An investigation into the information and communication technology skills and e-learning attitudes of students at the Faculty of Sports Sciences

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ABSTRACT

The aim of this study was to investigate the information and communication technology skills of students at Faculty of Sport Sciences and their attitudes towards e-learning according to different variables. The sample of the study consisted of 379 volunteer students studying at the Faculty of Sport Sciences in 2020-2021 academic year. The data of the study were obtained online through Personal Information Form, Information and Communication Technology (ICT) Skills Scale (Haznedar, 2012) and Attitude towards E-Learning Scale (Haznedar and Baran, 2012) using Google Forms. In the analysis of the data, independent samples T-Test was used for paired comparisons and One-Way Variance Analysis tests for multiple comparisons. As a result of the analysis performed, a significant difference was found in some sub-dimensions of information and communication technology skills and attitudes towards e-learning scales according to the variables of class level, working type, having a personal computer, access to internet and learning style.

Keywords: Faculty of Sport Sciences, university students, information and communication technology, skill, e-learning, attitude.

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INTRODUCTION

Today, Information and Communication Technology (ICT) is getting more and more attention each day as it ensures the flow of information and thought in the globalizing world. Technological tools that allow for this flow of information and thought in a rapid way are called "information and communication technology". Information and communication technologies include all kinds of visual, audio, printed and written tools that enable access to and creation of information (Çavaş et al., 2004). The contribution of information and communication technologies to sports and educational sciences, as in every field of life, is too apparent to be ignored. Therefore, students in educational institutions must keep up with information and communication technology and integrate it in all areas of their lives (Sincar and Aslan,

2011). A student who integrates ICT into his life in the best possible way can potentially be among the pioneers of his field and profession.

Together with the changes and advancements in computer technology, field-specific concepts such as information technologies, communication technologies and information and communication technologies have taken their place in the literature and started to be used today (Günbatar, 2014). This era is referred as digital age or information age, and it is considered essential to make use of information and communication technologies while raising individuals who are compatible with the needs of the age (Bülbül and Çuhadar, 2012).

Technology has also started to occupy a growing place in the education system, which is one of the most

important areas of community life. For this reason, many institutions and organizations, starting from the first stage of education to higher education, include more technologies and they construct or restructure their education systems accordingly (Sivrikaya and Biricik, 2019).

This progression in technology has led to the emergence of the concept of e-learning, which is the abbreviation of electronic distance learning within educational terminology.

Distance education is a teaching method in which communication and interaction between those who plan and implement educational activities and learners have to be ensured from a particular centre through specially prepared teaching units and various mediums under the circumstances in which class activities are not possible because of the limitations in traditional learning-teaching methods. Hence, today, the practice of distance education has started to become widespread in the form of e-learning (Demirel, 2009). There exist various definitions provided for the concept of e-learning. E-learning is defined as a web-based education system presented on a platform with internet/intranet or a computer network (Aytaç, 2003). According to another definition, e-learning can be described as the educational activities carried out through internet technologies without the need for teachers and students to be in the same environment simultanously (İşman et al., 2003).

Nowadays, a great number of schools and universities offer education through e-learning and so provide their students the opportunity to save money and time (Dikbaş, 2006). Therefore, while e-learning is an effective teaching and learning tool that has become increasingly important in today's educational environments, the attitude factor affecting the use of e-learning is an issue that needs to be examined. Information and communication technology skills, on the other hand, are regarded as a feature that directly affects the e-learning process. However, the effective use of e-learning depends on how positive the users are towards e-learning rather than how advanced the technology used in the e-learning environment is (Liaw et al., 2007). E-learning, depending on the design, can provide the student with the option of determining the duration of education and can create content suitable for the student's prior knowledge level (Yücel, 2006). In this method, students' interests in and attitudes towards learning in e-learning environment requires great attention since the responsibility for learning is largely on the student (cited in Haznedar, 2012).

The present study is of great importance as it will reveal the current situation by providing findings related to the advantages and disadvantages of information and communication technology for university students or as it will provide some insights for future studies to be conducted on its impacts. In this context, the study aimed to investigate information and communication technology skills and e-learning attitudes of students at the faculty of sports sciences according to different variables.

MATERIALS AND METHODS

In this section, the method of the study is presented through the details related to research design, the population and sample, data collection tools, data analysis together with statistical techniques in the study.

Research design

In the study, survey model, which is one of the quantitative research methods, was used. Survey model is a research method that aims to describe a past or present situation as it is. The case, individual or object that is the subject of the research is tried to be defined in its own conditions and in the way as it is (Karasar, 2007).

Population and sample of the study

The study population consists of students studying at the Faculty of Sport Sciences in 2020-2021 academic year. In the study, there was not a process of sample selection since the whole population was tried to be reached. Accordingly, the participants of the study was comprised of a total of 379 volunteer students consisting of 200 male and 179 female students from 16 different universities, who filled in the data collection tools completely and agreed to participate in the study voluntarily. The mean age of the group is 21.09 ± 2.18 years.

Data collection tools

In the study, a questionnaire was used as the data collection tool. The first part of the questionnaire includes personal information form that will descriptively reveal the demographic information of students and their use of information and communication technology while there exists information and communication technology skill scale in the second part and the attitude towards e-learning scale in the third part.

Personal information form

A personal information form consisting of 19 questions was prepared by the researchers in order to reveal the demographic information of the students and their use of information and communication technologies.

Information and communication technology (ICT) skills scale

ICT Skills Scale developed by Wilkinson, Roberts and

While (2010) and adapted to Turkish with its validity and reliability studies by Haznedar (2012) was utilised in the study. The scale consisting of 28 items comprises three sub-dimensions namely "Information technologies", "Communication technologies", and "Mobile technologies". This scale benefited to measure students' information and communication technology skills was a 5-point likert type scale including scoring options such as "strongly disagree"(1), "disagree"(2), "undecided" (3), "agree" (4) and "strongly agree" (5). In the development process of the scale, Cronbach's α reliability coefficient for all of the scale was found to be 0.93. Since the scale has 28 items, the lowest score to be obtained from the scale is 28 while the highest score is 140.

Attitude towards e-learning scale

Attitude Towards E-Learning Scale developed by Haznedar and Baran (2012) was used in the study. The scale consisting of 20 items contains two sub-dimensions namely "tendency towards e-learning" and "avoidance from e-learning". The scale employed to evaluate the students' attitudes towards e-learning is a 5-point likert type scale including the scores 1 for "strongly disagree", 2 for "disagree", 3 for "undecided", 4 for "agree" and 5 for "strongly agree". The items numbered 1, 5, 6, 7, 9, 12, 15, 16, 17 and 20 belonged to the sub-dimension of tendency towards e-learning and the items numbered 2, 3, 4, 8, 10, 11, 13, 14, 18 and 19 to the avoidance from e-learning sub-dimension. The items in the avoidance from e-learning sub-dimension were reverse scored. In the development process of the scale, the Cronbach's α reliability coefficient of the "tendency towards e-learning" sub-dimension was found to be 0.93; it was 0.84 for the avoidance from e-learning sub-dimension and 0.93 for all

of the scale. Since the scale consists of 20 items, the lowest score to be obtained from the scale is 20 and the highest score is 100.

Data collection process

In the study, the students of the Faculty of Sports Sciences were asked to participate in the study voluntarily and the forms were designed on the 'Google Form' application and the questionnaires were collected online between the dates of 08 April to 16 June 2020.

Data analysis

As a result of the normality tests performed in the study, the descriptive data analysis, Independent Sample T-Test for paired comparisons and One-Way Variance Analysis for multiple comparisons were performed. The analysis of the data was evaluated at 95% confidence interval and $p < 0.05$ significance level.

FINDINGS

According to Table 1, of the students participating in the study, 200 were male while 179 of them were female. 344 of them were in 18-23 age range, 31 in 24-29 age range and four of them were aged between 30 and 35. As for the departments, 94 of them were students in coaching department, 101 of them in PE and sport teaching department, 35 in recreation and 149 in sports management department. Finally, this participant group consisted of 122 freshmen, 150 sophomores, 51 juniors and 56 seniors.

Table 1. Demographic information.

Variables		N	%
Gender	Male	200	52.8
	Female	179	47.2
Age	18-23	344	90.8
	24-29	31	8.2
	30-35	4	1.1
Department	Coaching	94	24.8
	Physical Education and Sport (Teaching)	101	26.6
	Recreation	35	9.2
	Sports Management	149	39.3
Class level	Freshmen (1st year)	122	32.2
	Sophomores (2nd year)	150	39.6
	Juniors (3rd year)	51	13.5
	Seniors (4th year)	56	14.8
Total		379	100.0

As can be seen in Table 2, there was no significant difference in the sub-dimensions of attitudes towards e-learning scale according to the year variable of the students participating in the study, whereas a significant difference was observed in all of the sub-dimensions of information and communication technology skills. Table 3 demonstrates that no significant difference was found in the sub-dimensions of the

Table 2. Anova test results of ICT skills and attitude towards e-learning scales according to the class level variable.

Scales	Sub-dimensions	Class level	N	Mean	Std. deviation	F	Sig.	Difference
Information and communication technology skills	Information technologies	Freshmen	122	49.28	17.15	2.816	.039*	1-4 2-4
		Sophomores	150	48.41	18.91			
		Juniors	51	52.66	17.95			
		Seniors	56	55.82	15.16			
	Communication technologies	Freshmen	122	30.92	9.51	3.729	.012*	2-3 2-4
		Sophomores	150	29.37	10.57			
		Juniors	51	32.80	7.75			
		Seniors	56	33.78	7.18			
	Mobile technologies	Freshmen	122	21.59	6.39	3.724	.012*	2-1 2-3 2-4
		Sophomores	150	19.91	7.10			
		Juniors	51	22.15	4.75			
		Seniors	56	22.71	4.74			
	General ICT skills	Freshmen	122	101.81	29.25	3.919	.009*	1-4 2-3 2-4
		Sophomores	150	97.70	33.22			
		Juniors	51	107.62	24.41			
		Seniors	56	112.32	23.06			
Attitude towards e-learning scale	Tendency	Freshmen	122	26.80	10.37	1.902	.129	
		Sophomores	150	24.02	11.25			
		Juniors	51	23.43	12.00			
		Seniors	56	24.75	9.40			
	Avoidance	Freshmen	122	31.37	9.51	1.420	.237	
		Sophomores	150	31.67	11.35			
		Juniors	51	31.76	10.86			
		Seniors	56	34.67	9.64			
	General attitude towards E-learning	Freshmen	122	58.18	11.60	1.954	.120	
		Sophomores	150	55.69	13.52			
		Juniors	51	55.19	14.89			
		Seniors	56	59.42	8.85			

Table 3. Independent samples t-test results of ICT skills and attitude towards e-learning scales according to the working type variable.

Scales	Sub-dimensions	Working type	N	Mean	Std. deviation	t	p
Information and communication technology skills	Information Technologies	Individual	218	52.70	17.55	3.003	**.003***
		Group	161	47.18	17.78		
	Communication technologies	Individual	218	31.34	9.58	.859	.391
		Group	161	30.49	9.50		
	Mobile technologies	Individual	218	21.41	6.35	.875	.382
		Group	161	20.83	6.37		
	General skills	Individual	218	105.47	29.65	2.249	**.025***
		Group	161	98.52	29.79		
Attitude towards e-learning scale	Tendency	Individual	218	25.47	10.69	1.095	.274
		Group	161	24.22	11.07		
	Avoidance	Individual	218	31.94	10.13	-.190	.849
		Group	161	32.15	10.98		
	General attitude	Individual	218	57.41	12.28	.782	.435
		Group	161	56.38	13.00		

Table 4. Independent samples test results of ICT skills and attitude towards e-learning scales according to having a personal computer.

Scales	Sub-dimensions	Having a PC	N	Mean	Std. deviation	t	p
Information and communication technology skills	Information technologies	Yes	186	56.69	15.36	7.257	**.000***
		No	193	44.25	17.96		
	Communication technologies	Yes	186	33.26	8.38	4.698	**.000***
		No	193	28.79	10.09		
	Mobile technologies	Yes	186	22.06	5.70	2.731	**.007***
		No	193	20.30	6.83		
	General skills	Yes	186	112.03	25.85	6.419	**.000***
		No	193	93.35	30.67		
Attitude towards e-learning scale	Tendency	Yes	186	26.59	10.95	2.934	**.004**
		No	193	23.35	10.55		
	Avoidance	Yes	186	31.07	10.33	-1.752	.081
		No	193	32.95	10.58		
	General Attitude	Yes	186	57.67	11.81	1.055	.292
		No	193	56.31	13.29		

attitude towards e-learning scale according to the working type variable. However, there was a significant difference in information technologies and general skills sub-dimensions of ICT skills scale.

As is seen in Table 4, according to the variable of having a personal computer of the students participating in the study, a significant difference was found in both the tendency towards e-learning sub-dimension of attitudes towards e-learning scale and in all of the sub-dimensions of ICT skills scale.

Table 5 indicates that according to the variable of the participating students' access to internet at home, a

Table 5. Independent samples test results of ICT skills and attitude towards e-learning scales according to access to internet at home.

Scales	Sub-dimensions	Internet access at home	N	Mean	Std. deviation	t	p
Information and Communication Technology Skills	Information technologies	Yes	255	54.14	16.00	5.860	**.000**
		No	124	42.58	18.93		
	Communication technologies	Yes	255	32.94	8.22	5.471	**.000**
		No	124	26.95	10.77		
	Mobile technologies	Yes	255	21.98	5.58	3.283	**.001**
		No	124	19.50	7.47		
	General skills	Yes	255	109.07	25.62	5.896	**.000**
		No	124	89.03	33.37		
Attitude towards E-Learning Scale	Tendency	Yes	255	25.93	10.97	2.610	**.010**
		No	124	22.91	10.37		
	Avoidance	Yes	255	31.30	10.38	-1.920	.056
		No	124	33.52	10.60		
	General Attitude	Yes	255	57.24	12.05	.561	.576
		No	124	56.43	13.66		

significant difference was found in both the tendency towards e-learning sub-dimension of attitudes towards e-learning scale and in all of the sub-dimensions of ICT skills scale.

According to Table 6, no difference was found in the sub-dimensions of ICT skills scale according to learning styles of the participating students. On the other hand, there was a significant difference in the tendency towards e-learning and avoidance from e-learning subdimensions of attitudes towards e-learning scale.

DISCUSSION

This study aimed to investigate the information and communication technology skills of students at Faculty of Sport Sciences and their attitudes towards e-learning according to different variables. The findings of the study suggested that while there was no significant difference in the sub-dimensions of attitudes towards e-learning, a significant difference was found in all of the sub-dimensions of ICT skills according to the class level variable. It was seen that as the students progressed each year, their level of information and communication skills increased. Similarly, in the literature, the study conducted by Haznedar (2012) revealed that as the class level increased, the information and communication technology skills of the students also increased. This was explained by the fact that the students made use of the information and communication technologies throughout their education period and thus improved their skills. In

other studies as well such the ones by Özmusul (2008) and Usluel (2007), there was a significant difference between the students' class level and their level of using information and communication technologies. These results are in parallel with the findings reported in the present study. When it comes to e-learning, however, according the class level variable, it was reported that as the class levels of university students increased, their attitudes towards e-learning also increased, which shows that the education they received had a positive effect on their attitudes towards e-learning (Haznedar, 2012). This finding contradicts with the one in this study.

Another finding of the study indicated that no significant difference was found in the sub-dimensions of the attitude towards e-learning scale according to the working type variable whereas there was a significant difference in information technologies and general skills sub-dimensions of ICT skills scale. This significant difference appears to occur in individual working situations. This suggested that students' motivation increase when they study alone.

Additionally, it was also found that according to the variable of the participating students' having a personal computer and access to internet at home, a significant difference was found in both the tendency towards e-learning sub-dimension of attitudes towards e-learning scale and in all of the sub-dimensions of ICT skills scale. This significant difference suggests that when students have their own computer and internet, they use information and communication skills and use e-learning more efficiently.

Table 6. Anova test results of ICT skills and attitude towards e-learning scales according to learning styles.

Scales	Sub-dimensions	Learning Style	N	Mean	Std. Deviation	F	Sig.	Difference
Information and communication technology skills	Information technologies	Visual	196	51.50	17.56	1.483	.228	
		Auditory	106	47.85	17.99			
		Tactile/Kinesthetic	77	50.90	18.20			
	Communication technologies	Visual	196	31.15	9.59	.149	.862	
		Auditory	106	30.55	9.63			
		Tactile/Kinesthetic	77	31.15	9.42			
	Mobile technologies	Visual	196	21.43	6.23	.361	.697	
		Auditory	106	20.84	6.57			
		Tactile/Kinesthetic	77	20.93	6.43			
	General ICT skills	Visual	196	104.09	29.54	.910	.403	
		Auditory	106	99.26	30.19			
		Tactile/Kinesthetic	77	103.00	30.31			
Attitude towards e-learning scale	Tendency	Visual (1)	196	27.62	10.88	13.449	**.000***	**1-2** **1-3**
		Auditory (2)	106	22.59	10.16			
		Tactile/Kinesthetic (3)	77	21.36	10.04			
	Avoidance	Visual (1)	196	30.47	10.05	4.936	**.008***	**1-2** **1-3**
		Auditory (2)	106	33.15	10.47			
		Tactile/Kinesthetic (3)	77	34.46	11.08			
	General attitude towards E-learning	Visual	196	58.09	13.15	1.607	.202	
		Auditory	106	55.74	10.77			
		Tactile/Kinesthetic	77	55.83	13.31			

Finally, it was revealed in the study that there was no difference in the sub-dimensions of ICT skills scale according to learning styles of the participating students. However, there was a significant difference in the tendency towards e-learning and avoidance from e-learning sub-dimensions of attitudes towards e-learning scale.

In the literature, it was concluded that according to the variables of experience in the use of computers, frequency of internet use and reasons to use ICT, the ICT skills of university students increase as their computer use experiences, frequency of internet use and the reasons to use ICT increase (Haznedar, 2012). Also, according to

the experience in the use of computers, it was found that there was no significant difference in the attitudes of university students towards e-learning. It was also stated that there was a significant difference between the attitudes of university students towards e-learning according to the frequency of using the Internet, and the

attitudes of students towards e-learning increased as the frequency of internet use increased (Haznedar, 2012). In addition, Haznedar (2012) stated that the attitudes of university students towards e-learning significantly differed according to the working type.

In the study conducted by Yirci and Aydoğar (2017), it was revealed that there was a significant difference in the total score and sub-dimensions of information and communication technology skills scale according to the variable of students' faculties. Considering the attitude scores obtained, they stated that the attitude scores of the students studying in the Faculty of Education, Faculty of Medicine and the Faculty of Engineering and Architecture are higher than the university students studying in the other faculties.

In fact, in most of the studies conducted, internet-based education aimed at physical education and sports, learning physical exercises and the rules was observed and there also exist studies conducted with internet, computer use and web-based softwares for both making measurements and increasing the performance efficiency by using technological developments (Huang et al., 2010; Huang et al., 2011; Ohuruogu et al., 2019; Quijada, 2015; Iheanacho et al., 2013).

As a result, the use of computers and internet has become an indispensable part of today's modern world. Therefore, to improve ourselves by making the best use of this situation and to use the technology in the best way will always keep us one step ahead.

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