: Fins vs Kick; f: Pull-buoy vs Kick

Table 2 presents the mean and standard deviation of finish time and velocity parameters of swimmers, as well as comparisons between different equipment. Significant statistical differences were observed in the 25 m, 50 m, 75 m, and 100 m distances between swimming with equipment and maximal swimming. Significant differences were found between fins and pull-buoy in finish time in 25 m, 50 m, 75 m, and 100 m, respectively 20.85±2.37 s - 28.43±3.65 s; 48.33±5.94 s - 63.22±9.95 s; 78.52±10.23 s - 102.92±22.73 s; 108.58±14.99 s - 140.53±23.61 s. Significant differences were found between fins and pull-buoy in velocity in 25 m, 50 m, 75 m, and 100 m, respectively 1.22±0.14 m/s - 0.89±0.11 m/s; 1.05±0.13 m/s - 0.81±0.12 m/s; 0.97±0.13 m/s - 0.76±0.15 m/s; 0.94±0.13 m/s - 0.73±0.12 m/s. There were significant differences in finish time between using fins and a kickboard for distances of 25m, 50m, 75m, and 100m, respectively 29.96±3.32 s, 69.54±6.67 s, 112.44±13.31 s, and 154.12±16.10 s with kickboard. There were significant differences in velocity between using fins and a kickboard for distances of 25m, 50m, 75m, and 100m, respectively 0.84±0.10 m/s, 0.73±0.07 m/s, 0.67±0.07 m/s, and 0.66±0.07 m/s with kickboard. These differences were highly significant ($p<0.05$).

Table 3. Comparison of mean and standard deviation values of swimmers' lap time and velocity according to different equipment

Variables		Maximal	Fins	Pull-buoy	Kick	p	η^2p
Lap Time (s)	LP1_50 m	26.01±4.19	21.73±2.71	29.86±4.67	31.69±3.82	0.001*abcde	0.944
	LP2_50 m	30.46±6.51	26.60±3.67	33.84±6.60	38.02±3.45	0.001*abcde	0.955
	LP1_75 m	26.41±4.09	23.23±3.83	30.33±4.93	32.56±4.09	0.001*abcde	0.965
	LP2_75 m	31.84±4.74	27.39±3.42	34.85±6.67	40.73±4.90	0.001*abcdef	0.935
	LP3_75 m	31.43±5.70	27.94±3.99	35.31±6.92	39.32±4.83	0.001*abcde	0.893
	LP1_100 m	28.91±4.82	23.98±3.13	32.23±4.76	35.58±4.96	0.001*abcde	0.954
	LP2_100 m	31.63±5.30	28.43±4.02	35.70±6.50	39.40±3.52	0.001*abcde	0.944
	LP3_100 m	33.64±4.54	28.47±3.73	35.91±6.19	40.70±3.87	0.001*abcdef	0.940
	LP4_100 m	31.29±5.80	27.78±5.43	36.71±7.41	38.73±6.25	0.001*abcde	0.846
Lap Velocity (m/s)	V1_50 m	0.98±0.14	1.17±0.14	0.86±0.13	0.80±0.09	0.001*abcde	0.822
	V2_50 m	0.86±0.18	0.96±0.13	0.76±0.14	0.66±0.06	0.001*abcdef	0.933
	V1_75 m	0.97±0.14	1.10±0.17	0.84±0.13	0.78±0.09	0.001*abcde	0.930
	V2_75 m	0.80±0.12	0.93±0.12	0.74±0.14	0.62±0.07	0.001*abcdef	0.921
	V3_75 m	0.82±0.15	0.91±0.14	0.73±0.14	0.64±0.07	0.001*abcdef	0.686
	V1_100 m	0.89±0.14	1.06±0.14	0.79±0.11	0.72±0.10	0.001*abcde	0.941
	V2_100 m	0.81±0.14	0.90±0.13	0.72±0.13	0.64±0.06	0.001*abcdef	0.895
	V3_100 m	0.76±0.10	0.89±0.12	0.72±0.12	0.62±0.06	0.001*abcdef	0.893
	V4_100 m	0.83±0.15	0.93±0.18	0.71±0.13	0.66±0.12	0.001*abcde	0.829

*p<0.05; a: Maximal vs Fins; b: Maximal vs Pull-buoy; c: Maximal vs Kick; d: Fins vs Pull-buoy; e: Fins vs Kick; f: Pull-buoy vs Kick; LP1: First Lap Time (25 m); LP2: Second Lap Time (25 m); LP3: Third Lap Time (25 m); LP4: Fourth Lap Time (25 m); V1: First Velocity (25 m); V2: Second Velocity (25 m); V3: Third Velocity (25 m); V4: Fourth Velocity (25 m)

The mean and standard deviation values for finish time and velocity parameters for swimmers, as well as their comparison based on varying equipment, are presented in Table 3. The table indicates a statistically significant difference ($p<0.05$) in lap time and velocity values at lap distances between swimming with equipment and swimming at maximal capacity at 25 m, 50 m, 75 m, and 100 m distances. Significant differences were found between fins, pull-buoy and kick-board in lap time (minimum values respectively 21.73±2.71 s, 29.86±4.67 s, and 31.69±3.82 s) and lap velocity (minimum values respectively 0.89±0.12 m/s, 0.71±0.13 m/s, and 0.62±0.06 m/s) values in 25 m, 50 m, 75 m, and 100 m. These differences exhibited a high effect size ($p<0.05$).

DISCUSSION AND CONCLUSION

The study concluded that the equipment employed in swimming training has an impact on short-distance freestyle swimming performance. The findings indicate differences in short-distance freestyle swimming finish time, lap times and velocity depending on the equipment used.

In order for swimmers to achieve optimal race performance, certain equipment is used for training. Hand fins, kickboards, pull-buoys, snorkels, and fins are all examples of equipment used in swimming (Matos et al., 2013; Jagomägi and Jürimäe, 2005; Agopyan et al., 2012). Studies have indicated that flutter kicks contribute to around 10% of the overall stroke rate (Hollander et al., 1988). Fins are utilised during training to enhance the flutter kick and improve ankle flexibility. This apparatus enables swimmers to utilize their hips and conduct the whole leg movement (Smith et al., 2002). In seven male swimmers, Zamparo et al. (2002) observed a 40% decline in energy usage and an increase in speed of 0.2 m/sec when comparing swimming with fins to traditional swimming. Zamparo et al. (2005) found identical results in another study, indicating that the use of fins decreases energy expenditure during swimming. Matos et al. suggest that coaches should consider alterations in swimming biomechanics due to the use of hand and kick fins when determining distances and intensities. A meta-analysis of thirty studies reveals that fins have a link with the average stroke frequency, average swimming velocity, kick frequency, kick depth, and energy expenditure, although hand fins showcase an association with stroke length, stroke frequency, average swimming velocity, coordination index, and absolute duration of stroke phases (Matos et al., 2013). To enhance performance of the flutter kick and increase ankle flexibility, it is advised to use a kickboard during practice (McCullough et al., 2009; Maglischo, 2003). Montgomery & Chambers, 2008; The implementation of flutter kicks while using kickboards enables swimmer to exclusively concentrate on the movements of their lower limbs (Montgomery & Chambers, 2008). McCullough et al. (2009) found a correlation between ankle plantar flexibility and kick velocity. Their biomechanical analysis suggests that swimmers with flexible ankles have better swimming performance. In order to improve upper body balance, a pull-buoy is typically utilised in swimming, which restricts the use of the legs and enhances arm strength. Furthermore, the pull buoy also serves to restrict and correct the flutter kick of athletes who spread their feet too far apart (Smith et al., 2002). Ramón and Valero (2018) highlighted the importance of incorporating both equipment-based and non-equipment-based training in swimming lessons for middle school students. The study explored the impact of kickboard and pull-buoy use in physical education classes. The authors suggested that a balance of both methods is essential for an effective swimming curriculum.

Our research has revealed variations in the equipment used to train child swimmers in terms of speed and duration. The experimentation demonstrated that fins enabled swimmers to attain higher speeds. Additionally, utilizing flutter kick with kickboards resulted in the slowest speeds. Young coaches for age group swimming are advised to tailor their training programs according to the equipment used, with consideration given to factors such as the number of repetitions, distance, and rest periods. It should be noted that the use of kickboards and fins can affect the flutter kick (lower extremity), while the pull-buoy can impact stroke technique (upper extremity). During dedicated training periods, swimming equipment is utilised to enhance the strength of swimmers in resistance and sprint training, ultimately increasing speed and muscle strength. This equipment requires swimmers to contend with heightened water resistance. Therefore, it is recommended that swimmers use this equipment to cultivate both technique and speed.

Future studies on this subject should investigate older swimmers with a larger sample size. Additionally, it would be worthwhile to explore whether there is a performance difference between equipment used in different styles. The performance in distances over 100 metres can also be compared with the equipment. Another suggestion is to include the hand pallet alongside the fins, kick-board, and pull-buoy in elderly athletes. It is

recommended to compare these pieces of equipment with each other for optimal results

Conflict of Interest

No potential conflict of interest was reported by the authors.

Ethical Approval

Ethical clearance was granted by the Haliç University Non-Interventional Clinical Research Ethics Committee on 25.04.2023 (No: 117) prior to initiating the data collection phase of the study. The scope of the research was presented to the swimmers and their families in written and verbal format. Written informed consent was obtained from the participants and their families after the explanation. The scope of the research was presented to the swimmers and their families in written and verbal format.

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Examination of Career Awareness of University Students Studying in the Field of Sport Sciences*

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A B S T R A C T

The objective of this study is to determine if gender, age, class, athletic status, field of study (which is anticipated to be directed after graduation), and family monthly income influence university students' career awareness in the field of sports sciences. The research sample was drawn from students enrolled in the 2022-2023 academic year. The study's data collection tools were a personal information form and the "Athlete Student Career Awareness Inventory" adapted into Turkish by Gürbüz et al. (2022). Descriptive statistics (Number, Percentage, Average, Standard deviation), Athlete Student Career Awareness Inventory with normal distribution, independent t-test for pairwise comparisons (gender), and multiple comparisons (age, class, sporting status, study area) One-Way Anova test were utilized in the analysis of the research data. The Athlete Student Career Awareness Inventory, according to the findings, differs by gender in the dimension of career development barriers and sportive facilitators, by age in the dimension of athlete identity and sportive facilitators, and by class in the dimension of career development barriers, athlete identity, and sportive facilitators. It has been revealed that it differs in the dimension of athlete identity and sportive facilitators according to the factors of doing sports and work area, and it differs in the dimension of career development barriers according to the variable of family monthly revenue. Based on the study's findings, there was no significant difference in the dimension of career development self-efficacy among university students studying in the field of sports sciences. There were substantial disparities in the dimensions of athlete identity, sporting facilitators, and professional development hurdles based on gender, age, class, doing sports, working location, and family income status. As a consequence of the research, it is believed that university students studying in the field of sports sciences would get crucial awareness when deciding on a career path and that it will be a helpful study in the field of sports sciences.

Keywords: Athlete, Student, Career Awareness

INTRODUCTION

In today's highly competitive environment, young people's employment choices and the process of deciding their professional pathways are critical aspects of their life. Career choices influence not only an individual's future economic success, but also personal satisfaction, happiness, and quality of life. At this point, the problem of student athlete career awareness is an important one that is attracting the attention of professionals in both sports and education and is being researched. Student athletes represent two distinct yet intertwined worlds. These folks represent a distinct group of people who must balance academic accomplishment with the development of their athletic abilities. Nevertheless, striking this equilibrium extends beyond daily time management. The student-athlete may also be required to make judgments regarding establishing and accomplishing future career goals. As a result, career awareness is defined as "understanding one's

own abilities and interests, as well as the opportunities and requirements of various career fields" (Braverman et al., 2002). According to Nasir and Lin (2013), it is a notion that encompasses individuals' ability to plan and investigate their careers, as well as their understanding of job prospects and decision-making processes.

Career awareness is extremely important at the start of one's career. According to Eliason and Patrick (2008), career awareness refers to an individual's understanding of current professional prospects and career needs. Awareness encompasses knowledge of educational requirements, skill requirements, employment kinds available, work environment, and regulations and expectations of a specific area or industry. As a result, it is critical to design career awareness programs for students that include the development of specialized information about various vocations, a systematic search for professional information, and strategies to fully utilize the knowledge gathered. According to Perry and VanZandt (2006), career awareness should be the starting point before exploring career possibilities. Students must be open to the options and opportunities available to them in the job market throughout the first stage of their professional development process. They must be informed that their professional choices will have an impact on all of their other future roles. This provides pupils with direction and perspective at a young age. Counseling programs can help students understand the working world, boost knowledge of available career alternatives, and create motivating expectations for their future. As a result, career awareness emerges as a very broad process that can affect many aspects of people's life. A person's career encompasses not only elements linked to their profession, but also dimensions such as their objectives, desires, and general life desires (Akkoç, 2012). When it comes to sports and sports-related jobs, it may appear that employment opportunities in sports are plenty.

Earning more money, recognition, knowledge, power, and prestige as a result of the path taken in the application areas of sports, the time spent on this path, and the results gained during this period (Bozyigit et al., 2022). Individuals can pursue a variety of professions and careers in sports. Athlete, coach, sports educator, and manager are examples of occupations; there are numerous professional sectors such as sports photography, sports writing, sports marketing, management, and sports psychology. Furthermore, they can pursue an academic career by furthering their studies in the field of sports sciences at the graduate and doctoral levels (Güner and Hacicaferoglu, 2022). Yet, the future professional choices and ambitions of persons who have played the role of athlete-student throughout their scholastic life, as well as whether they have taken career steps purposefully, are of interest. Examining the literature, certain research on individuals who are unable to handle their dual profession (athlete-student) scenario in sports have found that athletes have a detrimental impact after quitting sports. It has been suggested that they are unable to build effective career plans, that they lack realistic life expectations, that they are unable to obtain personal happiness in their educational lives, and that investing in the job development process has a detrimental impact on sports performance (Blann, 1985; Remer et al., 1978; Sowa and Gressard, 1983). According to various studies, many student-athletes struggle to transition from the athlete role to a professional career, and the time spent on career development processes reduces athletic performance (Baillie, 1993; Petitpas et al., 1992; Morris et al., 2021).

When studies on student-athletes are evaluated, it is clear that there are only a few studies. Our research in this area can provide student-athletes with career awareness, laying the groundwork for correct guidance in both sports and academic fields, and choosing the right career can both increase the individual's personal satisfaction and provide a way to better serve society. To make these decisions consciously, students must first understand their own strengths, interests, and values. As consequence, awareness is regarded as crucial in making job decisions.

METHOD

Research Model and Study Group

The survey was designed using a relational screening paradigm to determine the career knowledge of university students studying sports sciences. Relational survey studies evaluate the link between many variables without tampering with these variables (Karasar, 2016). The research population and sample comprise of 238 students, 71 female and 167 male, who were chosen from the Istanbul Topkapi University Faculty of Sports Sciences using an easily accessible sampling method.

After assessing the research's ethics, data was collected by administering face-to-face scales to students at the Faculty of Sports Sciences. "Student-Athlete Career Awareness Inventory" scale form, personal information form, Gürbüz et al. "Student-Athlete Career Awareness Inventory" was modified into Turkish by (2022). Before beginning the data

collection phase of our project, authorization was acquired from the Istanbul Topkapi University Ethics Committee, dated 10.07.2023 and numbered 2023/07.

Data Collection Tools

A personal information form prepared by the researcher and the Student Athlete Career Awareness Inventory were used in the study.

Student-Athlete Career Awareness Inventory

In the research, the Student Athlete Career Awareness Inventory developed by Bülent et al. (2022) was used. This scale encapsulates "Career Development Self-Efficacy" (items 1, 2, 3, 4), "Career Development Obstacles" (items 5, 6, 7, 8), "Athlete Identity" (items 9, 10, 11, 12). and "Sports Facilitators" (items 13, 14, 15) and consists of 4 sub-dimensions and 15 items in total. The scale was evaluated on a 5-point Likert type. The reliability of the SACAI Turkish form was evaluated with Cronbach Alpha internal consistency coefficients calculated on a factor basis, and the inventory was found to be a reliable measurement tool. In the study conducted by Bülent et al. (2022), it was specified that internal consistency coefficients ranged between 0.70 and 0.80.

Analysis of Data

Following data entry, missing and incorrect information was reviewed, and extreme values were deleted from the data set. The skewness and kurtosis coefficients, as well as the values derived by dividing the skewness and kurtosis coefficients by the standard error, were evaluated to determine that the assumption of normality was met. Because the skewness coefficient is between -1 and + 1, the distribution is normal (Büyüköztürk et al., 2007). Once the data met the assumption of normal distribution, independent sample T-test and one-way analysis of variance ANOVA were applied. As a result of ANOVA analysis, Scheffe test was performed to determine the difference between groups. SPSS 25.0 program was utilized for descriptive statistics and analysis of the data.

RESULTS

The findings gathered as a result of examining the career awareness of students studying in the field of sports sciences by gender are presented in Table 1.

Table 1. Examining Students' Career Awareness According to Gender Variable

	Gender	***N***	***x***	***ss***	***t***	**p**
Career development self-efficacy	Female	71	14,25	3,30	-1,082	0,280
	Male	167	14,69	2,62		
Career development barriers	Female	71	9,06	2,47	-3,487	0,001**
	Male	167	10,48	3,04		
Athlete ID	Female	71	13,69	3,98	0,650	0,516
	Male	167	13,35	3,51		
Sport facilitators	Female	71	11,96	1,91	2,935	0,004**
	Male	167	11,10	2,12		

When Table 1 is assessed, as a result of the independent t test was carried out to examine the career awareness of students studying in the field of sports sciences according to gender, there is a significant difference between the averages of career development obstacles (t238=3.487, p<.05) and sports facilitators (t238=2.935, p<.05) for men and women. A difference was found. Career development barriers were significantly higher for men (X_{male}=10.48) than women (X_{female}=9.06); Sport facilitators were significantly higher for women (X_{female}=11.96) than men (X_{male}=11.10).

There was no significant difference between the career development self-efficacy sub-dimension and athlete identity averages of men and women (t238=1.082, / 0.650 p>.05).

The findings obtained as a result of examining the career awareness of students studying in the field of sports sciences according to the age variable are given in Table 2

Table 2. Examining Students' Career Awareness According to Age Variable

Age	***n***	***x***	***Ss***	***f***	***p***	***Difference***
Between 18-21	109	14,61	2,76	2,140	0,120	
Between 22-24	107	14,28	2,98			

Career development self-efficacy	25 and over	22	15,64	2,32			
Career development barriers	Between 18-21	109	10,08	2,99	0,226	0,798	
	Between 22-24	107	9,95	2,97			
	25 and over	22	10,41	2,70			
Athlete ID	Between 18-21	109	13,98	3,65	3,072	0,048**	1>3
	Between 22-24	107	13,21	3,55			
	25 and over	22	12,05	3,86			
Sportive Facilitators	Between 18-21	109	11,76	1,82	4,429	0,013**	1>3
	Between 22-24	107	11,10	2,21			
	25 and over	22	10,59	2,40			

When Table 2 is analysed, as a result of the one-way ANOVA test conducted to examine the career awareness of students studying in the field of sports sciences according to the age variable, there is no significant difference between the averages of career development self-efficacy and career development barriers (F238=2.140, / 0.226 p>.05).); It was found that there was a significant difference between the sub-dimensions of athlete identity (F238=3.072, p<.05) and sports facilitators (F238=4.429 p<.05). Scheffe test, one of the multiple comparison tests, was used to determine which groups the difference between the means was. According to the results, athlete identity is significantly higher in the 18-21 age groups (F18-21 year old = 13.98, p <.05) than in the 25 and above age groups (F25 and over = 12.05 p <.05); It was also determined that sports facilitators were significantly higher in the 18-21 age group (F18-21 years old=11.76, p<.05) than in the 25 and over age group (F25 and over=10.59 p<.05).

The findings acquired as a result of examining the career awareness of students studying in the field of sports sciences according to the class variable are shown in Table 3

Table 3. Examining Students' Career Awareness According to Class Variable

	Grade	***n***	***mean***	***sd***	***f***	***p***	***difference***
Career development self-efficacy	1st grade	88	14,47	2,84	1,011	0,388	
	2nd grade	20	15,00	2,27			
	3rd grade	62	14,15	3,15			
	4th grade	68	14,93	2,68			
Career development barriers	1st grade	88	9,77	2,73	2,992	0,032**	3>4
	2nd grade	20	10,95	4,10			
	3rd grade	62	10,77	2,76			
	4th grade	68	9,50	2,86			
Athlete ID	1st grade	88	14,88	3,40	7,765	0,000**	1>3 1>4
	2nd grade	20	12,70	3,87			
	3rd grade	62	12,42	3,57			
	4th grade	68	12,78	3,47			
Sportive facilitators	1st grade	88	11,98	1,92	5,177	0,002**	1>3 1>4
	2nd grade	20	11,65	1,66			
	3rd grade	62	10,81	2,25			
	4th grade	68	10,97	2,08			

When Table 3 is evaluated, as a result of the one-way ANOVA test completed to examine the career awareness of students studying in the field of sports sciences according to the class variable, there is no significant difference between the career development self-efficacy averages (F238 = 1,011, p>.05); It was found that there was a significant difference between the averages of career development barriers (F238=2,992, p<.05), Athlete identity (F238=7,765, p<.05) and Sport facilitators

(F238=5,177, p<.05). Scheffe test, one of the multiple comparison tests, was used to determine which groups the difference between the means was. According to the results, career development barriers were significantly higher in 3rd graders (F3th grade=10.77, p<.05) than in 4th graders (F4th grade=9.50 p<.05); Athlete identity was higher in 1st grades (F1.grade=14.88, p<.05) than in 3rd grades (F3.grade=12.42, p<.05) and 4th grades (F4.grade=10.78). , p<.05) is significantly higher; In terms of sports facilitators, 1st graders (F1.grade=11.98, p<.05) had higher scores than 3rd graders (F3.grade=10.81, p<.05) and 4th graders (F4.grade=10.97). p<.05) was found to be significantly higher.

The findings obtained as a result of examining the career awareness of students studying in the field of sports sciences according to the variable of doing sports are pointed out in Table 4

Table 4. Examining Students' Career Awareness According to the Variable of Doing Sports

	Status of Doing Sports	**n**	**mean**	**sd**	**f**	**p**	**Difference**
Career development self-efficacy	I do sports with a license	78	15,13	2,82	2,836	0,061	
	I do it for free time.	130	14,38	2,74			
	I do not do sports	30	13,83	3,13			
Career development barriers	I do sports with a license	78	10,60	3,23	2,676	0,071	
	I do it for free time.	130	9,66	2,75			
	I do not do sports	30	10,33	2,84			
Athlete ID	I do sports with a license	78	14,91	3,53	15,430	0,000**	1>2 1>3 2>3
	I do it for free time.	130	13,16	3,29			
	I do not do sports	30	10,93	3,89			
Sport facilitators	I do sports with a license	78	11,87	1,88	10,828	0,000**	1>3 2>3
	I do it for free time.	130	11,39	1,98			
	I do not do sports	30	9,87	2,42			

When Table 4 is scrutinized, as a result of the one-way ANOVA test done to examine the career awareness of students studying in the field of sports sciences according to the variable of doing sports, career development self-efficacy (F238=2.836, p>.05) and career development barriers (F238=2.676, p). <.05) There is no significant difference between the means; It was found that there was a significant difference between the averages of athlete identity (F238=15.430, p<.05) and sports facilitators (F238=10.828, p<.05). Scheffe test, one of the multiple comparison tests, was used to determine which groups the difference between the means was. According to the results, athlete identity, I do sport with a license variable (I do sports with a license=14.91, p<.05), I do sports for free time (I do sports for free time=13.16 p<.05) and I don't do it (I don't do it=10.93, p<.05).) is significantly higher than the variables; The variable of sport facilitators, I do sports with a license (I do sports with a license=11.87, p<.05) is significantly higher than the variable I do not do it (I do sports with a license=9.87, p<.05); It was determined that the variable "I do it for free time" (Ffree time=11.39, p<.05) was significantly higher than the variable "I don't do sports" (FI don't do it=9.87, p<.05).

The findings obtained as a result of examining the career awareness of students studying in the field of sports sciences according to the variable of the field of study when they graduate are given in Table 5.

Table 5. Examining Students' Career Awareness According to the Field of Study Considered When Graduating

	Field of study he/she intends to work on when he/she graduates	***n***	***mean***	***sd***	***F***	***p***	***difference***
Career development self-efficacy	Coaching	62	14,79	2,76	0,251	0,909	
	Physical education teacher	90	14,56	2,45			

	Sports Management	23	14,35	3,86			
	Police-Military Service	39	14,26	2,87			
	Academics	24	14,67	3,38			
Career development barriers	Coaching	62	9,60	3,04	0,853	0,493	
	Physical education teacher	90	10,26	2,86			
	Sports Management	23	10,00	2,92			
	Police-Military Service	39	10,56	3,05			
	Academics	24	9,71	2,91			
Athlete ID	Coaching	62	14,63	3,72	2,754	0,029**	1>4
	Physical education teacher	90	13,37	3,19			
	Sports Management	23	13,17	3,24			
	Police-Military Service	39	12,56	3,76			
	Academics	24	12,46	4,66			
Sport facilitators	Coaching	62	12,10	1,63	3,201	0,014**	1>4
	Physical education teacher	90	11,27	1,93			
	Sports Management	23	10,83	2,33			
	Police-Military Service	39	10,79	2,24			
	Academics	24	11,21	2,80			

When Table 5 is evaluated, as a result of the one-way ANOVA test conducted to examine the career awareness of students studying in the field of sports sciences according to the field of study variable, career development self-efficacy (F238=0.251, p>.05) and career development barriers (F238=0.853, p> .05) There is no significant difference between the means; It was found that there was a significant difference between the averages of athlete identity (F238=2,754, p<.05) and sports facilitators (F238=3,201, p<.05). Scheffe test, one of the multiple comparison tests, was performed in order to determine which groups the difference between the averages was between. According to athlete identity, the Coaching variable (FCoaching=14.63, p<.05) is significantly higher than the Police-Military (FPolice-Military=12.56, p<.05) variables; It was determined that sports facilitators (FCoaching = 12.10, p <.05) were significantly higher than the Police-Military (Fpolice-military service = 10.79, p <.05) variable.

The findings gathered as a result of examining the career awareness of students studying in the field of sports sciences according to the income status variable are given in Table 6

Table 6. Examining Students' Career Awareness According to Income Status Variable

	Income status	***n***	***mean***	***sd***	***f***	***p***	***difference***
Career development self-efficacy	Less than 5 thousand	62	14,63	2,69	1,138	0,334	
	5 thousand - 10 thousand	105	14,38	2,87			
	10 thousand - 20 thousand	57	14,49	3,06			
	More than 20 thousand	14	15,86	2,18			
Career development barriers	Less than 5 thousand	62	9,94	2,41	3,526	0,016**	4>1 4>2
	5 thousand - 10 thousand	105	9,66	2,90			
	10 thousand - 20 thousand	57	10,39	3,35			
	More than 20 thousand	14	12,21	2,94			
Athlete ID	Less than 5 thousand	62	13,94	3,55	1,626	0,184	
	5 thousand - 10 thousand	105	13,56	3,54			
	10 thousand - 20 thousand	57	12,58	4,10			
	More than 20 thousand	14	14,07	2,53			
Sportive facilitators	Less than 5 thousand	62	11,48	1,65	0,293	0,830	
	5 thousand - 10 thousand	105	11,31	2,07			
	10 thousand - 20 thousand	57	11,40	2,55			
	More than 20 thousand	14	10,93	2,09			

When Table 6 is analysed, as a result of the one-way ANOVA test conducted to examine the career awareness of students studying in the field of sports sciences according to the income variable, career development self-efficacy (F238=1,138, p>.05), athlete identity (F238=1,626, p> .05) and sports facilitators (F238=0.293, p>.05); there was a significant difference between the averages of career development barriers (F238=3.526, p<.05). Between which groups does the difference between the means occur? According to the results of the analysis conducted to determine career development obstacles, there are more than 20 thousand variables (Fmore than 20 thousand = 12.21, p <.05), less than 5 thousand variables (Fless than 5 thousand = 9.94, p <.05) and 5-10 thousand variables (F5-10 thousand). =9.66, p<.05) was determined to be significantly higher than the variance.

DISCUSSION AND CONCLUSION

In this study, When the study's findings were reviewed, it was discovered that there was no significant difference in the career awareness of students studying sports sciences based on gender. This result indicates that pupils' levels of career awareness are comparable. When the literature was examined, studies that were not similar to the findings of this study were discovered. Aybek (2023) observed that men scored higher than women on career development self-efficacy and also scored higher on career development barriers. According to Ege's research, the participants' career planning levels were investigated according to their gender, and there was a statistically significant result in the sub-dimension of the career planning scale. While no significant difference was found in our study's findings, studies in the literature typically demonstrate that men have higher levels of career planning, difficulties, and professional growth than women, and this is because they feel more responsibility.

Athlete identification and sports facilitators were considerably greater in those aged 18-21 compared to individuals aged 25 and up in the age variable. When the research was evaluated, it was discovered that older students had higher career development skills than younger students in a study conducted on university students by Healy et al. (1987). According to a different study conducted by Yaşar (2019), older persons with undergraduate education in sports sciences had stronger professional career awareness than other groups. Our findings, as well as those found in the literature, demonstrate considerable disparities between age groups in many sub-dimensions. Individuals with an athletic identity among sports science students are aware of professional awareness at a young age, and sports facilitators help to establish awareness at a young age.

Career development barriers are higher in 3rd graders than in 4th graders, according to the grade variable of career awareness of students studying in the field of sports sciences; it was determined that the number of sports facilitators with an athlete identity was higher in 1st graders than in 3rd and 4th grades. In a similar way Aybek (2023) conducted a career awareness study on students from the Faculty of Sports Sciences; the athlete identity stated that third-grade students received a lower score than other grades, while sports facilitators stated that second grade students received a higher score than other grades, and third-grade students received a lower score than first-grade students. According to the findings of a study conducted by Güner and Hacicaferoglu (2022), the professional awareness sub-dimension was high in first grade students and above-medium in second, third, and fourth grade students.

Students' career awareness was found to be better in those with an athlete identity than in individuals who spend their spare time with sports and individuals who do not do sports, according to the variable of doing sports. Similarly, it has been discovered that sports facilitators are more prevalent in people with an athlete identity than in people who spend their free time doing sports or people who do not play sports. According to these findings, licensed individuals have a higher level of professional awareness than other individuals (whether they participate in sports as a leisure activity or not), with a different expression coming from the sports business. When the studies in the literature are examined, it is monitored that they support the results of our study (Semiz, 2018; Lavallee and Wylleman, 2000).

It has been discovered that when sports science students graduate, their career awareness is significantly greater than the area of study of athlete identity and sports facilitators, and their career awareness is significantly higher than the field of police-military service. According to this result, students who will graduate from the subject of sports sciences aspire to work as coaches in their own professional organizations. Although research on the subject is scarce, it is clear from observation that students graduating from the discipline of sports

sciences tend to work in law enforcement or the military. Hence, it can be stated that working as a coach is a priority among the fields in which students specialize in the field of sports sciences, whereas in other fields of study, it is either out of necessity or because they wish to achieve economic freedom quickly.

The income level of more than 20 thousand was substantially greater than the income levels of 5 and 5-10 thousand in the career development hurdles sub-dimension of sports science students' career awareness according to family income status. Individuals with a high family income suffer higher career development barriers than those with a low income, according to the research findings. It has been discovered that the research findings in the literature are similar to the findings in our study. According to Güner and Hacıcaferoglu (2022), the lowest average scores in the professional development aptitude sub-dimension are at the upper-intermediate level for all students, regardless of family income, and the highest average scores in the vocational readiness sub-dimension are at the high level for students with a family monthly income of 6001 TL or higher. Çetin and Karalar (2016) investigated the job perspectives of Generation X, Y, and Z students in their study. According to research findings, students from lower-income homes had greater career perceptions than students from better-income families.

Conflict of Interest

No potential conflict of interest was reported by the authors.

Ethical Approval

For this type of study, formal consent is not required.

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The Effect of Preschool Children's Participation in Sportive Recreational Activities on Balance and Flexibility Performance

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A B S T R A C T

This study was conducted to compare the developmental status of balance and flexibility, which are the physical fitness parameters of preschool children receiving sportive recreation education. The participant group of the study consisted of a total of 60 children, 30 of whom were experimental and 30 of whom were control groups, who were studying in preschool education between the ages of 4-6. The study lasted a total of 8 weeks and experimental method with control group and pre-test-post-test design was used in the study. While a 40-minute sportive recreation education program was applied to the experimental group 3 days a week for 8 weeks, the control group continued its normal curriculum. In the study, sit and reach test for flexibility and flamingo balance test for balance were used as data collection tools. A normality test was applied to decide on the tests to be applied. Due to the normal distribution of the data, Independent Samples T-Test was used to determine whether the difference between the groups was significant, and Paired Samples T-Test was used to determine whether there was a significant difference between the pre-test and post-test within the group, and the significance value was accepted as $p < 0.05$. After the 8-week sportive recreation education program, there was a advanced significant difference in the pre-test-post-test values of flexibility and balance parameters in the experimental group ($p < 0.001$), while there was no significant difference in the control group ($p > 0.05$). When the experimental group and the control group were compared, a significant difference was found in the flexibility and balance test values in favor of the experimental group after the sportive recreation activity program ($p < 0.001$). As a result, it was observed that the children who participated in preschool sportive recreation education programs had more advanced balance and flexibility development levels compared to the children who received standard curriculum.

Keywords: Sportive Recreation, Preschool, Flexibility, Balance

INTRODUCTION

The concept of recreation means relaxing and entertaining activities that individuals or groups do voluntarily in their free time (Karaküçük, 1999). Recreation is the activities that people voluntarily participate in and enjoy, apart from the behaviors they must do in the limited time that life brings (Hazar, 2003). Recreation is an activity that has a wide range of sports and attracts large masses (Sevil et al., 2012).

Recreational activities that increase our quality of life are among the necessary elements of our lives. In this regard, all people in the world participate in recreational activities that have spiritual, social, and physical benefits (Özer and Çavuşoğlu, 2014). It has been stated that recreational activities are very beneficial for people both mentally and physically.

Sports constitute one of the most demanded sections of recreation. While sports create an effective field of action for people's recreational needs, recreation also plays an important role in the spread of sports to the social sphere and to gain sportive success. Sportive recreation is the type of recreation based on physical exercise or the realization of various sports branches for recreational purposes (Zorba and Bakır, 2004). In this context, sportive recreation activities are activities in which the primary purpose is participation and the subsequent goals are strengthened physical fitness, entertainment and social participation. Participation in sportive recreation contributes positively to preventing or reducing the stress that technology and urbanization will cause on individuals and society, happiness, physical and mental health, social and educational performance. For this reason, sportive recreation is one of the important factors affecting the level of quality of life (Öztürk et al., 2019).

It is observed that the inclusion of technology in the educational process makes learning more fun for children and improves their creative thinking skills (Akpınar, 2005; Arı & Bayhan, 2003; Sivin-Kachala & Bialo, 2000). Although technology provides great support to the development of children, it can also include possible bad effects such as inactivity. Movement is very important for the physical development of the child (Taşçı, 2010). In the preschool period, movement habits should be gained through physical activities that form the basis of sportive recreation (Zorba & Bakır, 2004).At this point, sports and recreational activities are very important for preschool children because childhood is the period when development is the fastest. The skills acquired in this period affect the child's behavior and personality development in the future. Early interventions to support development can have lasting effects on personality development (Bredekamp, 1992). Physical activity and play are important elements in both social and mental development of children (Özer et al., 2006).

Sportive recreation is also beneficial in terms of improving physical fitness parameters. Especially in preschool children whose musculoskeletal system develops rapidly, the harmonious and functional development of these parameters is very important. In this period, balance and flexibility come to the forefront. Balance has been defined as the body's ability to stay in a fixed position or to make stable movements by resisting gravity (Tortop et al., 2014). Even walking, running, sitting skills require balance. Flexibility is defined as the ability of a joint to move freely throughout its entire normal range of motion (Page, 2012; Weerapong et al., 2004). Sportive recreational activities carried out in the preschool period develop these two parameters and enable them to work in coordination with each other.

It is very important that the need for recreational activities of preschool children, who spend most of their time playing, is met with a sportive recreational activity program and that children, who have the opportunity to experience many different branches with the recreational application of various sports branches, can learn new and complex skills in the preschool period. This study can offer a original approach to the literature in terms of the evaluation of preschool children, a group in which sportive recreational activities are not sufficiently applied in the literature. The main aim of the study was to examine the effects of preschool children's participation in sportive recreational activities on balance and flexibility performance. It was hypothesized that sportive recreational activities applied to preschool children would improve balance and flexibility performance.

METHOD

Experimental design

The research was carried out during the education period of a private kindergarten institution in Sakarya. The study lasted a total of 8 weeks and a quasi-experimental method with a control group and pre-test-post-test design was used in the study. The working group was composed of 30 children between the ages of 4-6 who attended a private preschool. The control group was comprised of 30 children of the same age range who attended a different private preschool in the same province. While a 40-minute sportive recreation education program was applied to the experimental group 3 days a week for 8 weeks, the control group continued its normal curriculum. In the study, sit and reach test for flexibility development and flamingo balance test for balance development were used as data collection tools.

Participants

The working group of the study consisted of 15 boys (age: 5 ± 0.83 years; height: 1.12 ± 4,12 cm; Body weight: 19.6 ± 1,94 kg) 15 girls (age: 5 ± 0.67 years; height: 1.10 ± 6,48 cm; Body weight: 19.15 ± 2,60 kg) with a total of 30 students. Similar to the working group, the control group of the study

consisted of 15 boys (age: 5 ± 0.91 years, height: 1.14 ± 5,81 cm, body weight: 20.2 ± 3,19 kg) 15 girls (age: 5 ± 0.70 years; height: 1.10 ± 6,04 cm; Body weight: 18.65 ± 2,76 kg) a total of 30 students.

Before the study, the participants and their parents were informed about the tests to be applied. Parents were told about the risks of disability during the tests and that their children could leave the study at any time. Parents signed the informed consent form for the study. The Helsinki Declaration was adhered to at every stage of the study. During the study, no injuries were found in the students.

Procedure

Measurement of height and body weight

The height of the preschool children participating in the study was measured with a height scale with a sensitivity of 0,1 cm, with bare feet and heel of foot side by side, eyes looking straight ahead, head upright, and back straight. The outputs obtained are recorded in cm. A smart scale with an accuracy of 0,1 kg was used for body weight measurement. The children participating in the study were asked to climb on the scale without shoes in sportswear that would not weigh them down, and the test output was recorded in kg (this protocol was applied in both the pre-test and post-test).

Flamingo balance test

The flamingo balance test (FDT) is a test used to measure balance on a Eurofit test battery (Adam et. al., 1988). As equipment, a beam 50 cm long, 4 cm high and 3 cm wide and a stopwatch were used. (Şimşek et al., 2020). During the test, the participant was instructed to stand on the board with his non-dominant foot, lift the other foot off the ground and bring the knee to maximum flexion with the same hand (Figure 1). During the measurement, the participant was asked to focus and look at a point at eye level. As soon as the participant left the hand of the practitioner from whom he received support, the stopwatch was started and the measurement was started. The stopwatch is stopped if the participant drops their foot or if any part of their body touches the ground. Following each balance breakdown, the practitioner helped the participant to take himself into the correct position. A total of 3 tests were applied and the highest value was recorded. The number of errors made over the course of 1 minute was recorded. (Şimşek et al., 2020; Çakır and Özbar, 2019). This protocol was applied in both pre-test and post-test.

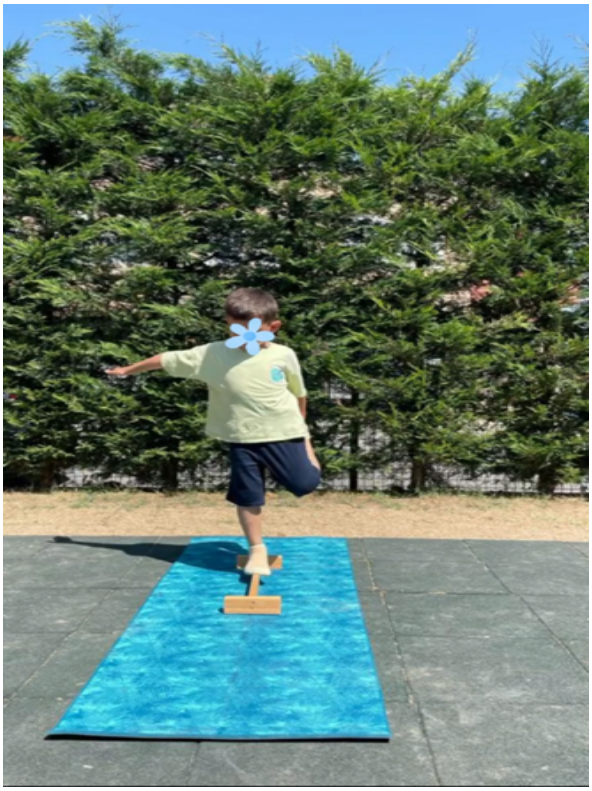

Figure 1. Application of flamingo balance test

Sit-and reach test

The Sit and Reach Test was used to measure flexibility. The sit and reach box used for flexibility measurement is within the standards set by AAHPERD. Before the test, the test protocol was explained to the participants practically. Participants were asked to sit down, rest the soles of their feet on the box, stretch their arms forward without bending their knees, and stretch their torso as far forward as possible. The best test result was recorded by repeating the test twice to the participant who tried to stay still at the farthest point he could stretch and did not make any intermittent stretching forward. During the test, the practitioner sat next to the participant and warned him to keep his knees in a straight (extension) position. The test result was determined as the farthest point that the participant could reach with his fingertips, and the participant was asked to maintain the position for 1-2 seconds at the farthest point he could reach (Figure 2). As a result of two attempts, the best result was taken as a score in cm.

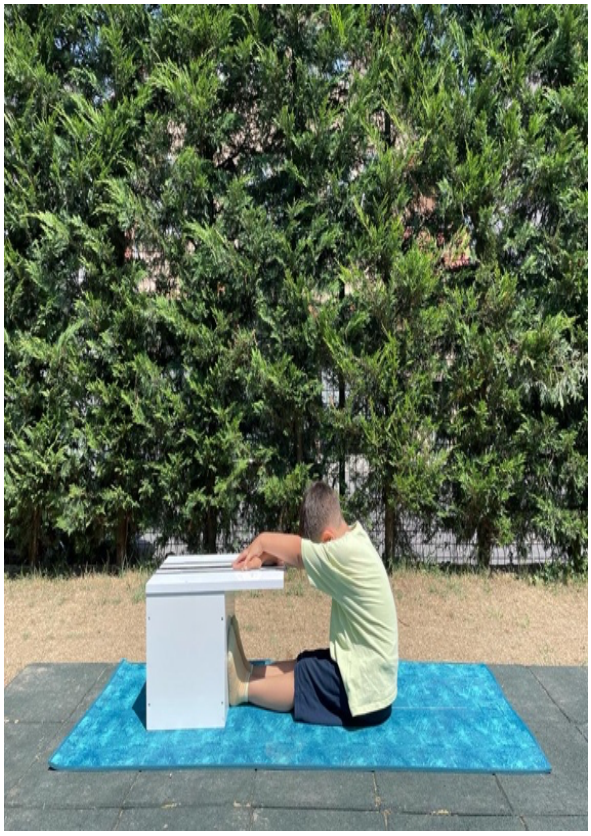

Figure 2. Application of the sit-and-reach test

8-week sportive recreation activity program applied to improve balance and flexibility

Table 1. Balance and flexibility program

Eight-Week Sportive Recreation Activity Program			
Activities	Weeks	Loading Duration	Exercise Duration
Warming up with music	1 Week	3 minutes	40 Minutes
Jogging		3 minutes	
Running with knees pulled to the abdomen		2 minutes	
Running with hands behind back and feet touching hands		2 minutes	
Bear walk		4 meters x 4 rounds	
Double leg jump		4 meters x 4 rounds	
Single leg jump		4 meters x 2 rounds	
Running zig-zag through the kukas		2 minutes	
Stretching from head to toe		10 minutes	
Breathing exercises		3 minutes	
Warming up with music	2 Weeks	3 minutes	40 Minutes
Accelerated running until reaching a moderate pace		3 minutes	
Bear walk		4 meters x 4 rounds	
Frog walk		4 meters x 4 rounds	
Front flip		3 rounds	
Walking on a thick rope		2 meters x 2 rounds	
Carrying a ball through obstacles (basketball)		4 meters x 2 rounds	
Stretching from head to toe		10 minutes	
Stretching in the cat position		2 x 10 seconds	
Breathing exercises		3 minutes	
Warming up with music	3 Weeks	3 minutes	40 Minutes
Front flip		2 rounds	
Lame dog walk		2 meters x 2 rounds	
Run (in place)-run fast-when the whistle blows, touch the ground and jump		2 rounds	
Multi-skill parkour racing		2 rounds	
Walking forward by stretching one leg		2 rounds	
Plank		2x10 seconds	
Reverse plank		2x10 seconds	
Butterfly pose		2x10 seconds	
Stretching from head to toe		15 minutes	
Warming up with music	4 Weeks	3 minutes	40 Minutes
Musical balance game on one leg (right and left leg)		3 minutes	
Two feet in two feet out ladder drill		2 rounds	
Multi-skill parkour training		1 round	
Throwing a hoop to the target while standing on the balance board		1 round	
Right-left foot glider stance (in order)		2 x 30 seconds	
Walking with tip toes		5 meters x 1 round	
Jogging		1 round	
Zumba		4 minutes	
Stretching from head to toe		10 minutes	
Warming up with music	5 Weeks	3 minutes	40 Minutes
Musical balance game on one leg (right and left leg)		3 minutes	

Zig zag running with resistance band		5 meters x 1 round	
Relay race		1 round	
Jogging		1 round	
Lame dog walk		5 meters x 1 round	
Right-left foot glider stance (in order)		2x30 seconds	
Walking straight on a high balance board		1 round	
Zumba		4 minutes	
Stretching from head to toe		10 minutes	
Warming up with music	6 Weeks	3 minutes	40 Minutes
Musical balance game on one leg (right and left leg)		3 minutes	
Balancing with right and left foot with eyes closed		2x30 seconds	
Counter movement jump (hands on hips)		5 meters x 2 rounds	
Single leg standing jump		1 round	
Multi-skill parkour training		1 round	
Jogging		1 round	
Breathing exercises		2 minutes	
Zumba		4 minutes	
Stretching from head to toe		10 minutes	
Warming up with music	7 Weeks	3 minutes	40 Minutes
Musical balance game on one leg (right and left leg)		3 minutes	
Balancing with right and left foot with eyes closed		30 seconsd	
Multi-skill parkour training		2 rounds	
Passing over and under complex obstacles		2 rounds	
Walking with 250 gram (total) hand weights on a thick rope		2 meters x 4 rounds	
Walking on a thick rope by closing eyes		2 meters x 1 round	
Standing on wooden balance board with resistance band		2 rounds	
Breathing exercises		2 minutes	
Stretching from head to toe		10 minutes	
Warming up with music	8 Weeks	3 minutes	40 Minutes
Musical balance game on one leg (right and left leg)		3 minutes	
Balancing on right and left leg with eyes closed		1 minutes	
Multi-skill parkour training		2 rounds	
Standing on the balance board with 250 gr hand weights and throwing a ball to the target		2 rounds	
Carrying the ball to the target by walking on the balance board		2 rounds	
Two feet in two feet out ladder drill		2 rounds	
Stretching from head to toe		10 minutes	
Standing hamstring stretch (both legs)		2 x 10 seconds	
Tree pose (both legs)		2 x 30 seconds	
ALL SPORTIVE RECREATIONAL ACTIVITIES WERE DONE WITH THE CLASS			

Statistical analysis

Statistical analyses of this study were carried out with SPSS 22.0 (Statistical Package for Social Sciences) package program. In the study, arithmetic mean, standard deviation, minimum and maximum values were used to determine the descriptive statistics of the participants. It was determined that the data were normally distributed, so parametric tests were used. Independent Samples T-Test was applied to determine whether the difference between the groups was significant, and Paired Samples T-Test was applied to determine whether there was a significant difference between the intra-group test-re tests, and the significance value was accepted as $p < 0.05$.

RESULTS

The results of the analysis of the experimental and control groups are given in this section

In-Group Test-Re Test Paired Samples T-Test Results

Table 2. In-group t-test results for pre-test and post-test

		N	X	SD	p
Working Group	Weight Pre-Test	30	19,5033	2,28299	,121
	Weight Posttest	30	19,7383	2,53584	
	Height Pre-Test	30	111,4833	5,51875	,000**
	Height Final Test	30	112,7067	5,44711	
	Flamingo Pre-Test	30	33,4000	4,39906	,000**
	Flamingo Posttest	30	19,0000	3,69529	
	Sit and Reach Pre-Test	30	23,6500	3,26726	,000**
	Sit and Reach Access Final Test	30	30,5000	2,91252	
Control Group	Weight Pre-Test	30	19,9283	2,98882	,036*
	Weight Posttest	30	20,2500	3,14985	
	Height Pre-Test	30	111,4167	5,96987	,000**
	Height Final Test	30	111,9667	6,11377	
	Flamingo Pre-Test	30	32,9333	4,48702	,514
	Flamingo Posttest	30	33,4333	4,46197	
	Sit and Reach Access Pre-Test	30	27,2833	2,48334	,145
	Sit and Reach Access Final Test	30	26,9500	2,36114	

N: Participant, X: Arithmetic Mean, SD: Standard Deviation P: Significance Value **: p<0.001

Looking at Table 2, when the comparison of the pre-test and post-test of the working group was examined, there was no significant difference in weight values ($p > 0.05$), but a significant difference was found in height values when the comparison of pre-test and post-test was found ($p < 0.001$).

When the pre-test and post-test comparison of the control group was examined, a significant difference was found in weight values ($p < 0.05$), and a significant difference was found in height values when the pre-test and post-test were compared ($p < 0.001$).

When the working group flamingo pre-test and post-test comparison was examined, a significant difference was found at an advanced level ($p < 0.001$). Similarly, it was observed that there was a significant difference in the comparison of sit and reach pre-test and post-test ($p < 0.001$).

When the control group flamingo pre-test and post-test comparison was examined, there was no significant difference between the values ($p > 0.05$). Similar results were found in the comparison of pre-test and post-test, and no significant difference was found between the values ($p > 0.05$).

Intergroup Test-Re Test Independent Samples T-Test Results

Table 3. T-test results for pre-test and post-test between groups

		N	X	SD	p
Weight Pre-Test	Working Group	30	19,5033	2,28299	,538
	Control Group	30	19,9283	2,98882	
Weight Posttest	Working Group	30	19,7383	2,53584	,491
	Control Group	30	20,2500	3,14985	
Height Pre-Test	Working Group	30	111,4833	5,51875	,964
	Control Group	30	111,4167	5,96987	
Height Posttest	Working Group	30	112,7067	5,44711	,622
	Control Group	30	111,9667	6,11377	
Flamingo Pre-Test	Working Group	30	33,4000	4,39906	,686
	Control Group	30	32,9333	4,48702	
Flamingo Posttest	Working Group	30	19,0000	3,69529	,000**
	Control Group	30	33,4333	4,46197	
Sit and Reach Access Pre-Test	Working Group	30	23,6500	3,26726	,000**
	Control Group	30	27,2833	2,48334	
Sit and Reach Access Posttest	Working Group	30	30,5000	2,91252	,000**
	Control Group	30	26,9500	2,36114	

N: Participant, X: Arithmetic Mean, SD: Standard Deviation P: Significance Value **: p<0.001

When Table 3 was examined, there was no significant difference in the comparison of pre-test height and weight values of the working group and the control group (p> 0.05). Similar results were seen in the post-test comparison and there was no significant difference between the groups in height and weight values (p> 0.05).

When the flamingo pretest values of the working group and the control group were examined, no statistically significant difference was found (p> 0.05). However, the flamingo posttest values of the working group and the control group were found to be significantly different in favor of the working group (p <0.001)

Finally, when the sit and reach pre-test values of the working group and the control group were examined, a significant difference was found in favor of the control group (p <0.001). However, when the post-tests of the working group and the control group were examined, a significant difference was found in favor of the working group (p <0.001) (Table 3).

DISCUSSION AND CONCLUSION

The aim of this study is to compare the developmental status of balance and flexibility, which are physical fitness parameters, of preschool children participating in the sportive recreation education program. At the end of the research, it was determined that the balance and flexibility levels of the children who participated in sportive recreational activities in the preschool period improved at an advanced level compared to the children who did not participate in the activities.

In the study, weight (kg) pre and post-test mean results of the research group were not statistically significant (p>0.05) (table 2), but when the height (cm) pre and post-test mean results were analyzed statistically, a significant difference was found (p<0.001) (table 2). Similar results were observed in the study of Özbar et al. (2015). It was reported that the experimental group was positively affected by the movement training program applied to children aged 4-6 years and that there was an improvement in body composition elements and that the movement training program applied in a one-year period positively affected the height development in children. In addition, many studies have shown significant improvements in the height and body weight of children of similar ages who received regular sports training and those who did not receive sports training in favor of those who received sports training (Brehman and Kliegmen 1994; Watts et al., 2003; Kerkez 2006, Kayapınar et al. 2004). Finally, when the working group was compared with the control group, it was observed that in addition to the usual height growth of the

children in both groups, the children who participated in the sportive recreational activities exhibited an extra development.

In the study, it was concluded that the flamingo balance test pre and post test mean results of the working group were statistically significant ($p<0.001$) (table 2). When the flamingo test pre-test data of the study and control groups were compared, no statistically significant difference was found ($p>0.05$), but a significant difference was found in favor of the working group in the post-test data ($p<0.001$). Similar results were observed in the study by Chatzopoulos et al. (2022). With the balance program applied to preschool children, the working group performed better than the control group in both dynamic balance and Flamingo balance tests and a statistically significant difference was reported. Çelebi (2010) investigated the effect of movement training on motor development in children aged 5-6 years and found that there was a statistically significant difference in favor of the working group in terms of single leg balance performance values. Altınkök et al., (2020) reported that the children who participated in the movement program integrated with the coordination method had higher flexibility and balance development than the children who participated in the standard movement program. Kayapınar (2011) conducted a study to evaluate the effect of a movement education program on the balance skills of preschool children aged 5-7 years. It was reported that the significance value of the experimental group and the control group was in favor of the experimental group in the comparison of static balance values.

In the study, it was concluded that the pre-test and post-test mean results of the sit and reach balance test of the working group were statistically significant ($p<0.001$) (table 2). When the pre-test data of the sit and reach balance test of the study and control groups were compared, a statistically significant difference was found in favor of the control group ($p<0.001$), but a significant difference was found in favor of the working group in the post-test data ($p<0.001$). It was observed that the sportive recreational activity program applied contributed positively to flexibility performance in preschool children, where motor skill acquisition and development speed is quite fast. Popovic et al. (2020) conducted a study on preschool children and examined the effect of a structured multi-sport program applied for 9 months on physical fitness components. The main findings of the study were that the structured multi-sport program improved physical fitness. In the study, flexibility, one of the components of physical fitness, was evaluated by sit and reach test. At the end of the program, a significant difference was found between the pre-test and post-test values of the working group and the flexibility component improved more than the control group and a statistically significant difference was reported in favor of the working group ($p<0.0005$). Similarly, Demirel et al. (2016) aimed to examine the effect of the movement training program applied for 8 weeks on some physical fitness parameters. In the study in which the control group was not used, the pre-test post-test values of the children were compared and it was reported that the program was effective on flexibility and there was a statistically significant difference in flexibility measurements, which is one of the parameters in question ($p<0.05$).

As a result, it has been observed that the sportive recreation education program prepared and implemented by the researchers improved the balance and flexibility performance of preschool children. Since the achievements of children at these ages form an infrastructure for the future, it has been seen that it is very important to optimize such sports and recreation programs for children's educational processes.

RECOMMENDATIONS

Recommendations for the results of the study are given below.

The sportive recreation activity program can be developed and made more effective.

Other tests can be applied in addition to or in addition to the tests applied.

Its effectiveness in differentage groups can be examined.

Sportive recreational activity programs can be organized in a way that can be included in the education system, considering the developmental stages of children.

Conflict of Interest

No potential conflict of interest was reported by the authors.

Ethical Approval

For this type of study, formal consent is not required.

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The Evolution of Sports Management: Through The Lens of Management Science, Trends, and Future Vision

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A B S T R A C T

The aim of this study is to examine the trends, future vision, and development of sports management from the perspective of management sciences. The scope of the research is to understand the discipline and field of sports management, evaluate its historical development, and identify future trends. As this study is a review article based on literature analysis, no fieldwork or experimental methods were used. The data were analyzed by synthesizing information obtained from existing sources. From the perspective of management sciences, sports management is a field that applies management principles and techniques to the specific conditions of the sports industry. This includes practices such as strategic planning, personnel management, marketing, and communication. Sports managers should make strategic decisions, develop leadership skills, and effectively utilize resources by applying management principles in sports organizations to achieve success. Sports management education should aim to train future sports managers who can adapt to the rapidly changing sports industry. This should involve gaining competencies in areas such as keeping up with technological advancements, data analysis, and digital marketing. Additionally, topics like globalization and diversity should be addressed as sports organizations are becoming increasingly international.

Keywords: Trends, future vision, sports management, management science

INTRODUCTION

The sports industry has become increasingly complex and competitive in today's world. Many sports organizations, such as professional sports teams, sports events, sports facilities, and sports federations, aim to achieve sustainability and success through effective management practices. Consequently, the discipline of sports management is gaining greater significance. Sports managers are responsible for tasks such as overseeing organizations, making strategic decisions, and efficiently utilizing resources. This study aims to explore the development of sports management, how it has evolved through methodologies from management sciences, and discuss its future vision.

Historical Development of Sports Management

Throughout history, sports have been utilized as a tool to enhance interaction among people and foster relationships between different societies (Adair, 2017). Sports management can be defined as an interdisciplinary field applied in the management of sports organizations (Andreff and Szymański, 2006). The management of sports organizations has existed since ancient Greece. However, modern sports management emerged in late 19th century England (Costa, 2005). English amateur sports clubs found the need for a structured organization and management system (Edelman and Wilson, 2017). The establishment of the English Football Association in 1863 marked a turning point in the development of national football organizations. During the same period, other sports organizations also began to establish similar management systems (Adair, 2017). In the 21st century, the field of sports management continued to evolve. In the United

States, the growth of sports organizations led to increased demand for specialized educational programs and degree programs in sports management (Olafson, 1990). Sports organizations developed more sophisticated management strategies by utilizing new technologies such as social media, digital marketing, data analytics, and others (Danylchuk and Lebel, 2017; Ratten and Jones, 2018). Furthermore, sports organizations have begun to focus more on issues such as sustainability, ethics, and social responsibility (Davies and Ströbel, 2022).

Developments in Sports Management Worldwide

Sports management is a growing discipline that encompasses a wide range of activities, including marketing, event management, finance, human resources, and operations (Doherty and Cuskelly, 2020). The scope of sports management extends to providing services for all sports, including traditional sports and emerging sports. Over time, the field of sports management has expanded to include not only traditional sports like football, basketball, and baseball but also emerging sports such as e-sports and drone racing (Cuneen, 2004). The scope of sports management includes various activities such as marketing, event management, finance, human resources, and operations. In sports management, marketing activities involve the promotion and sale of products and services related to sports, such as sports events, products, and sponsorships (Chadwick et al., 2017). Event management in sports management involves planning and organizing sports events like tournaments, competitions, and exhibitions. Financial aspects in sports management encompass budgeting, financial planning, and resource generation for sports organizations (Byers et al., 2016). Human resources in sports management deal with the recruitment, training, and management of employees within sports organizations. Operations in sports management involve the day-to-day management of activities such as facility management, equipment management, and logistics for sports organizations. Sports management has seen significant developments in recent years. One of these developments is the increasing use of technology in sports management. Technology has had a significant impact on the organization, marketing, and consumption of sports events (Baker and Esherick, 2013). For example, the use of social media has allowed sports organizations to reach a broader audience and engage with fans in real-time. The use of data analytics has also helped sports organizations make data-driven decisions and improve their performance (Kwon et al., 2007). Another development in sports management is the growing importance of sustainability. Sports organizations are adopting sustainable practices to reduce their environmental impact and contribute to social and economic development. For instance, sports organizations are using renewable energy sources, reducing waste, and promoting eco-friendly practices (Commission on Sport Management Accreditation, 2009).

The emergence of e-sports as a new sports category is also a significant development in sports management. E-sports, involving competitive video games, have gained substantial popularity in recent years. E-sports have offered sports management professionals an opportunity to apply their skills and expertise in a new context (Ginting, 2023; Taylor, 2012).

The Development of Sports Management in Turkey

Throughout its history, Turkey has always valued and supported sports. However, modern sports management in Turkey began with the establishment of the Republic. Sports were used as a tool during the early years of the Republic, and sports organizations were founded during this period (Türkmen and Eroğlu, 2018; Koçak et al., 1999). The first step in sports management in Turkey was considered to be the establishment of the "Gazi Orta Muallim Mektebi ve Terbiye Enstitüsü" in 1932, with the opening of the "Beden Terbiyesi" department in 1933, which aimed to train sports managers (www.tbmm.gov.tr/). On June 29, 1938, with the establishment of the Directorate General of Physical Education, the 3530 Sports Law included the goals of training Monitors, Coaches, Youth Leaders, Managers, and Specialists (Gök and Sunay, 2010). Unfortunately, with the closure of the academies in 1982, programs for training sports managers were also discontinued. According to Article 7-d/2 of Law No. 2547 dated February 25, 1993, the program of Sports Management was initiated in the Schools of Physical Education and Sports (Koçak et al., 1999). In addition, other universities in academia began to open programs in sports management and started offering education opportunities in this field over time. Especially starting in the mid-1990s and continuing into the 2000s, many universities in Turkey have opened sports management programs, contributing to education and research activities in the field of sports management (Kayış and Şentuna, 2016; Parlar and Çon, 2020). Sports management in Turkey continues to rapidly develop. In recent years, sports organizations in Turkey have made significant advancements in the use of technology, modern management strategies, and business skills (Halıcı et al., 2020; Uyar and Sunay, 2009). Today, there are

numerous sports management programs at universities in Turkey. These programs offer students theoretical knowledge and practical skills in the field of sports management. Students learn subjects such as business, marketing, finance, communication, law, and sports ethics, enabling them to enhance their skills in managing sports organizations (Gök and Sunay, 2010).

In conclusion, there are some challenges in the field of sports management in Turkey. Among these challenges are the financial problems of sports clubs and the inadequacy of financial resources. Additionally, some Higher Education Institutions that provide 'distance education' in this field, without practical experience, graduate individuals who are not well-prepared for employment, putting our country at a disadvantage in international competition.

The Evolution of the Sports Management Discipline

Sports management is a discipline that deals with the effective management and operation of sports organizations. The field of sports management has evolved over time, in tandem with the growth and changes within the sports industry (Baker and Esherick, 2013). In its early stages, sports managers primarily focused on the management of athletes or teams. However, today, sports management has a much broader perspective. Sports managers are involved in determining the strategic goals of sports organizations, creating marketing and branding strategies, and handling financial management and budget planning (Barnes and Gannon, 2023).

The Origins of Sports Management: The origins of sports management can be traced back to the late 19th century when sports organizations began to professionalize. During that period, sports clubs and federations had a more limited structure and were often run by amateur athletes (Parkhouse and Pitts, 2004).

The Influence of Management Theories: Starting from the early 20th century, general management theories began to be applied to the field of sports management. Management approaches such as 'Taylorism' and bureaucracy contributed to more effective and efficient management of sports organizations (Chalip, 2006).

Professionalization and Marketing: The discipline of sports management underwent a significant transformation with the professionalization of sports. Sports organizations began to focus on marketing strategies to increase revenue and gain a competitive advantage. Topics such as sponsorship agreements, advertising campaigns, and commercial brand management became central to sports management (Mullin et al., 2007).

Data Analysis: Data analysis has provided a significant advantage to sports managers. The data collected by sports organizations allow for the analysis of team performance, fan behavior, revenues, and other important metrics, enabling more informed decision-making. Data analytics offers valuable insights to sports managers in various areas, from assessing player performance to formulating game strategies. This has the potential to enhance the success of sports organizations (Muniz and Flamand, 2022).

Globalization and International Relations: In recent years, the discipline of sports management has gained even more significance in light of the globalization process. International sports organizations require sports managers to handle complex issues such as international relations, media rights, and global marketing strategies (Millar and Doherty, 2021).

The Role of Technology: Technological advancements have had a significant impact on the evolution of sports management. Progress in areas like digital marketing, data analytics, and communication technologies has enabled sports organizations to operate more efficiently and establish a more interactive relationship with fans. Mobile applications, social media platforms, and live broadcasting technologies allow sports managers to engage with fans and expand their brands to broader audiences (Danylchuk and Lebel, 2017).

Sustainability and Ethics: In recent years, sustainability and ethics have taken center stage in the discipline of sports management. Sports organizations have recognized the obligation to fulfill their environmental and social responsibilities. Sustainability policies, including energy efficiency, recycling, community engagement projects, and fair trade principles, have become part of the agenda for sports managers (Andreff and Szymański, 2006).

Technological developments have played a significant role in the evolution of sports management. Originating from amateur sports management, the discipline has expanded under the influence of factors such as professionalization, marketing, globalization, technological advancements, sustainability, and ethics (Baker and Esherick, 2013). Today, sports managers must possess strategic thinking skills and leadership qualities to achieve success in a complex business environment. Sports managers have the potential to succeed and advance their organizations by harnessing these technologies effectively (Masteralexis et al., 2009).

Sports Management Education

Sports management is a complex field that requires specific skills, knowledge, and understanding to become a successful sports manager. Sports management education plays a critical role in acquiring these skills. The discipline of sports management is taught through academic programs at universities and other educational institutions (Billsberry et al., 2018). Sports management undergraduate and graduate programs aim to provide students with theoretical knowledge and practical skills in the management of sports organizations. These programs typically include courses in areas such as business, marketing, finance, law, and communication, as well as sports management-focused courses like leadership in sports, team management, and strategic planning (Casper and Pfahl, 2015). Sports management is a discipline that enables the effective management of sports organizations. Sports managers require competencies in a wide range of areas such as leadership, communication, strategic planning, financial management, and organizational skills. These skills are qualities that are difficult to acquire without proper education and preparation. Therefore, sports management education plays a critical role in helping future sports managers develop these skills (Baker et al., 2016).

The Importance of Sports Management Education

Sports management education is designed to enhance the competencies of sports managers and prepare them for a professional career. Education programs encompass a combination of theoretical and practical skills (Mathner and Martin, 2012). Theoretical courses introduce fundamental concepts and principles in sports management, providing students with a general understanding. Practical components allow students to gain real-world experiences and apply management skills (Miragaia and Soares, 2017).

Required Qualities: To become a sports manager, a range of qualities is necessary, including a passion for sports, leadership skills, strategic thinking ability, and problem-solving skills. Additionally, sports managers should have a broad knowledge base and expertise in various disciplines (Mathner and Martin, 2012). They need to be knowledgeable in areas such as finance, marketing, human resources, facility management, and other functions. Furthermore, sports managers should have knowledge in subjects like law, ethics, and corporate governance.

Components of an Education Program

An effective sports management education program should include various components. These components may include theoretical courses, internships or practical work opportunities, leadership development programs, project-based learning, and mentorship (Veal and Darcy, 2014). Theoretical courses cover the principles and topics of sports management, providing foundational knowledge. Internships or practical work opportunities allow students to gain field experience and apply their knowledge in a workplace setting. This helps students learn how to apply their theoretical knowledge to real-world situations (Millar and Doherty, 2018). Leadership development programs assist sports managers in strengthening their leadership skills and acquiring the competencies necessary for success in leadership roles. Project-based learning enables students to develop the skills needed to solve problems they may encounter in real life and manage their own projects. Mentorship provides students with guidance from experienced sports managers and offers valuable career tips and advice (Parkhouse and Pitts, 2004).

The Future Vision of Education Programs

Throughout history, sports management has evolved in tandem with changes and growth in the sports industry. The professionalization and expansion of sports organizations have heightened the significance of the sports management discipline (Adair, 2017). Sports management education aims to prepare future sports managers who can adapt to the rapidly changing sports industry. This should include competencies in areas such as keeping up with technological advancements, data analysis, and digital marketing (Muniz and Flamand, 2022). Additionally, globalization and diversity should also be addressed as sports organizations are becoming increasingly international (Witz and Stier, 2019).

The Interaction Between Management Sciences and Sports Management

Understanding the interaction between sports management and management sciences is crucial because both fields share many similar management principles and practices. The way to understand this interaction is to observe how management principles from management sciences are applied in sports management practices (Taylor et al., 2015). Management sciences generally examine strategies, methods, and techniques required to ensure the effective and efficient functioning of an organization. These encompass core functions like strategic planning, organization, leadership, personnel management, and control (Rofe, 2016). Sports management typically involves the management of sports organizations, teams, or facilities, and it is based on the fundamental principles of management sciences. Sports managers often work in areas such

as strategic planning, financial management, marketing, human resources, and facility management (DeSensi et al., 1990). From the perspective of management sciences, sports management is a field that applies management principles and techniques to the specific conditions of the sports sector. This includes practices ranging from strategic planning to personnel management, marketing, and communication. For instance, a sports manager can utilize strategic planning techniques to set long-term goals for a sports organization, develop strategies to achieve these goals, and monitor the effectiveness of these strategies. Leadership and human resource management are also crucial in sports management. A sports manager can employ leadership skills to enhance motivation and performance, foster teamwork and collaboration, and manage conflicts (Olafson, 1990). In terms of areas of interaction between management sciences and the field of sports management, the following can be cited;

1. Strategic Management: Defining the strategic goals of a sports organization and creating strategic plans to achieve these objectives.

2. Financial Management: Managing financial matters such as budget planning, income and expenditure management, cost analysis, and effective utilization of financial resources.

3. Marketing and Communication: Determining marketing strategies for a sports organization, branding, and executing advertising and public relations activities.

4. Human Resource Management: Handling aspects related to human resources, including the selection of employees, the employment process, designing training and development programs, performance evaluation, and personnel management.

5. Operational Management: Managing operational aspects such as the planning, organization, and execution of sports events, facility management, logistics, and efficient resource utilization (Andreff and Szymański, 2006; Doherty and Cuskelly, 2020; Davies and Ströbel, 2022).

There is a profound interaction between management sciences and sports management, especially in areas like strategic planning, leadership, personnel management, and control (Witz and Stier, 2019).

Future Trends

The discipline of sports management is constantly evolving and changing. In the future, sports managers will face the impact of new technologies and digital transformation, requiring them to enhance their competencies in these areas (Millar and Doherty, 2021). Data analytics, artificial intelligence, digital marketing, and e-sports are some of the areas that will be crucial for sports managers. Additionally, issues like sustainability, diversity, and justice should be increasingly emphasized in the field of sports management (Muniz and Flamand, 2022; Ginting, 2023). Sports organizations are dealing with factors such as technological advancements, changing consumer behavior, and developments in global marketing. Therefore, it is important for sports managers to understand future trends and adapt to these changes (Cuneen, 2004).

Technological Advancements: Technology plays a significant role in sports management. New communication tools, data analytics, artificial intelligence, and virtual reality technologies assist sports organizations in enhancing customer experiences, improving operational efficiencies, and reshaping marketing strategies (Taylor, 2012; Ginting, 2023).

Marketing Strategies: Marketing strategies are critical to the success of sports organizations. In the future, target-specific marketing strategies that offer more personalized experiences to the audience will become increasingly important. Additionally, the use of new approaches such as digital marketing, social media engagement, and data analytics will rise.

Changes in Management Strategies: Sports organizations require a more flexible, innovative, and agile management approach. Future sports managers should embrace characteristics like teamwork, participation in decision-making processes, and rapid responsiveness, moving beyond traditional hierarchical structures. Strategic changes in sports management, particularly in leadership approaches and team management, are shaping the future trends in sports management (Costa, 2005).

Globalization: Globalization plays a significant role in sports management. Sports organizations seek opportunities to enter international markets, build global brands, and establish international partnerships. Therefore, future sports managers need to have skills in understanding cultural diversity, following global trends, and managing international relations (Rofe, 2016).

Young Generation of Sports Managers: The young generation of sports managers, who will be part of the future, has a different working style, with a focus on their own needs and expectations. Their proficiency in technology, work-life balance, social responsibility, and sustainability requires sports organizations to reassess their management

approaches and working conditions (Cunningham et al., 2005).

Environmental Sustainability: In recent years, environmental sustainability has become increasingly important for sports managers. Sports organizations are developing sustainability strategies in areas such as energy efficiency, waste management, and environmentally-friendly practices. Green stadiums, the use of recycled materials, and reducing environmental impacts are practices that enable sports organizations to act in an environmentally conscious manner. Future sports managers should embrace environmental sustainability principles and generate innovative solutions in this area (Mullin et al., 2007; Millar and Doherty, 2018).

Collaboration and Partnerships: Future sports managers must recognize the importance of collaboration and partnerships. Sports organizations have the opportunity to create synergy by collaborating with other institutions, brands, or communities. These partnerships can take various forms, such as resource sharing, merging marketing strategies, or engaging in social responsibility projects. Future sports managers should understand the significance of strategic partnerships and take an active role in developing appropriate collaborations (Brooks et al., 2016; Chadwick et al., 2017).

Understanding and adapting to future trends in the field of sports management is critical for the success of sports organizations. The importance of topics such as technological advancements, marketing strategies, management approaches, and globalization is increasing (Doherty and Cuskelly, 2020). Additionally, meeting the needs and expectations of the young generation of sports managers is a significant factor. Looking ahead, sports managers must follow these trends, develop new strategies, and adapt to the changing environment (Casper and Pfahl, 2015).

Career Opportunities in Sports Management

Sports management offers a wide range of career opportunities within the sports industry. Sports managers can work for various institutions, including both amateur and professional sports clubs, sports federations, stadiums and sports facilities, sports events, and other sports organizations (Millar and Doherty, 2021). Sports managers can hold diverse positions such as executive roles, organizational leadership positions, marketing managers, finance managers, human resources managers, facility managers, event managers, sponsorship managers, and more. Additionally, the increasing use of technology in sports management is noteworthy (Ginting, 2023). Technology has a significant impact on the organization, marketing, and consumption of sports events (Baker et al., 2016). For instance, the use of social media has enabled sports organizations to reach a broader audience and engage with fans in real-time. The use of data analytics has also helped sports organizations make data-driven decisions and enhance their performance (Kwon et al., 2007).

Sports management is an interdisciplinary field that plays a crucial role in the management of the sports industry. Sports managers are responsible for the management of sports clubs, sports events, sports complexes, and other sports organizations. They specialize in various functions, including finance, marketing, human resources, facility management, and other areas (Doherty and Cuskelly, 2020; Mathner and Martin, 2012).

METHOD

In this study, a literature review was conducted, and various academic sources, books, articles, theses, and other scientific publications were utilized. To ensure the reliability of the research, sources were primarily selected from reputable academic databases. No specific restrictions or time limits were applied. While determining the scanned sources, a comprehensive analysis was attempted by considering academic sources within the field of sports management as well as academic sources from stakeholders in public administration and management science disciplines. The compiled data were examined using methods such as content analysis and thematic analysis. Relevant topics and themes were identified, data were categorized, and analysis was carried out based on these categories. These analyses were conducted with the aim of providing information about the development, education, roles, responsibilities, and future trends in the field of sports management.

DISCUSSION AND CONCLUSION

While sports management has been a phenomenon in the world since ancient Greece, modern sports management emerged in late 19th-century England. The growth of sports organizations and the changing business landscape have led to numerous developments in the field of sports management (Commission on Sport Management Accreditation, 2009). In the 20th century, the United States played a crucial role in advancing the discipline of sports management through specialized education programs and degree courses (Adair, 2017). Sports organizations developed diverse management strategies, and functions such as marketing, finance, human resources, and others gained significant importance. In the 21st century,

sports organizations have harnessed technology to develop more sophisticated management strategies, with increased focus on sustainability, ethics, and social responsibility (Barnes and Gannon, 2023). Sports management is a discipline related to the application of fundamental management principles such as strategic planning, leadership, organization, and resource management in the context of the modern sports industry (Baker and Esherick, 2013). Sports management education plays a crucial role in the development of this discipline. Sports management programs aim to equip students with theoretical knowledge and practical skills related to the management of sports organizations (Mathner and Martin, 2012). In addition to courses covering business, marketing, finance, law, and communication, sports management programs also include specialized courses focusing on sports-specific topics such as leadership, team management, and strategic planning (Witz et al., 2019).

Looking ahead, it is evident that technological advancements will play a significant role in the field of sports management. Areas such as data analytics, artificial intelligence, digital marketing, and esports are among the prominent areas for sports managers. These technological advancements have the potential to enhance the efficiency of sports organizations, improve the customer experience, and optimize revenue opportunities. Furthermore, sustainability, diversity, and equity are expected to receive increased emphasis in the field of sports management. It is essential for sports organizations to operate in accordance with sustainability principles, reducing their environmental impact and fulfilling their societal responsibilities. Additionally, more actions need to be taken in the areas of diversity and equity. Sports managers should prioritize issues like equality, gender, and ethnic diversity to promote equal opportunities and fairness within sports organizations.

Moreover, sports management involves developing strategies to meet the needs of sports fans, athletes, and sports organizations, as well as managing resources to implement these strategies. Sports management offers various career paths for those aspiring to become sports managers.

In conclusion, the discipline of sports management is continuously evolving and changing. The rapid changes and growth in the sports industry have expanded the roles and responsibilities of sports managers. Sports management education serves as a crucial tool to help future sports managers enhance their professional skills. The importance of technological advancements, sustainability, diversity, and equity is expected to receive increasing emphasis in the field of sports management.

Ethical Approval

For this type of study, formal consent is not required.

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