RESEARCH ARTICLE

Determining nursing students' attitudes towards, readiness for, expectations from and satisfaction with distance education and their sense of alienation from their university

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Abstract

Objective: To determine nursing students' views on attitudes towards distance education during coronavirus disease 2019 pandemic.

Methods: The analytical, cross-sectional study was conducted in May and June 2022 at a state university in the Mediterranean region of Türkiye, and comprised nursing students. Data were collected using the Attitude Towards e-Learning Scale, e-Readiness for e-Learning and Expectations Scale, e-Satisfaction Scale, and University Alienation Scale. Data were analysed SPSS 26.

Results: Of the 322 participants, 213 (66.1%) were females, and 159 (49.4%) were staying in hostel dormitories. The mean age of the sample was 20.36±1.63 years. There was a significant, moderate and positive correlation between the students' scores from with respect to readiness, satisfaction, transmission, practicality and content of distance learning ($p<0.05$). There was a significant, weak and positive correlation of readiness with the education process, interaction and assessment values ($p\leq0.05$).

Conclusion: Alienation towards university education increased in relation to technology skills.

Keywords: Distance education, University students, COVID-19 pandemic. (JPMA 74: 903; 2024)

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Introduction

Due to the rapid spread of coronavirus disease-2019 (COVID-19) virus, many countries quickly implemented measures in various sectors, such as business, healthcare, etc. to reduce its spread.[1,2] Education was one of the sectors affected and many countries opted for closing their educational institutions and switching to distance education to control the spread of the disease.[3,4] Türkiye implemented these measures in March 2020.[5]

Distance education is a form of teaching that gathers three basic educational elements to create effective learning by using various technologies because at least one of the three core element, student, instructor or lesson content, is in a different location.[6] The distance education employed in Türkiye before and during the pandemic is a crucial practice that needs to be implemented rapidly to manage lessons effectively and prevent students from facing graduation delays and missing semesters.[7,8]

Distance education is one of the most widely used education techniques, offering continuous education, reducing education costs, maximising equal opportunity, facilitating mass education and combining different communication channels to transmit lesson contents. It also creates a rich educational environment, eliminates space constraints for both students and educators, and provides synchronous and asynchronous learning. In addition, it establishes standards in educational programmes, adapts the lesson duration to the learning speed of students, provides many benefits, such as mutual communication, and fosters the ability to learn individually and independently.[9-12] Distance education has various drawbacks as well, in that not every student has the required technological tools, access to the internet, or sufficient knowledge about computers and the internet. Other drawbacks include students developing addiction through long-term use, experiencing technical problems, not being able to socialise adequately, having difficulty learning due to listening to lessons from a screen instead of in a physical classroom, as well as the difficulties the teachers face in conducting lessons aimed at practical experience and developing skills.[11,13,14]

In addition to all these benefits and drawbacks, students in training programmes, such as nursing, midwifery, dentistry, medicine, veterinary medicine, etc., where applied lessons are dominant, have difficulty gaining skills through distance education.[15,16] Nursing education is primarily

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based on theoretical knowledge and clinical practice, supporting the cognitive, affective and psychomotor skills of students. It aims at providing students with clinical skills as well as theoretical knowledge, and to improve the skills that they have acquired. The primary objectives of nursing education include integrating theoretical knowledge and practical skills through practicum on real patients in both hospital and field settings, making learning permanent.[6,17]

The nursing education provided through distance education during the pandemic was anticipated to have negative repercussions for the profession in the years ahead. Research has shown that the negative consequences of providing nursing education through distance education include students facing challenges in following the lessons, lacking the necessary technical infrastructure, lacking motivation, inadequate communication, increased stress levels, difficulties in skill-oriented lessons, and intense exam stress.[9,12,14,18-23]

Such findings suggest that distance education can cause students to feel alienated from their learning institutions, and this relationship requires careful evaluation.

The current study was planned to determine nursing students' views and attitudes towards distance education during the COVID-19 pandemic.

Subjects and Methods

The analytical, cross-sectional study was conducted in May and June 2022 at a state university in the Mediterranean region of Türkiye, and comprised nursing students who were enrolled using purposive sampling technique after approval from the Selçuk University Provincial Directorate of National Education and university ethics committee approvals were obtained to conduct the study (Date: 12/04/2022, No: 2022/179). A pilot study was carried out to evaluate the clarity of the questionnaires with 20 students of other departments within same faculty. The data of the pilot study was not included in the main analysis. The sample size was calculated as 206 students with a sampling error of 0.05 and a 95% confidence level. 322 students were enrolled in the study and this study was completed with these students. All the nursing students available were approached, and those who did not volunteer to participate were excluded.

After taking informed consent from the participants, data was collected using a questionnaire that comprised, in addition to a personal information form, the Attitude Towards e-Learning Scale (ATeL), the e-Readiness for e-Learning and Expectations Scale, called the e-readiness scale, the e-Satisfaction Scale, and the University Alienation Scale (UAS). The questionnaire took 20-30 minutes to fill out. The personal information form had 21 questions to determine the participants' demographic characteristics, like age and gender, and habits, such as substance abuse.

The ATeL was originally developed in 2016 and adapted to Turkish subsequently.[24] It is a 23-item and 4-factor scales that is scored using a 5-point Likert scale, ranging from 4=strongly disagree –to 1=strongly agree. In the adaptation study, the Cronbach's alpha was 0.789.[24] The four subscales are propensity to use technology (F1) (items 1-6), satisfaction (F2) (items 7-11), motivation (F3) (items 12-17), and practicality (F4) (items 18-23).[24] Cronbach's alpha value in the present study was 0.79 for the scale, while the values for the subscales ranged from 0.74 to 0.88.

The e-Readiness scale[25] consists of 26 items and has 5 subscales. The items are scored on a 5-point Likert scale, ranging from 5=almost always to 1=almost never. The subscales are personal characteristics (items 1-4), access to technology (items 5-8.), technical skills (items 9-16.), motivation and attitude (items 17-20), and factors affecting success (items 21-26). The Cronbach's alpha value of the scale was 0.93 in the original study[25] and it was 0.89 in the present study. Cronbach's alpha values of the subscales ranged from 0.64 to 0.91.

The E-Satisfaction scale25 has 29 items and 4 subscales that are scored on a 6-point Likert scale ranging from 5=almost always to 1=almost never. The subscales are transmission and practicality (items 1-7), education process (items 8-15), education content (items 16-19), and interaction and assessment (items 20-29). The Cronbach's alpha value of the scale was 0.97 in the original study, and it was 0.93 in the present study. Cronbach's alpha values for the subscales ranged from 0.80 to 0.90.[25]

The UAS, which was tested for validity and reliability in 201526, consists of 9 items that are scored on a 5-point Likert scale ranging from 5=strongly agree to 1=strongly disagree, with higher score indicating greater sense of alienation. The Cronbach's alpha value of the scale was 0.85 in the original scale[26] and it was 0.90 in the present study.

Data was analysed using SPSS 26 (IBM Corp., Armonk, NY, USA). Data was expressed as frequencies and percentages, mean±standard deviation, and median with interquartile range (IQR), as appropriate. Data normality was examined using Kolmogorov-Smirnov test, and the variables were not normally distributed. Therefore, the study used nonparametric statistical tools. The differences between two independent groups were examined using the Mann-Whitney U test. The correlations between two independent numerical variables were interpreted using Spearman's Rho correlation coefficient. The level of statistical significance was kept at $p \leq 0.05$.

Results

Of the 439 nursing students on the campus, 322(73.34%) were included. The mean age of the participants was 20.36±1.63 years. There were 213 (66.1%) females, 159 (49.4%) were staying in hostel dormitories, 262 (81.4%) had internet access in their accommodations, 253 (78.5%) had a moderate socioeconomic background and 245 (76.1%) used smartphones to access the lessons. The students stated that blended learning, involving online lecturing, watching video and case analysis, was predominantly practised in theoretical lessons 164 (50.9%) and the approach was found effective for learning 142 (44.1%). In the applied lessons, 143 (44.4%) students reported that blended learning was the most practised method, and 157 (48.8%) had problems with following and attending the lessons. Of the students, 258(80.1%) had difficulty learning practical skills and 284 (88.2%) did not want nursing education to be fully provided online. Furthermore, 149 (46.3%) of them wanted nursing education to continue based on conventional learning, 66 (20.5%) students believed that distance nursing education caused them to feel inadequate, 65 (20.2%) expressed the belief that care should be given by "touching the patient", and 208 (64.6%) believed that a hybrid education model should be adopted (Table 1).

Table-1: The participants' problems with distance education and their views (n=322).

Problems faced and views	n (%)
Having problems following and participating in the lessons	
Yes	157(48.8)
No	165(51.2)
Difficulty learning due to practical skills being taught through distance education	
Yes	258(80.1)
No	64(19.9)
Wants nursing education to be given completely remotely	
Yes	38(11.8)
No	284(88.2)
Views and thoughts about classical learning	
Face-to-face learning of laboratory and practice	149(46.3)
The most appropriate and efficient form of learning	68(21.1)
Nursing requires experience and face-to-face learning	57(17.7)
Classical learning alone is not enough	48(14.9)
Views and thoughts about e-learning	
Feeling insufficient in laboratory and practice	66(20.5)
Inability to do e-care (care should be done by touching the patient)	65(20.2)
Distance education makes nursing lessons difficult to do	63(19.6)
There are connection and infrastructure problems with distance education	40(12.4)
Lessons can be repeated	27(8.4)
Nursing education can continue after graduation	24(7.5)
Listening only did nothing for me	21(6.5)
Creates a learning environment like at school	16(5.0)
Views and thoughts about blended learning	
I find it confusing and more tiring	50(15.5)
Theory lessons should be done remotely and applied lessons should be done face-to-face	208(64.6)
It is an effective method for health care during the pandemic	64(19.9)

Mean scores of the scales were noted (Table 2), indicating that 300(93.2%) subjects had a moderate level of e-readiness and expectation for distance education, and 303(94.1%) had moderate satisfaction with distance education (Table 2).

Women's practicality scores were significantly higher than those of men, while men's interaction and assessment scores were significantly higher than those of women (Table 3).

The propensity to use technology scores of those using smartphones were significantly higher than the scores of those who used computers to access the lessons ($p \leq 0.05$). The access to technology and technical skills scores of those who used computers were significantly higher than those who used smartphones (Table 4).

There was a significant, weak and negative correlation between participants' propensity to use technology scores and the access to technology, technical skills, and motivation and attitude scores ($p \leq 0.05$). There was a significant, weak and positive correlation between the satisfaction scores and the transmission and practicality and education content scores ($p \leq 0.05$). There was a significant, weak and positive correlation between motivation and the education content scores ($p \leq 0.05$).

Table-2: Descriptive statistics for the scales and subscales.

	Mean±SD	Median (IQR)	Min.	Max.
ATeL	54.63±7.870	56.00(8.00)	30.33	93.00
Propensity to use technology	14.16±3.315	14.00(4.00)	6.00	24.00
Satisfaction	11.64±2.651	12.00(3.00)	5.00	20.00
Motivation	13.71±3.527	13.00(3.00)	6.00	24.00
Practicality	15.12±4.206	15.00(6.00)	6.00	24.00
e-Readiness scale	89.27±7.794	89.27(0.00)	56.00	130.00
Personal characteristics	11.80±1.696	11.80(0.00)	4.00	20.00
Access to technology	12.45±2.251	12.45(0.00)	5.00	20.00
Technical skills	29.83±3.222	29.83(0.00)	12.00	40.00
Motivation and attitude	11.83±1.811	11.83(0.00)	4.00	20.00
Factors affecting success	23.36±2.158	23.36(0.00)	12.00	30.00
e-Satisfaction scale	95.26±8.762	95.26(0.00)	40.00	145.00
Transmission and practicality	23.94±2.318	23.94(0.00)	9.00	35.00
Education process	26.00±2.881	26.00(0.00)	12.00	40.00
Education content	13.24±1.513	13.24(0.00)	4.00	20.00
Interaction and assessment	32.08±3.840	32.08(0.00)	10.00	50.00
UAS	30.18±7.459	31.00(0.00)	9.00	45.00
Distribution of the participants' readiness, expectation, and satisfaction levels				
e-Readiness scale				n(%)
Low				1(0.3)
Moderate				300(93.2)
High				21(6.5)
e-Satisfaction scale				
Low				4(1.2)
Moderate				303(94.1)
High				15(4.7)

SD: Standard Deviation, IQR: Inter Quartile Range, Min: Minimum, Max: Maximum

Table-3: Differences in scale total and subscale scores by gender.

The Scales	Female		Male		*p*-value
	Mean±SD	Median (IQR)	Mean±SD	Median (IQR)	
ATeL	55.33±7.33	56 (7.00)	53.25±8.71	55 (10.00)	0.080
Propensity to use technology	14.23±3.15	14 (4.00)	14.02±3.63	13 (3.00)	0.134
Satisfaction	11.7±2.31	12 (3.00)	11.52±3.22	12 (4.00)	0.605
Motivation	13.69±3.12	13 (3.00)	13.74±4.22	14 (4.00)	0.800
Practicality	15.71±3.86	16 (5.00)	13.98±4.61	14 (6.00)	0.000*
e-Readiness scale	89.06±7.56	89.27 (0.00)	89.67±8.25	89.27(0.00)	0.440
Personal characteristics	11.74±1.8	11.8(0.00)	11.92±1.48	11.8(0.00)	0.650
Access to technology	12.5±2.41	12.4(0.00)	12.36±1.92	12.45(0.00)	0.680
Technical skills	29.78±3.06	29.83(0.00)	29.92±3.52	29.83(0.00)	0.171
Motivation and attitude	11.72±1.91	11.83(0.00)	12.03±1.59	11.83(0.00)	0.874
Factors affecting success	23.32±2.22	23.36(0.00)	23.44±2.05	23.36(0.00)	0.931
e-Satisfaction scale	94.75±8.05	95.26(0.00)	96.25±9.98	95.26(0.00)	0.120
Transmission and practicality	23.86±2.2	23.94(0.00)	24.1±2.54	23.94(0.00)	0.342
Education process	25.88±2.82	26(0.00)	26.22±2.99	26(0.00)	0.309
Education content	13.16±1.54	13.24(0.00)	13.38±1.47	13.24(0.00)	0.113
Interaction and assessment	31.85±3.74	32.08(0.00)	32.54±4.01	32.08(0.00)	0.049*
UAS	30±6.99	30(0.00)	30.55±8.32	31(0.00)	0.299

SD: Standard Deviation; IQR: Inter Quartile Range; *Mann Whitney U; $p \leq 0.05$

Table-4: Distribution and differences of scale scores by technological device used to access the lessons*.

	Smartphone		Computer		*p*-value
	Mean±SD	Median (IQR)	Mean±SD	Median (IQR)	
ATeL	54.85±7.85	56 (7.79)	54.02±8.13	55(6.00)	0.126
Propensity to use technology	14.5±3.45	14 (4.00)	13.07±2.64	13(3.00)	0.001**
Satisfaction	11.61±2.59	12 (3.00)	11.8±2.87	12(3.00)	0.482
Motivation	13.6±3.48	13 (3.00)	14.07±3.73	14(5.00)	0.098
Practicality	15.14±4.41	16 (6.00)	15.08±3.48	15(5.00)	0.441
e-Readiness scale	88.63±7.36	89.27(0.00)	91.37±8.93	89.27(0.00)	0.167
Personal characteristics	11.77±1.58	11.8(0.00)	11.95±2.04	11.8(0.00)	0.211
Access to technology	12.18±2.03	12.45(0.00)	13.43±2.69	12.45(0.00)	0.007**
Technical skills	29.63±3.14	29.83(0.00)	30.41±3.29	29.83(0.00)	0.026**
Motivation and attitude	11.72±1.72	11.83(0.00)	12.19±2.07	11.83(0.00)	0.067
Factors affecting success	23.33±1.91	23.36(0.00)	23.39±2.87	23.36(0.00)	0.558
e-Satisfaction scale	95.32±8.86	95.26(0.00)	95.36±8.47	95.26(0.00)	0.488
Transmission and practicality	23.99±2.11	23.94(0.00)	23.81±2.97	23.94(0.00)	0.749
Education process	26.08±2.92	26(0.00)	25.79±2.78	26(0.00)	0.074
Education content	13.21±1.49	13.24(0.00)	13.33±1.59	13.24(0.00)	0.915
Interaction and assessment	32.03±3.82	32.08(0.00)	32.43±3.76	32.08(0.00)	0.523
UAS	30.02±7.82	31 (9.00)	30.92±6.18	30 (9.00)	0.837

SD: Standard Deviation; IQR: Inter Quartile Range; *Four people who answered "tablet" not included in the analysis; ** Mann Whitney U; $p \leq 0.05$

There was a significant, moderate and positive correlation between students' scores from the e-Readiness scale and e-Satisfaction scale, transmission and practicality, and education content scores, while there was a significant, weak and positive correlation between their e-Readiness scores and the education process, and interaction and assessment scores ($p \leq 0.05$). There was a significant, weak and positive correlation between personal characteristics scores and the e-satisfaction, transmission and practicality, and education content scores ($p \leq 0.05$). There was a significant, weak and positive correlation between access to technology scores and the e-satisfaction, transmission and practicality, education process, education content, and UAS scores ($p \leq 0.05$). There was a significant, weak and positive correlation between technical skills scores and the e-satisfaction, transmission and practicality, education content, and UAS scores ($p \leq 0.05$). There was a significant, moderate and positive correlation between motivation and attitude scores and e-satisfaction scale scores, while there was a significant, weak and positive correlation between motivation and attitude scores and the transmission and practicality, education process, education content, and interaction and assessment scores ($p \leq 0.05$). There was a significant, moderate and positive correlation between the factors affecting success scores and the transmission and practicality scores, while there was a significant, weak and positive correlation between the factors affecting success scores and e-satisfaction scale, education process, education content, and interaction and assessment scores (Table 5).

Discussion

The current study found that 76% of the nursing students used smartphones to attend lessons. Subedi et al. reported that more than half of the participants used smartphones to follow academic lessons.[27] In contrast, some studies reported that more than half of nursing students used computers for distance education during the COVID-19 pandemic.[20,28] It is believed that smartphones are preferred for reasons such as their widespread use by students, portability and ease of access. The disadvantages of using a smartphone to follow lessons, when compared to a computer, include the small screen size and distractions such as incoming messages and phone calls that can interrupt the lesson.

The mean ATeL score of the students indicated a moderate attitude towards e-learning, which was in line with other studies.[9,23,29,30] Some studies reported that students had positive attitudes towards distance education,[31-35] whereas others reported evidence of negative attitudes.[34-37]

The study discovered that female students obtained high scores in attitudes towards e-learning and affinity for e-learning. However, other studies reported that attitudes towards e-learning did not change based on gender.[20,29,37-42] The high attitude scores of female students in the present study towards e-learning can be explained by women having a greater sense of responsibility.

Table-5: Correlations between scales.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1) ATeL	*r*-value	1.000	.596**	.480**	.447**	.584**	0.051	0.078	-0.041	-0.030	-0.016	0.035	0.082	0.095	0.083	0.057	0.049	0.008
	p-value	.	0.000	0.000	0.000	0.000	0.366	0.162	0.460	0.592	0.776	0.529	0.142	0.090	0.140	0.306	0.381	0.893
2) Propensity to use technology	*r*-value		1.000	-0.044	-0.096	.452**	-0.074	0.000	-.159**	-.145**	-.113*	-0.046	-0.070	-0.011	-0.046	-0.086	-0.075	-0.030
	p-value			0.431	0.086	0.000	0.187	0.997	0.004	0.009	0.043	0.408	0.213	0.843	0.408	0.124	0.182	0.595
3) Satisfaction	*r*-value			1.000	.649**	-.129*	0.053	0.041	-0.022	0.048	0.045	0.012	0.101	.111*	0.092	.138*	0.055	0.028
	p-value				0.000	0.021	0.345	0.467	0.697	0.394	0.422	0.827	0.070	0.046	0.099	0.013	0.323	0.612
4) Motivation	*r*-value				1.000	-.190**	0.096	0.052	0.091	0.067	0.101	0.028	0.080	0.055	0.069	.136*	0.083	0.052
	p-value					0.001	0.087	0.350	0.102	0.228	0.069	0.618	0.153	0.328	0.219	0.015	0.137	0.355
5) Practicality	*r*-value					1.000	0.007	0.003	0.016	-0.007	-0.085	0.021	0.015	0.037	0.052	-0.077	-0.031	0.054
	p-value						0.899	0.957	0.770	0.907	0.130	0.708	0.785	0.503	0.354	0.167	0.584	0.331
6) e-Readiness scale	*r*-value						1.000	.461**	.450**	.628**	.445**	.542**	.379**	.377**	.234**	.352**	.241**	0.081
	p-value							0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.147
7) Personal characteristics	*r*-value							1.000	.170**	.142*	.342**	.161**	.179**	.222**	0.078	.266**	0.015	0.032
	p-value								0.002	0.011	0.000	0.004	0.001	0.000	0.164	0.000	0.788	0.566
8) Access to technology	*r*-value								1.000	.315**	.378**	.203**	.209**	.195**	.148**	.149**	0.054	.197**
	p-value									0.000	0.000	0.000	0.000	0.000	0.008	0.008	0.332	0.000
9) Technical skills	*r*-value									1.000	.282**	.350**	.209**	.297**	0.107	.220**	0.075	.131*
	p-value										0.000	0.000	0.000	0.000	0.055	0.000	0.177	0.019
10) Motivation and attitude	*r*-value										1.000	.151**	.302**	.159**	.251**	.265**	.133*	-0.053
	p-value											0.007	0.000	0.004	0.000	0.000	0.017	0.347
11) Factors affecting success	*r*-value											1.000	.279**	.316**	.127*	.223**	.185**	0.035
	p-value												0.000	0.000	0.022	0.000	0.001	0.532
12) e-Satisfaction scale	*r*-value												1.000	.720**	.814**	.637**	.594**	0.105
	p-value													0.000	0.000	0.000	0.000	0.061
13) Transmission and practicality	*r*-value													1.000	.586**	.544**	.317**	0.052
	p-value														0.000	0.000	0.000	0.350
14) Education process	*r*-value														1.000	.504**	.492**	0.076
	p-value															0.000	0.000	0.172
15) Education content	*r*-value															1.000	.306**	0.088
	p-value																0.000	0.114
16) Interaction and assessment	*r*-value																1.000	0.076
	p-value																	0.173
17) UAS	*r*-value																	1.000
	p-value																	

ATeL: Attitude towards e-learning scale; UAS: University alienation scale; r: Spearman's Rho correlation coefficient *$p \leq 0.05$ **$p < 0.01$

Upon analysing the readiness-expectation scores of the students regarding e-learning based on their year, the scores of freshman nursing students were found to be high. None of the studies reviewed by the researchers showed high degrees of e-readiness among freshmen for e-learning. In contrast, a study showed that senior students had higher levels of readiness for e-learning then freshmen. This can be attributed to younger generations' better familiarity with technology and proficiency with computer skills compared to older people.[43]

The study determined that as the students' problem of following and participating in lessons decreased, their readiness for e-learning increased. A study stated that nursing students who had problems following lessons had lower attitudes towards and readiness for distance education than those who did not have problems. Their poor readiness was attributed to the rapid and unplanned implementation of distance education, the universities' inadequate

infrastructure for distance education, the challenges of following the lessons due to the use of similar systems by many students simultaneously, which placed a strain on those systems.[20]

According to the current results, the students expressed moderate to high satisfaction with the communication features and practicality of e-learning. Other studies reported similar findings.[44,45] One study found that the satisfaction levels of nursing students who used computers to access lessons were significant, while other studies showed that more than half of the nursing students used computers for distance education during the COVID-19 pandemic.[20,28] The disadvantages of using a smartphone to follow lessons include the small screen size and distractions, such as incoming messages and phone calls, that can interrupt the lesson.

The current study showed that although the majority of students had internet access in their dorms, they did not want nursing education to be conducted completely remotely. They believed that distance learning made it difficult to acquire practical nursing skills and they perceived themselves as lacking in the acquisition of these skills. Another finding of the current study was that the students believed that e-care was not feasible. This was attributed to the students thinking that they could not care for the patient in person remotely. A survey conducted with 2000 nursing and medical students during the COVID-19 pandemic in India found that the majority of participants thought that distance education could not replace formal education and distance education was not suitable for applied nursing lessons.[45] Similarly, in their study, Özbay and Çınar[46] said the majority of nursing students stated that distance education was not enough to gain practical skills in nursing and could cause deficiencies in laboratory and clinical practices, which matter a great deal in this field. Another study determined that the majority of nursing students did not approve of distance education in nursing.

They thought that not all programs in nursing could be provided through distance education, and it would cause deficiencies in laboratory and clinical practices, a key area in the practice-oriented nursing profession.[47] In contrast to these findings, Şenyuva et al.[48] found that the majority of nursing students had positive views on the method, design, and lesson outcomes of the web-based patient training lesson. The findings suggest that nursing education cannot be carried out without laboratory and clinical practices because it is a profession that is based on individual care and patient contact.

The findings showed that students' university alienation scores were above average and their sense of alienation from the university increased with their technology skills. This can be attributed to the practice of virtual lessons as students' technical skills have increased coupled with a growing interest in virtual lessons, and because virtual lessons provide more motivation that face-to-face lessons at university as a result of the different methods used for lessons given in virtual environments being understood better and used efficiently.

Conclusion

The students' attitudes towards, readiness for and expectations from e-learning, their e-satisfaction levels and university alienation scores were slightly above average, suggesting that they were unprepared for e-learning when the pandemic hit and were taking part in the process only out of necessity. Some theory lessons in the undergraduate curriculum that have no practical component should be conducted online so that the students may become accustomed to e-learning and develop a positive attitude towards it. The active use of rapidly developing technology in the education system today can provide students with skills and knowledge in their future training on professional development. It can also make a significant contribution to their both personal and professional development in e-learning environments by eliminating time and space constraints. Integrating into nursing education e-learning environments that allow rich teaching techniques to be widely used in post-pandemic periods as well will be a key factor in adapting to today's conditions and facilitating access to information.

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