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Investigation of university students' attitudes toward web-based distance education in terms of theoretical and applied courses during the COVID-19 pandemic period

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Abstract

University students had to switch from face-to-face education to web-based distance education (WBDE) owing to new coronavirus disease (COVID-19) pandemic. While theoretical courses can be provided properly with WBDE, it has been thought that applied courses cannot be sustained effectively by the same way. University students' attitudes toward WBDE regarding theoretical and applied courses taught in physiotherapy and rehabilitation department has not been investigated yet, which was therefore aimed in current study. This cross-sectional study included university students (n=180, 20.14±1.57 years) who still maintain actively WBDE at Izmir Democracy University, Physiotherapy and Rehabilitation Department. "Scale for Evaluating Students' Attitudes/Opinions/Thoughts Regarding Applied and Theoretical Courses in Distance Education" was generated by the researchers and performed through online platform. Scale comprised 26 items. Each item is scored as from 5 (completely agree) to 1 (strongly disagree). Proper factor analyses were performed and repeated until the items were found to be significant. Factor loads of final 16-item ranged from 0.27 to 0.84. All fit indices ($\chi 2/SD=1.42$) were within acceptable limits. One-dimensional structure of scale was confirmed with 16 items. Cronbach Alpha internal consistency coefficient was found to be 0.916, and total correlations of the items varied between 0.422 and 0.772. This scale was found to be highly reliable. Internal consistency between items was high. Maximum score obtained from scale is 80. Total score of students (39.91±10.97) showed that attitudes/opinions/ideas regarding theoretical and applied courses through WBDE were negative. These negative attitudes of students were same according to gender ($p>0.05$). Attitudes of university students studying at physiotherapy and rehabilitation department through WBDE regarding theoretical and applied courses were negative regardless of gender. This valid and reliable scale should be used to identify need of university students studying at applied sciences about WBDE. Advanced technology products should be urgently synchronized to WBDE.

Keywords: COVID-19, education, distance, physical therapy, students, attitude

1. Introduction

The COVID-19 infection caused by the new type of Coronavirus (SARS-CoV-2), which broke out in China in December 2019, spread all over the world in a short time due to its high contagious nature (1). According to the May 14, 2021 data of the World Health Organization, 160,813,869 confirmed cases and 3,339,003 deaths were recorded worldwide due to COVID-19 and 5,083,996 of these cases and 44,059 of the deaths were seen in Turkey (2). After the emergence of the first case in Turkey on March 11, 2020, many restrictions and bans such as lockdowns were put into effect in our society simultaneously with the rest of the world (3). The measures taken to reduce the spread of this infectious disease also included the closure of educational institutions (3). According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), face-to-face education, which involved 1.4 billion students worldwide, had to be suspended between February 16, 2020 and May 15, 2020 due to the virus (4). As in many countries, schools, universities, and other educational institutions in Turkey had to be closed temporarily. The Council of Higher Education in Turkey took action rapidly in this process and decided to continue the teaching process through distance education until the next decision (5). Following these developments, face-to-face education was suspended at all levels of education. It was decided to switch to distance education, postpone local and central exams, and introduce web-based tests in measuring and evaluating student achievement (5).

Studies conducted on web-based distance education (WBDE) during the COVID-19 pandemic process have shown different results. Although some of the university students have a negative perception of the COVID-19 pandemic, they have positive opinions about web-based distance education during this challenging pandemic period and are satisfied with the outcomes (6, 7). In fact, male students have found distance education lessons more effective and have been more satisfied with distance education (8). Although students and lecturers have adapted quickly to the pandemic process (9), university students want to continue their education through face-to-face education in terms of focusing on lessons and vocational applied courses as a result of their experiences during the COVID-19 process so far (7). On the other hand, some students want to continue their education with a mixed type of education that blends face-to-

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face and web-based distance education (10, 11). Some studies that included the physiotherapy and rehabilitation department have shown that students do not find web-based distance education, which is compulsory during the pandemic process, as effective as face-to-face education and that they do not prefer it because the efficiency of education has decreased (12, 13).

Universities in Turkey continue the education process through web-based distance education. However, while theoretical courses can be provided effectively through WBDE at universities, the case is not the same for applied courses. In addition, there are no studies in the literature evaluating university students' attitudes toward web-based distance education during the COVID-19 pandemic period in terms of applied and theoretical courses in the undergraduate program of the physiotherapy and rehabilitation department, where applied courses are as important as theoretical ones. For this reason, this study was conducted to investigate the attitudes of the students in the undergraduate program of the physiotherapy and rehabilitation department toward web-based distance education in terms of applied and theoretical courses.

2. Materials and Methods

Our study used a cross-sectional design. It was conducted in accordance with the principles of the Declaration of Helsinki and approved by the Izmir Democracy University Non-Interventional Clinical Research Ethics Committee with decision number 2021/03-5.

According to the inclusion criteria, students who were 18 years or older, volunteered to participate in the study, were attending online distance learning as a registered undergraduate program student at the Department of Physiotherapy and Rehabilitation in the Faculty of Health Sciences at Izmir Democracy University, and could understand and answer the questionnaires were included in the study. Exclusion criteria included freezing the undergraduate registration or dropping out of school and attending other departments. After the students who met the inclusion criteria were informed about the study, their consents were obtained.

The responses to the scale and other questions designed by the researchers were collected through Microsoft Forms. Within the scope of the study, the demographic data of the students (age, gender, height, body weight, body mass index, daily time spent on social media, and the status of having had COVID-19) were recorded.

The “Scale for Evaluating Students' Attitudes/Opinions/Thoughts Regarding Applied and Theoretical Courses in Distance Education”, whose items were prepared by researchers, was developed to evaluate students' perspectives on distance education and their attitudes towards conducting vocational applied courses and theoretical courses through web-based distance education. The first draft of the scale consisted of 26 items in total. Each item was scored on a five-point Likert-type scale using the following options: strongly agree (5), agree (4), undecided (3), disagree (2), strongly disagree (1). The scale did not have a cutoff point.

While creating the items of the scale, the problem was defined in the first stage. In the second stage, an item pool was created by reviewing the literature, and closed-ended questions were written. Then, the draft form of the scale was submitted to expert opinion in terms of suitability, and a pre-application form was created. In the last stage, the scale was given its final form by making the necessary changes according to the expert opinion. To measure the intelligibility and answerability of the items, the scale was first piloted to a small sample (n=10) (14).

2.1. Statistical analysis

Analyses were conducted by an expert statistician using the SPSS version 20.0 software package. Exploratory Factor Analysis (EFA) was conducted to determine the factorial structure and validity of the scale. The appropriateness of the sample size was evaluated using the result of Kaiser-Meyer-Olkin statistics, and the suitability of the data for factor analysis was evaluated with the Bartlett sphericity test. The internal consistency and reliability of the scale were determined by using the reliability coefficient (Cronbach's alpha) that varied between 0 and +1. A reliability coefficient that is close to 1 means that the reliability of the items and the internal consistency between them are high and acceptable. As a result of the factor analysis, the items with factor loading values that were lower than 0.30 were removed, and the factor analysis was repeated until the factor loadings of the items on the scale were found appropriate. Confirmatory Factor Analysis (CFA) was conducted to confirm the factorial structure of the remaining items as a result of the Exploratory Factor Analysis. As the multivariate normality assumption between the items was not met, parameter estimation was conducted by using the asymptotic covariance matrix with the Robust Unweighted Least Squares (ULS) method. As a result of this analysis, the analysis was repeated until the t values were found to be significant by removing the items with non-significant t values. Finally, the model-data fit of the scale was examined with the remaining single-factor items, and necessary care was taken to ensure that the scale was within acceptable limits (15-17).

According to the results of the scale obtained after validity and reliability analyses, descriptive statistics were represented using frequency (n), percentage (%), mean (x), standard deviation (sd), minimum (min.) and maximum (max.) values. The differences in scale scores by gender were analyzed by using Student's t-test. The probability of error in statistical analysis was determined as $p<0.05$.

3. Results

Table 1 presents the characteristics of the students.

3.1. Validity and reliability analyses

The Scale for Evaluating Students' Attitudes/Opinions/Thoughts in terms of Applied and Theoretical Courses in Distance Education, which consisted of 26 items rated using a five-point Likert-type structure, was administered to 180 students. Students scored the items on the scale with options ranging between 1 (strongly disagree) and 5 (strongly agree). However, in the analysis, 1,2,3,11,13,14,15,16,17,19,21,22,23,25, and 26th items had to be reversed as 5 (strongly disagree) and 1 (strongly agree). Accordingly, high scores on the scale showed that students found distance education positive and that low scores showed students evaluated distance education negatively.

Table 1. Demographic characteristics of the students

	University students (n=180) x±sd
Age (year)	20.13±1.57
Male/Female (n; %)	43; 23.9% / 137; 76.1%
Body weight (kg)	61.44±12.29
Height (m)	1.69±0.08
Body mass index (kg/m^2)	21.44±3.18
Daily time spent on social media (n; %)	
0-1 hour	14; 7.8%
1-2 hours	31; 17.2%
2-3 hours	57; 31.7%
>3 hours	78; 43.3%
Undergraduate period (n; %)	
2nd semester	77; 42.8%
4th semester	67; 37.2%
6th semester	36; 20%
Status of having had COVID-19 (n; %)	29; 16.1%

n: frequency, %: percentage, kg: kilogram, m: meter, COVID-19: new coronavirus disease

Table 2. The total variance values explained for the factor analysis of the scale

Factors	Eigenvalue	Explained variance %	Cumulative variance %
1	9.106	43.362	43.362
2	2.075	9.879	53.241
3	1.392	6.628	59.869
4	0.992	4.722	64.591
5	0.785	3.738	68.329
6	0.772	3.676	72.005
7	0.663	3.158	75.163
8	0.633	3.015	78.178
9	0.611	2.909	81.087
10	0.502	2.390	83.478
11	0.467	2.223	85.701
12	0.449	2.138	87.839
13	0.396	1.885	89.724
14	0.340	1.620	91.343
15	0.334	1.591	92.935
16	0.302	1.438	94.373
17	0.286	1.362	95.735
18	0.282	1.342	97.077
19	0.252	1.199	98.276
20	0.227	1.083	99.359
21	0.135	0.641	100.000
Kaiser-Meyer-Olkin sample adequacy: 0.918			
Chi-square Bartlett sphericity test= 2145,484 **SD=** 210, p<0.001			

%: percentage, SD: degrees of freedom

Since the factor loadings of the 10th, 14th, 17th, and 20th items in the EFA were found to be lower than 0.30, these items were removed from the scale, and EFA was performed for the second time. In the factor analysis, the factor loading of the 26th item was found to be low this time, and this item was also removed from the scale, and EFA was performed for the third time. All factor loadings were found to be appropriate in the factor analysis conducted on the remaining 21 items. The explained variance table regarding the factor analysis is shown in Table 2. A Kaiser-Meyer-Olkin (0.918) statistic value of greater than 0.50 indicates that the sample size is enough. The result of the Bartlett sphericity test also showed that the data were appropriate for factor analysis (Table 2, p<0.05). When Table 2 was examined, the 21-item scale was found to have three factors with an eigenvalue of greater than 1. However, when the eigenvalues and scree plot were examined, it was observed that the scale was dominated by a single factor (Fig. 1). As a result of EFA, which was limited to a single factor, it was observed that the scale measured 43% of the intended features (Fig. 1). The factor loadings, item-total correlations, and reliability coefficient of the 21 items on the scale are shown in Table 3. Factor loadings of all items were greater than 0.30 and ranged from 0.474 to 0.815. Item-total correlations were also greater than 0.40 and ranged from 0.433 to 0.784. The reliability coefficient of the 21-item scale showed high reliability and high internal consistency between the items, and it was found acceptable (Table 3).

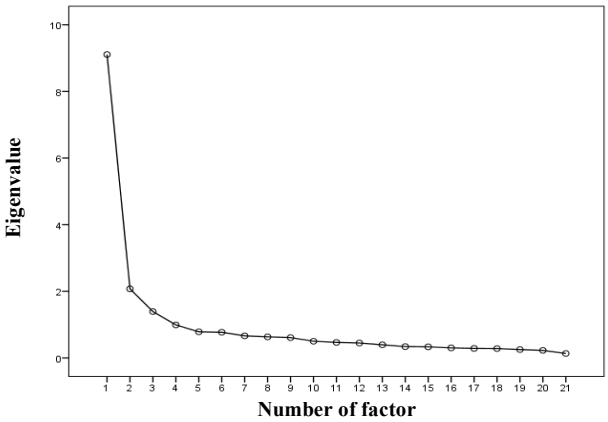

Fig. 1. Factor graph of eigenvalues

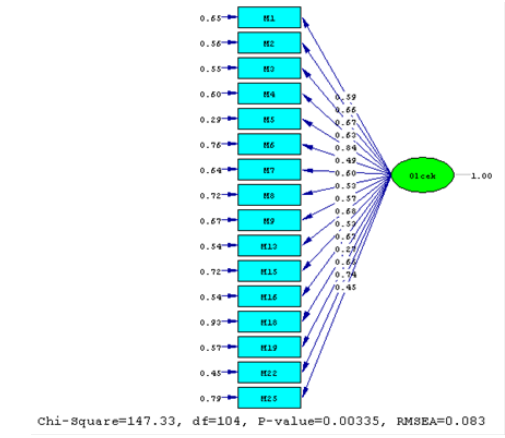

Fig. 2. Path graph for the remaining scale items

Table 3. Factor loadings of scale items and item-total correlations according to the results of exploratory factor analysis

Items	Factor loadings	Item-total correlations
1-I spend more effort understanding the applied lessons in distance education compared to the theoretical lessons.	0.614	0.545
2- It is more difficult to understand the applied lessons in distance education compared to other theoretical lessons.	0.679	0.614
3- I have difficulty in perceiving the extent of physical power to be applied in applied lessons in distance education.	0.720	0.657
4-I can easily understand the theoretical lessons in distance education by following them online.	0.645	0.626
5- I can easily understand the applied lessons in distance education by following them online	**0.815**	0.784
6- The increased number of videos or animations in applied lessons in distance education helps me grasp the subject.	0.482	0.455
7- I have been doing better in my lessons since the transition to distance education.	0.607	0.576
8-The resources and materials used in the theoretical courses in distance education are sufficient.	0.531	0.498
9-I can participate interactively in theoretical courses in distance education.	0.584	0.555
11-I feel I cannot do the same application myself after the applied lessons in distance education.	0.708	0.651
12-The possibility of accessing the theoretical lessons in distance education gets rid of my worries.	0.537	0.512
13-The delivery of the applied courses online in distance education prevents me from gaining experience.	0.707	0.646
15-Theoretical courses in distance education do not make us gain more knowledge than face-to-face education.	0.694	0.652
16-I believe that my success in applied courses will fall in distance education.	0.763	0.706
18- During the applied lessons in distance education, doing the lessons online by screen sharing makes me learn.	**0.474**	0.433
19- I get bored and have difficulty in understanding while listening to the theoretical lessons in distance education.	0.759	0.733
21- I feel that in the web-based distance education process, our opportunities to study in cooperation with instructors and classmates, to learn through discussion, and develop social relations are reduced.	0.672	0.619
22- I have concerns about evaluation and decision-making when a problem-based case study is given in distance education.	0.760	0.704
23-After returning to face-to-face education, I am not planning to participate in any online distance education.	0.515	0.484
24-I do not think that there is a change in my learning and understanding of both theoretical and applied courses in distance education.	0.683	0.636
25-I cannot practice by constantly thinking in applied lessons in distance education, and I cannot predict the results by following the patient or my peers.	0.730	0.674

Reliability coefficient: 0.932

As the multivariate normality assumption between the items was not met in the CFA, parameter estimation was conducted by using the asymptotic covariance matrix with the Robust Unweighted Least Squares (ULS) method. According to the results of the CFA, the t values of the 11th, 21st, and 24th items were not found to be significant, so they were removed from the scale. When CFA was performed for the second time with the remaining 18 items, the t values of items 12 and 23 were not found to be significant, so these items were removed, too, and the CFA analysis was performed for the third time. The t values on the remaining 16-item scale were found to be significant ($p<0.05$). Factor loadings, t values, and R^2 values of the scale items are shown in Table 4. Factor loadings ranged from 0.27 to 0.84. The path graph for the scale items is shown in Fig 2. The fit indices for the model-data fit of the single factor 16-item scale are shown in Table 5. All fit indices were within acceptable limits. Therefore, the one-dimensional structure of the scale was confirmed with 16 items. The reliability coefficient of the 16-item scale was found as 0.916, and item-total correlations were observed to vary between 0.422 and 0.772 (Table 6).

Considering all these results, the scale was found to be highly reliable, and the internal consistency between the items was high. The highest score that can be obtained from the scale is 80, and the lowest score is 16. As the score obtained from the scale increases, it means that attitudes toward distance education are positive, that is, the attitudes/opinions/thoughts of the students are positive in terms of applied and theoretical courses in distance education. As the score obtained from the scale decreases, attitudes toward distance education are considered negative. Items 4, 5, 6, 7, 8, 9, and 18 on the scale are scored as 1 (strongly disagree) and 5 (strongly agree). However, items 1, 2, 3, 13, 15, 16, 19, 22, and 25 are scored reversely as 5 (strongly disagree) and 1 (strongly agree).

Table 4. Confirmatory factor analysis results for scale items

Item number	Factor loadings value	R^2	t
1	0.59	0.35	4.90
2	0.66	0.44	5.38
3	0.67	0.45	5.97
4	0.63	0.40	4.94
5	**0.84**	0.71	9.73
6	0.49	0.24	3.69
7	0.60	0.36	5.47
8	0.53	0.28	4.07
9	0.57	0.33	5.01
13	0.68	0.46	6.13
15	0.53	0.28	4.10
16	0.67	0.46	6.71
18	**0.27**	0.07	2.04
19	0.65	0.43	6.09
22	0.74	0.55	7.06
25	0.45	0.21	3.78

3.2. Results of the scale in terms of the students

The students' total scores (x±sd: 39.91±10.97; min.: 16; max.:74) showed that their attitudes/opinions/thoughts toward theoretical and applied courses through web-based distance education were negative. These negative attitudes of the students were similar by gender (female: 39.33±10.74, male: 41.77±11.6) (p=0.204).

Table 5. Fit indices for model-data fit of a single factor 16-item scale

Goodness of fit index	Acceptable limit *	Value
X^2/SD	<5 Orta düzeyde <3 İyi uyum	147.33/104 =1.42
GFI	>0.90	0.96
CFI	>0.90	1.00
NFI	>0.90	0.92
RFI	>0.85	0.91
RMSEA	<0.08	0.083

SD: degrees of freedom., RMSEA: Mean Square Root Error Estimation

Table 6. Total correlations of the remaining 16 items

	Item-total correlations
1-I spend more effort understanding the applied lessons in distance education compared to the theoretical lessons.	0.534
2- It is more difficult to understand the applied lessons in distance education compared to other theoretical lessons.	0.614
3- I have difficulty in perceiving the extent of physical power to be applied in applied lessons in distance education.	0.652
4-I can easily understand the theoretical lessons in distance education by following them online.	0.598
5- I can easily understand the applied lessons in distance education by following them online	**0.772**
6- The increased number of videos or animations in applied lessons in distance education helps me grasp the subject.	0.458
7- I have been doing better in my lessons since the transition to distance education.	0.566
8-The resources and materials used in the theoretical courses in distance education are sufficient.	0.485
9-I can participate interactively in theoretical courses in distance education.	0.556
13-The delivery of the applied courses online in distance education prevents me from gaining experience.	0.644
15-Theoretical courses in distance education do not make us gain more knowledge than face-to-face education.	0.652
16-I believe that my success in applied courses will fall in distance education.	0.714
18- During the applied lessons in distance education, doing the lessons online by screen sharing makes me learn.	**0.422**
19- I get bored and have difficulty in understanding while listening to the theoretical lessons in distance education.	0.703
22- I have concerns about evaluation and decision-making when a problem-based case study is given in distance education.	0.704
25-I cannot practice by constantly thinking in applied lessons in distance education, and I cannot predict the results by following the patient or my peers.	0.675
Confidence coefficient: 0.916	

4. Discussion

Both theoretical and practical courses have an important place in the education of students in the physiotherapy and rehabilitation department. In our study, it was determined that regardless of gender, the attitudes, opinions, and thoughts of the undergraduate students who were actively attending web-based distance education in the physiotherapy and rehabilitation department due to the COVID-19 pandemic about theoretical and applied courses were negative. Contrary to the results of our study, Orçanlı and Bekmezci reported that undergraduate students' perceptions about the COVID-19 pandemic were negative, but their perceptions about distance education carried out in this process were positive (6). Similarly, Terzi et al. found the general satisfaction level of students with an associate degree from distance education during the pandemic period was high (7). On the other hand, some university students stated that face-to-face education was more efficient in terms of focusing on the lesson and especially in terms of the adequacy of applied courses, and therefore they wanted to continue the lessons through face-to-face education method at the end of the COVID-19 process (7). Genç and Gümrükçüoğlu on the other hand, reported that postgraduate students in the field of theology generally had positive opinions about distance education during the pandemic process (9). According to the opinions of these students, despite the sudden transition to distance education, both students and instructors were able to adapt to the process in a short time (9). All these studies were carried out in the early periods when the uncertainty due to the pandemic process and the fear of death due to infection were higher. Our study, on the other hand, was carried out in the one-year aftermath of the onset of the COVID-19 pandemic. Therefore, the differences between students' opinions in our study and aforementioned studies, which addressed distance education during the pandemic process can be attributed to this increased experience with the pandemic, in which the psychological and physical negative effects of the pandemic became more evident. Both students and instructors have been able to fully adapt to the pandemic conditions during this prolonged process. However, the negative opinions of our students may have stemmed from the inability to do enough practice on individuals with real pathology and the lack of one-to-one control of the practices by instructors. Therefore, advanced technology products including robotic approaches should be adapted to web-based distance education. According to another study, male students found distance education courses more effective than female students, and male students were more satisfied with distance education (8). This result, which is contrary to the result of our study, may be related to the fact that the students in the reported study were undergraduate students in the field of tourism. The students of the physiotherapy and rehabilitation department come from schools focusing mainly on science education and this department is mostly based on applied education. For this reason, students in the physiotherapy and rehabilitation

department had a negative opinion about distance education.

In some studies published in the literature, the proportion of undergraduate students preferring face-to-face and distance education for various reasons was found to be equal. Afşar and Büyükdoğan (10) reported that 50.7% of the undergraduate students in their study preferred distance education during the COVID-19 process, primarily because it allowed them to plan their own time and they did not need to commute to campus. Other students in the study (49.3%) did not prefer distance education due to technical problems, deprivation of the social environment, inability to ask questions about subjects that they did not understand, and lack of constant access to the internet. In universities where distance education is continued, it is recommended that students participate in live lessons more actively and that the lessons should involve more group works (10). Serçemeli and Kurnaz (11) suggested that accounting education should be given to undergraduate students by blending traditional and distance education methods during the COVID-19 pandemic period. In this process, we have been going on experiencing the negative effects of the pandemic deeply in all areas of our lives. We recommend that during the normalization phase in the teaching and learning process, theoretical courses should be given through web-based distance education and applied courses should be conducted with a reduced number of students after ensuring the suitability of the physical conditions of the universities.

Like the results of our study, Keskin and Özer Kaya reported that 84.4% of the students did not find web-based distance education, which was carried out compulsorily during the COVID-19 pandemic, as effective as face-to-face education (12). It was also emphasized in this study that the advantages and disadvantages of web-based distance education needed evaluating according to the feedback of students and that this type of education needed structuring appropriately (12). Similarly, Altuntaş Yılmaz (13) reported that during the COVID-19 pandemic process, undergraduate students from the physiotherapy and rehabilitation department found the efficiency of distance education low in terms of applied courses (87.5%) and theoretical courses (78.5%). While 90.3% of these students preferred face-to-face education, 9.7% preferred distance education (13). The delivery of all the courses given via web-based distance education due to the pandemic in the physiotherapy and rehabilitation department, which is among the applied sciences, has resulted in students' dissatisfaction. Nevertheless, it is not clear when the pandemic will end. Therefore, in the ongoing process, it must be ensured that students get the highest level of efficiency from physiotherapy and rehabilitation courses, which will contribute to shaping the future of society more healthily. For this reason, advanced technology products, such as robotic simulations, patient models, application devices, should be adapted to web-based distance education urgently.

In our study which was conducted to measure the attitudes of undergraduate students, who were studying in physiotherapy and rehabilitation department provided education through theoretical and applied courses and switched from face-to-face education to web-based distance education due to the COVID-19 pandemic, the attitudes of the students toward theoretical and applied courses were found to be negative regardless of gender. The scale that we created to evaluate these attitudes was found to be valid and reliable. For this reason, it can be used to determine the needs of university students studying applied sciences regarding web-based distance education. The quality and efficiency of distance education should be increased considering the opinions of the students.

Conflict of interest

None to declare.

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References

1. Sun P, Lu X, Xu C, Sun W, Pan B. Understanding of COVID-19 based on current evidence. J Med Virol. 2020; 92(6): 548-551.
2. WHO Coronavirus (COVID-19) Dashboard [Internet]. 2021 [cited 2021 May 14]. Available from: https://covid19.who.int/.
3. BBC News Türkçe. Koronavirüs: Adım adım Türkiye'nin Covid-19'la mücadelesi [Internet]. 2020 [cited 2020 June 03]. Available from: https://www.bbc.com/turkce/haberler-turkiye-52899914.
4. UNESCO COVID-19 [Internet]. 2021 [cited 2021 May 14]. Available from: https://en.unesco.org/covid19/educationresponse.
5. Yükseköğretim Kurulu Basın açıklaması. Yükseköğretim Kurulu Başkanı Prof. Dr. M. A. Yekta SARAÇ. [Internet]. 2020 [cited 2020 March 26]. Available from: https://www.yok.gov.tr/Sayfalar/Haberler/2020/YKS%20Ertelenmesi%20Basın%20Açıklaması.aspx.
6. Orçanlı K, Bekmezci M. Determining university students' perceptions about distance education in COVID-19 pandemic and its relationship with some demographic variables. Uluslararası İktisadi ve İdari Bilimler Dergisi. 2020; 6(2): 88-108.
7. Terzi D, Akalın RB, Erdal B. The effect of COVID-19 pandemic on education of health students: Tekirdağ Namık Kemal University Health Services Vocational School example. Namık Kemal Tıp Dergisi. 2020; 8(3): 279-287.
8. Buluk B, Eşitti B. Koronavirüs (COVİD-19) sürecinde uzaktan eğitimin turizm lisans öğrencileri tarafından değerlendirilmesi. Jornal of Awareness. 2020; 5(3): 285-298.
9. Genç MF, Gümrükçüoğlu S. Koronavirüs (Covıd-19) Sürecinde İlâhiyat Fakültesi Öğrencilerinin Uzaktan Eğitime Bakışları. Turkish Studies. 2020; 15(4): 403-422.
10. Afşar B, Büyükdoğan B. Assessments of FBAS and FSHS Students About Distance Education During the Covid-19 Pandemic Period. Karatay Sosyal Araştırmalar Dergisi. 2020; (5): 161-182.
11. Serçemeli M, Kurnaz E. Covid-19 pandemi döneminde öğrencilerin uzaktan eğitim ve uzaktan muhasebe eğitimine

yönelik bakış açıları üzerine bir araştırma. International Journal of Social Sciences Academic Researches. 2020; 4(1): 40-53.

12. Keskin M, Özer Kaya D. COVID-19 Sürecinde Öğrencilerin Web Tabanlı Uzaktan Eğitime Yönelik Geri Bildirimlerinin Değerlendirilmesi. İzmir Katip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi. 2020; 5(2): 59-67.

13. Altuntas Yılmaz N. Yükseköğretim kurumlarinda covid-19 pandemisi sürecinde uygulanan uzaktan eğitim durumu hakkinda öğrencilerin tutumlarinin araştirilmasi: fizyoterapi ve rehabilitasyon bölümü örneği. Necmettin Erbakan Üniversitesi Sağlık Bilimleri Fakültesi Dergisi. 2020; 3(1): 15-20.

14. Büyüköztürk Ş. Anket geliştirme. Türk Eğitim Bilimleri Dergisi. 2005; 3(2): 133-151.

15. Kalaycı Ş. SPSS Uygulamalı Çok değişkenli İstatistik Teknikleri. 2. Baskı. Ankara: Asil Yayın Dağıtım; 2005.

16. Baumgartner H, Homburg, C. Applications of structural equation modeling in marketing and consumer research: A review. International Journal of Research in Marketing. 1996; 13(2): 139-161.

17. Bentler PM. Multivariate analysis with latent variables: Causal modeling. Annual Review of Psychology. 1980; 31: 419-456.