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Examination of E-Learning Readiness Levels of University Students for Theoretical and Practical Courses

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Ethical Statement: It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited.

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Abstract

This research was conducted to examine the e-learning readiness levels of university students who were subjected to distance education during the COVID-19 pandemic process regarding the theoretical and applied courses. The sample of the study consisted of 65 sports sciences faculty students studying in the spring semester of the 2020-2021 academic year. In the experimental study, students who took applied "athletics" and theoretical "sports sociology" courses formed the experimental group. The "Readiness for E-learning self-assessment scale" was used as data collection tool. Frequency, t tests, and Kruskal Wallis tests were used to analyze the data. According to the research findings, a positive increase was seen in the attitudes of university students with technology access, online relationships, online skills, technical skills, motivation, and the importance of success. The attitudes of the students who studied the theoretical "sociology of sports" course were high compared to those who took a meaningfully practical "athletics" course. As a result of the research; it was understood that attitudes towards distance education increased, there was no difference according to gender and it was more effective in theoretical course contents. In line with these results, it can be suggested that theoretical courses can be taught via distance education.

Keywords: E-learning, self-assessment, theoretical course, applied course, distance education.

Üniversite Öğrencilerinin Teorik ve Uygulamalı Derslere Yönelik E-Öğrenmeye Hazırbulunuşluk Düzeylerinin İncelenmesi

Özet

Bu araştırma, COVID-19 pandemisi sürecinde uzaktan eğitime tabi tutulan üniversite öğrencilerinin teorik ve uygulamalı derslere ilişkin e-öğrenmeye hazırbulunuşluk düzeylerinin incelenmesi amacıyla yapılmıştır. Araştırmanın örneklemini 2020-2021 eğitim-öğretim yılı bahar döneminde öğrenim gören 65 spor bilimleri fakültesi öğrencisi oluşturmuştur. Deneysel çalışmada deney grubunu uygulamalı "atletizm" ve teorik "spor sosyolojisi" derslerini alan öğrenciler oluşturmuştur. Veri toplama aracı olarak "E-öğrenmeye Hazırbulunuşluk Öz Değerlendirme Ölçeği" kullanılmıştır. Verilerin analizinde frekans, t testleri ve Kruskal Wallis testleri kullanılmıştır. Araştırma bulgularına göre üniversite öğrencilerinin teknolojiye erişim, çevrimiçi ilişkiler, çevrimiçi beceriler, teknik beceriler, motivasyon ve başarının önemi ile ilgili tutumlarında olumlu bir artış görüldü. Teorik "spor sosyolojisi" dersini alan öğrencilerin tutumları, anlamlı düzeyde uygulamalı "atletizm" dersini alan

öğrencilere göre daha yüksek çıkmıştır. Araştırma sonucunda; uzaktan eğitime yönelik tutumların arttığı, cinsiyete göre farklılık olmadığı ve teorik ders içeriklerinde daha etkili olduğu anlaşılmıştır. Bu sonuçlar doğrultusunda teorik derslerin uzaktan eğitim yoluyla işlenmesi önerilebilir.

Anahtar Kelimeler: E-öğrenme, öz değerlendirme, teorik ders, uygulamalı ders, uzaktan eğitim.

INTRODUCTION

COVID-19 illness produced by the new type of coronavirus (SARS-CoV-2) emerged in Wuhan, China in December 2019. The virus, with a high transmission rate, has affected the whole world, especially European countries (31). In this process, to reduce the spread of infectious diseases in society by breaking the significant chains of transmission, the suggestions of educational institutions not to continue education face-to-face were considered. In this context, to reduce the spread of the COVID-19 pandemic, formal and non-formal education institutions in most countries have temporarily suspended education. T.R. Ministry of Health after their formal education in schools that had seen the first cases of coronavirus in Turkey on March 11, 2020 was closed temporarily as of March 25, 2020 on Thursday (16). While universities made their existing distance education systems available to all students during the coronavirus pandemic, educational institutions that did not have a distance education system tried to interchange with distance education by developing a new infrastructure. In this regard, primary, secondary, and higher education institutions completed the 2nd semester of the 2019-2020 academic year with the distance education model. The distance education method was used mainly for theoretical lessons in the term before the coronavirus pandemic. For this reason, while the theoretical lessons conducted after the pandemic can be easily performed; it has been a bit difficult to carry out in practical courses (18). With the decision of the senate, Niğde Ömer Halisdemir University decided to maintain the teaching with distance education in the 2020-2021 academic year.

Since education is a service that the state will provide fairly to all its citizens, it is an important process that must be continued without interruption. Especially in primary and secondary education where compulsory education is applied, different methods such as bussed education, boarding school or distance education can be used when educational institutions cannot be opened or when individuals cannot go to educational institutions. The easiest of these methods is the distance education model (18). Distance education is a model that requires a student-centered, independent learning and management culture based on information and communication technologies. Different information communication has to take place between students, teachers, administrators and even technical staff. The success of a student in face-to-face education does not mean that he/she will be successful in the distance education process. Internet-based distance education has started to become widespread recently, and many experts have begun to question whether or not distance learning students are prepared to be successful in this ambiance (29).

Distance education is an innovative education model that is independent of time and place, and entirely carried out in virtual environments, where students and teachers do not have to be together. Distance education can be used for all education levels (11, 28). In this education model, students and teachers are not in the same environment. Learning and teaching activities can be carried out with tools such as classical postal services and communication technologies (17). Lessons conducted with distance education can be conducted interactively or without interaction. When the lessons are conducted interactively, the students and the teacher can make live questions and answers with each other in the virtual class environment. When the lessons are conducted without interaction, the student can access the lessons from anywhere, anytime, and use the course materials such as video and audio recording previously uploaded to the system (25). Distance education has become a part of the current education system in the current period. Distance education enables teachers to transfer information to students and was brought in a position to support the development of students by all stakeholders (23). Soon, it is thought that distance education will become the main body of education rather than an alternative or supportive role to face-to-face education (27).

There is much research in the literature that examines students' views on distance education. Doğan & Tatık (10) stated in their research that students' views were mostly negative about distance education. The students stated that they were not technologically supported by their teachers and they could not receive feedback on their learning. In another study, Barış (4) stated that students who have access to computers and the internet have more favorable attitudes toward distance education compared to students who do not.

When the studies on different disciplines are examined; Serçemeli & Kurnaz (25) determined that although students studying accounting did not have any problems in using distance education, they did not adopt distance education much. Re-watching video recordings, saving time, and flexible education opportunities are considered positive aspects of distance education. It has been determined that distance education also includes problems such as not being able to access technological devices and teachers and feeling excluded from the social environment. When the studies in the field of sports sciences are examined, Aras & Karakaya (3) investigated the perspectives of instructors in the field of sports sciences on distance education. As a result, academicians have come to the view that distance education is not an choice to formal education but a complementary nature. They stated that it eliminates the disadvantages of especially national team athletes who cannot attend the classes. It has been important to increase the knowledge level of academicians in this education system, which is effective in teaching theoretical subjects.

Due to the continuation of the pandemic process, teaching will be continued with distance education. Based on this, it is aimed to investigate the level of e-learning readiness of students studying at the Faculty of Sports Sciences according to the theoretical and practical content of the course. When the literature is investigated, it is seen that distance education has benefits and damages. The most striking feature of these is that distance education is more applicable in theoretical courses (2-3, 13, 18, 21, 32). Aras & Karakaya (3) think that distance education is complementary to face-to-face education, and Telli & Altun (27) think that distance education can be an alternative to face-to-face education. Studies in the literature have been conducted using scanning or qualitative methods. It is thought that the findings obtained from this experimental research will be important.

METHOD

Research Model

This research is a pre-test – post-test quasi-experimental model without control group (7). It is a research pattern that is frequently preferred in educational research and where it is not possible to equalize the participants (12). The experimental groups consisted of 3rd grade students of physical education teaching who took sports sociology course and 3rd grade students of the coaching education department who took athletics course. The experiment process lasted 14 weeks depending on the academic calendar. The lessons were conducted interactively on the "Microsoft Teams" platform.

Research Group

The students who attended the "athletics" course, conducted practically at the undergraduate level, and the "sports sociology" course, conducted theoretically, were selected purposively. 65 students were included in the study conducted in the 2020-2021 spring semester. It is an appropriate experimental approach to have 30 individuals in research experimental groups (8). Since the experimental groups meet this criterion, the sample was found to be sufficient.

Table 1. Characteristics of the participants

Variable	Sub categories	n	%	Total (n)
Experimental group	Practical course	32	49.2	65
	Theoretical course	33	50.8	
Gender	Male	40	61.5	
	Female	25	38.5	
Licensed athlete	Yes	24	36.9	
	No	41	63.1	
Income rate	Below 1100 TL	28	43.1	
	1101 – 2400 TL	20	30.8	
	2401 – 4500 TL	13	20.0	
	Over 4501 TL	4	6.2	

Data Collection Tools

In the research, knowledge form including socio-demographic characteristics and E-learning readiness scale were used.

Readiness Self-Assessment Scale for E-Learning

The scale developed by Watkins, Leigh, and Triner (30) was adapted to Turkish by Kalelioğlu and Baturay (19). The 25-item scale consisting of positive statements includes 6 dimensions in total. These are technology access, online relationships, online skills, technical skills, motivation, and the importance of success. While the scores that can be obtained from the scale based on the total score are 25-125, the average score varies between 1-5. Cronbach's alpha internal consistency coefficients of the scale were found as .80 for technology access, .78 for technical skills, .80 for online relationships, .84 for motivation, .75 for online skills, and .64 for the importance of success. The variance explained by the scale as a result of the eigenvalues of the factors is 61.54%. Scale factor loads range between .575 - .797.

Collection of Data

The work was started by the acquisition of an ethical report from the Scientific Research and Publication Ethics Committee of Niğde Ömer Halisdemir University University (DECISION-2020 / 12-04 dated 31.12.2020 and numbered 86837521-050.99-E.58969). The data were collected electronically by mail.

Data Analysis

Data was tested with reference values of -1.96 and +1.96 for normal distribution, which was loaded into the SPSS (Ver: 21.0) statistical package program (6). "Pre-test" (skewness .496; kurtosis - .614) and "post-test" (skewness .565; kurtosis -. 293) findings are compatible with normal distribution. While frequency, percentage, standard deviation, and arithmetic mean ($\bar{x}$) values were taken into account in the analysis of the data, the error level was determined as .05. Since the data showed a normal distribution, a t-test was used to compare the experimental groups. In the comparison of gender, the non-parametric Mann-Whitney U test was used since there were not 30 people in the groups. In addition to the normal distribution of the data, parametric tests provide more meaningful results if there are at least 30 people in the groups (9).

FINDINGS

Table 2. E-learning readiness levels of students

E-learning readiness scale	n	pre-test		post-test		t	p
		$\bar{x}$	sd	$\bar{x}$	sd		
Technology access	65	3.261	0.741	3.323	0.716	-2.824	0.006*
Technical skills	65	3.123	1.053	3.476	0.776	-5.204	0.000*
Online relationships	65	4.372	0.437	4.553	0.380	-5.227	0.000*
Motivation	65	3.253	0.744	3.823	0.615	-8.048	0.000*
Online skills	65	3.276	0.898	3.882	0.599	-7.792	0.000*
The importance of success	65	3.220	0.948	3.694	0.699	-6.440	0.000*
E-learning readiness	65	3.452	0.717	3.830	0.524	-7.941	0.000*

While there is a positive attitude in the online relationships dimension in Table 2 pre-test findings, the students have a moderate attitude in the other dimension and the scale. In the post-test findings, attitudes increased significantly in all dimensions and throughout the scale. Students are moderate in technology accessibility. They have positive attitudes on motivation, good technical skills, online skills, the importance of success, and overall scale. They have a very good attitude towards online relationships.

Table 3. Comparison of e-learning readiness levels according to experimental groups

	Experimental group	n	$\bar{x}$	sd	t	p
Pre-test	Practical course	32	3.515	0.710	0.691	0.492
	Theoretical course	33	3.391	0.729		
Post-test	Practical course	32	3.690	0.600	-2.182	**0.033***
	Theoretical course	33	3.966	0.741		
Difference	Practical course	32	0.175	0.033	-4.893	**0.000***
	Theoretical course	33	0.574	0.073		

***p<0.05**

There is no difference in the scores of the student groups according to the pre-test conclusions (p>.49). There was a meaningful rise in the scores of the groups after the training provided (p <.03). When the groups

were compared with each other, the scores of the students who took courses with theoretical content were significantly higher than those who took lessons with applied content (p<.00).

Table 4. Comparison of e-learning readiness levels by gender

Variable	Gender	n	Average rank	Rank sum	U	p
Pre-test	Male	40	36.03	1441.00	379.00	.102
	Female	25	28.16	704.00		
Post-test	Male	40	35.45	1418.00	402.00	.186
	Female	25	29.08	727.00		
Difference	Male	40	31.23	1249.00	429.00	.337
	Female	25	35.84	896.00		

***p<0.05**

When Table 4 is investigated; according to the pre-test results, there is no difference in e-learning readiness attitudes according to gender (p>.10). At the end of the experiment, there was no significant change in attitudes according to gender within the group (p>.18). There was no meaningful change in the attitudes of students in the groups taking applied and theoretical courses (p>.33).

DISCUSSION

Before the education, it was observed that the students were very good at the level of online relations and in other dimensions they were at medium and good levels. In general, students have a favorable attitude towards e-learning above the intermediate level. In the evaluation made after the spring term distance education courses, there was a favorable increase in students' attitudes. There was a favorable change in the students' attitudes towards the conduct of two different courses with distance education and the students benefited from the education at a good level. Teachers participating in Tekin's (26) study expressed a positive opinion by emphasizing the flexible, individual and learner-centered features of distance education. In distance education, teachers stated that they teach in a comfortable, fun, interesting, exciting and free environment. In addition, teachers also expressed negative opinions, emphasizing the shortcomings of distance education, such as limited communication and interaction, and the passive role of the participants (26). Keskin & Özer Kaya (21) examined university students' views on web-based learning during the pandemic process. During this period, the time spent by students with technological devices increased 2 times. It is concluded that it has different effects for theoretical and practical courses. The majority of students defended that distance education is not as efficient as face-to-face education. In addition, although students claim that they can learn at their own pace during this education process, they stated that the permanence of this is not at a good level. Similar to the results of this study, there was a positive rise in the attitudes of the students who participated in our study. Still, the students' attitudes are not very well. This situation shows that distance education may have limits. It is thought that the limitations may arise from the quality and content of the courses. Since the practical courses are skill-based, the targeted skill will not develop with distance education. Considering that the self-awareness of university students may be high, it is normal for them not to create a positive attitude towards an educational approach where their skill level is not developed.

The attitudes of the students were similar in the test results before the experiment process. After the training, there was a favorable change in the attitudes of the students in both experimental groups. Especially, there was a significant increase in the attitudes of the students who took "sports sociology" course with a theoretical content. With the presentation of rich data sources to students, it has been shown that distance education has positive impacts on the learning of theoretical lessons. In the study of Keskin & Özer Kaya (21), while the theoretical knowledge level of the students increased at a moderate level with distance education, less improvement occurred in their knowledge based on professional practice skills. Keser & Karahoca (20) argued that engineering students successfully continue their project preparation course through distance education. Gürsul & Keser (15) found that university students studying mathematics online are more successful than those who receive face-to-face education in terms of task sharing, problem-solving, cooperation, and solution cooperation. Metin et al., (22) found that foreign language education through distance education was not beneficial for university students. In the study managed by Barış (4) with university students, the perspectives of students studying in health and technical sciences, including applied education, towards distance education are negative. In a study they conducted on the students studying at a

vocational school, Gömleksiz & Pullu (13) stated that while theoretical courses are beneficial in distance education, field and applied courses are not appropriate. In Yıldız's (32) study, university students, who continue their education with distance education during the pandemic process, achieve the purpose in the teaching of theoretical courses, while the same is not the case for practical courses. The inability to provide materials in applied courses where distance education is provided is an important problem. Due to the restrictions imposed by the COVID-19 outbreak measures, it has become difficult for students to obtain course materials. However, since the ban on going out is not always an event, it will not always be an obstacle to prevent distance education. For example, it is very difficult for students of chemistry or biology departments to collect experimental setup and equipment at home. Therefore, every applied course will not be able to be continued with distance education (18). In the research Altun Ekiz (2) conducted with students of physical education and sports schools, students welcomed the continuation of education during the pandemic process. However, they stated that this educational scope is more suitable for theoretical courses. Bayram et al., (5) found that health school students' attitudes towards the benefits of distance education were higher than physical education and sports school students. Aktaş et al., (1) in their study with students studying in sports sciences, concluded that the exams conducted with the distance education system did not rise their proficiencies, but the lecturers supported the students in this process. Three quarters of the students stated that if they were not in the isolation process, they would not prefer distance education. It is observed that sports science students who receive applied education are prone to face-to-face education. Unlike the literature, it can be said that the students participating in the research are prone to learning for both contents. Still, the study findings showed that attitudes in theoretical education are at a more positive level.

In our research pre-test findings, no significant difference was found in terms of gender, and the same situation was maintained at the end of the training process. There has been a positive increase in the attitudes of male and female university students towards e-learning. Although the scores of male students were high, the scores of women increased more after the training. Rather than gender in distance education, the variables such as the content of the course and students' having technology are important in success. Therefore, there are no significant differences of opinion in examining the attitudes of university students towards distance education (4, 14, 24). There is also a study that argues that female students have a more favorable attitude (5). Similar to these results, the scores of female students increased more in our study. All these results revealed that gender is not an important variable for distance education.

CONCLUSION

As a result of the research; with the exposure of students to distance education, students evaluated the process positively and their e-learning readiness attitude increased. No meaningful difference was found in terms of gender regarding distance education. University students who took the "sports sociology" course, whose course content was theoretical, had more positive opinions about distance education. Based on these results, it seems that interactive distance education can be an alternative to face-to-face education in theoretical courses. Distance education is complementary to practical courses rather than being an alternative to face-to-face education. It is thought that the distance education process, which started during the COVID-19 pandemic process, will continue to increase its effectiveness in the Turkish education system.

SUGGESTIONS

In this process, it is suggested that by determining the students' incomplete learning, if necessary, the negativities, can be eliminated via face-to-face training, and the study can be done on different samples and in multiple experimental groups. It is recommended that studies be conducted on different courses and larger samples to increase the generalizability of the findings of 65 students who attended two different courses.

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