Journal of Educational Technology & Online Learning
Volume 5 | Issue 2 | 2022
http://dergipark.org.tr/jetol

# Distance education in nursing: Readiness and satisfaction levels of students

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Suggested citation: Çınar Özbay, S., Özbay, Ö., & Kanbay, Y. (2022). Distance education in nursing: Readiness and satisfaction levels of students. *Journal of Educational Technology & Online Learning*, *5*(2), 467-480.

**Article Info**

*Keywords:*

Nursing education
Distance education
Online learning
Satisfaction
Readiness

Research Article

**Abstract**

Due to the increasing number of students in nursing education, the need to support traditional education and to provide blended or distance learning have incited the trend of utilizing e-learning in training nurses. The purpose of this study was to determine the level of satisfaction, readiness, and expectation in relation to the e-learning process among 3rd year nursing students. Data of this descriptive study was collected electronically in July 2020.The study group consisted of 91 students who were studying in University, Faculty of Health Sciences, Department of Nursing, and enrolled in the Child Health and Disease Nursing course. Study data were collected through the "Introductory Information Form" containing the introductory information of the students, the "Readiness and Expectation Scale for the e-Learning Process" and the “Satisfaction Scale for the e-Learning Process ". It was found that there was a significant relationship between students’ family income and the level of satisfaction regarding e-learning process. In addition, there was a significant relationship between the age of the students and the value of readiness and expectation regarding e-learning. Findings stated that paying more attention to interaction, particularly in practical courses, and using materials enriching the course content will positively influence students’ expectations and satisfaction, during online nursing courses.

## 1. Introduction

The diversity and flexibility that information and communication technologies provided for learning and teaching environments gave rise to a transformation in education, so, new like e-learning method came to prominence (Haverila, 2011). E-learning platform, enabling the learner to access the content in the electronic environment at any time and place via the internet, came into use particularly by higher education institutions as a supplement to traditional education, as well as to implement blended learning or distance learning (Zhang & Nunamaker, 2003). Although common compulsory lessons (Atatürk's Principles and History of Turkish Revolution, Turkish Language and English Language) are given online, especially in higher education institutions, e-learning also has an important place in the education of health professionals (Pharmacists, Doctors, Nurses, etc.) (Lawn et al., 2017; Regmi & Jones, 2020; Vaona et al., 2018).

Due to the increasing number of students in nursing education, the need to support traditional education and to provide blended or distance learning have incited the trend of utilizing e-learning in training nurses (Ozdemir et al., 2017). Certainly, the goals of the nursing department should be also achieved in the very best way while e-learning environments are used in nursing education (McDonald et al., 2018; Çınar Özbay,

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This research was presented as a verbal report at the The 3rd International Conference on Distance Learning and Innovative Educational Technologies held between 10-11 December 2020.

Doi: http://doi.org/10.31681/jetol.948606
Received 6 Jun 2021; Revised 29 Mar 2022; Accepted 17 Apr 2022
ISSN: 2618-6586 . 

& Özbay). Considering that nursing education is based on practical skills as well as theoretical knowledge, it can be suggested that traditional (face-to-face) teaching of practical skills should procede online teaching, which would improve nursing students' clinical skills, and eventually enhancing their self-confidence and satisfaction levels and alleviating their anxiety, since it is rather difficult to acquire practical skills properly via online learning (Guven Ozdemir & Sonmez, 2020). Therefore, in areas such as nursing education, where practical skills gain prominence, more research is needed to clarify questions about the effectiveness and efficiency of conducting lessons with e-learning in achieving the desired program goals (Sheikhaboumasoudi et al., 2018).

Today, relatively low number of lecturers in comparison to increasing number of students studying in nursing departments, is obligating new measures in education in order to reach a larger group of students (Dorrian & Wache, 2009). The use of online learning environments in nursing education also eliminates many difficulties encountered in traditional education. When e-learning is compared with traditional education; some advantages appear such as improved access to information, better content delivery, individualized learning, content standardization, accountability, reusability of content upon demand, individualized pace in learning, interactive learning, confidence, and increased comfort (Ruiz et al., 2006; Zhang et al., 2004; Özbay, 2015). It was also concluded that e-Learning can reduce various costs such as schooling, transportation, printed materials and labor with respect to traditional education, although considerable cost and time requirement arises in the establishment of the infrastructure of e-learning system (Welsh et al., 2003). In the studies, students noted that they had different roles in the e-learning environment than they did in the traditional classroom, they had to be more active during the lessons, they could reach the teacher of the lesson more easily, and the level of satisfaction with their education was higher (Abbasi et al., 2020; Olum et al., 2020; Ramos-Morcillo et al., 2020). Despite such benefits, dropping the lesson was determined to be at much higher rates in e-learning in comparison to traditional education (Zhang et al., 2004). Technical problems experienced by students while using e-learning environments, poor technological literacy, lack of necessary connections and devices, and limited social presence causing a feeling isolation can be mentioned among the reasons for dropping the lesson (Bangert & Easterby, 2008; Chaffin & Maddux, 2004). Accordingly, it is also pointed out as a significant issue to take necessary precautions in order to prevent students from dropping the course in e-learning environments (Harrell, 2008).

It was expressed that students' readiness and satisfaction in e-learning environments were essential in achieving the desired program outcomes (Harrell, 2008). Borotis and Poulymenakou (2004) defined e-learning readiness as "*being prepared physically and mentally for some e-learning experiences and actions*". Studies showed that readiness should be determined before implementing an e-learning program (Djamaris et al., 2012; Ali, 2016). Students' readiness would assure that e-learning could be carried out effectively and efficiently. Therefore, readiness of the students should be evaluated in advance, in order to provide a successful e-learning process (So & Swatman, 2006). Studies emphasized that students' success in e-learning environments was generally associated with their readiness and satisfaction level, which was recognized as a highly critical issue indeed (Ali, 2016; Djamaris et al., 2012).

Students'satisfaction was determined as an important output in e-learning environments (Klein et al., 2006; Zhan & Mei, 2013). Zhan and Mei (2013) specified a close correlation between satisfaction and learning success in e-learning environments. In the meantime, the factors such as students' adoption of e-learning, their motivation, the levels of their competence and skills were determined to affect their satisfaction in e-learning environments (Klein et al., 2006; Pena & Yeung, 2010).

In our country, distance education in nursing were determined to be carried out only in associate degree, undergraduate completion and postgraduate programs, while associate degree, undergraduate completion programs were not regularly held. All educational institutions had to switch to distance education rapidly due to pandemic (Al Lily et al., 2020). For this reason, it became necessary in e-learning programs to examine the levels of satisfaction, readiness and expectation of the students, about their online learning experiences.

Determining the levels of satisfaction, readiness and expectation of the students regarding e-learning system is essential in implementing educational activities successfully. In this context, this present study is important in helping nursing education to reach the targeted program goals in the e-learning courses as well as in providing an insight for future studies.

The aim of this study is to determine the expectations, readiness, and satisfaction levels of third-grade nursing students participating in distance education in the nursing department of a faculty of health sciences with regard to distance learning. The following items were questioned within the framework of this objective:

1. What are the readiness and expectation levels and satisfaction levels of the nursing students regarding the e-learning process?

2. Does the satisfaction level of nursing students change with respect to nursing students' informative features, computer skills, and frequency of internet connection?

3. Does the readiness and expectation level of nursing students change with respect to nursing students' informative features, computer skills, and frequency of internet connection?

4. What are the experiences and opinions of nursing students regarding distance education?

## 2. Methods

### *2.1. Type of the study*

This is a descriptive study carried out to determine the level of satisfaction, readiness and expectation in relation to the e-learning process among 3rd year nursing students taking the "Child Health and Disease Nursing" course in the nursing department via distance education.

### *2.2. Study Group*

Convenience sampling method was used to form the participants. The research population consisted of 91 students studying at Artvin Coruh University University, Faculty of Health Sciences, Department of Nursing, 3rd grade and enrolled in the Child Health and Diseases Nursing course in the spring term of the 2019-2020 academic year. All of the 91 students who participated in the research constituted the research sample.

### *2.3. Learning Environment*

University has provided distance education courses in the spring semester of 2019-2020 by means of Distance Education Application and Research Center. Google Meet and Google Classroom were the distance education environments used in our university. Recorded lecture videos, PowerPoint presentations, live lectures on the web, YouTube videos and various course readings (articles, book chapters, etc.) constitute the materials prepared for the web environment by the lecturer conducting the Child Health and Disease Nursing Course. In this study, "recorded lecture videos" were made interactive. EdPuzzle was used for interactive video creation. EdPuzzle is one of the best and most effective tools for video assessment and evaluation (Abou Afach et al., 2018). In this study, multiple choice questions were added to interactive videos on Edpuzzle. Midterm exam, assignment and final exam grades were taken into consideration in determining whether the Child Health and Disease Nursing course achieved/reached the learning goals. Midterm, assignment and final exam were evaluated over "100". Final grades were calculated by taking 30% of the midterm exam grade, 10% of the homework grade and 60% of the final exam grade.

### *2.4. Data collection tools:*

Study data were collected through the "Introductory Information Form" containing the introductory information of the students, the "Readiness and Expectation Scale for the e-Learning Process" and the "Satisfaction Scale for the e-Learning Process ".

*Introductory Information Form:* This form was developed by researchers and comprised of three parts. The first part consisted of 11 questions about the demographic characteristics of the students (age, gender, family income level, education level of the parents, grade average, etc.), the second part involved 6 questions about the students' use of computer, mobile telephone and internet (owning a computer and a mobile, internet access, types of devices for internet access, computer skills, daily internet usage frequency, etc.), and the third part addressed various questions about distance education (whether the nursing program was favorable for distance education or not, her/his preference for taking the Child Health and Diseases nursing course via distance education or not, etc.).

*Readiness and Expectation Scale for the e-Learning Process:* This scale was developed by Gülbahar (2012) to determine the readiness and expectation levels of students in e-learning environments. The scale was prepared in a 5-point likert type varying between '1-Strongly disagree' and '5-Strongly agree'. It consisted of 26 items that can be grouped under five factors, namely "Individual Properties", "Access to Technology", "ICT Competencies", "Motivation and Attitude" and "Factors that affects Success". The lowest score that can be obtained from the scale was 24, and the highest score was 120. The higher the score obtained from the scale, the higher the level of readiness and expectation. Factor loadings of the respective items varied between 0.411 and 0.815. The Cronbach Alpha value of the scale was determined as 0.93. In our study, the Cronbach Alpha value of the scale was found to be 0.95.

*Satisfaction Scale for the e-Learning Process:* This scale was developed by Gülbahar (2012). The scale was prepared in a 5-point likert type varying between (1) and (5). It consisted of 29 items that can be grouped under four factors, such that "Communication and Usability", "Teaching Process", " Instructional Content", "Interaction and Evaluation". ". The lowest score that can be obtained from the scale was 29, and the highest score was 145. The higher the score obtained from the scale, the higher the level of satisfaction. The Cronbach Alpha value of the scale was determined to be 0.97, which was 0.98 in our study.

### *2.5. Data Collection*

Data were collected after sending the prepared data collection forms to the students and observing the principle of voluntary participation. Study data were collected electronically between 20 July - 20 August 2020, by using Google Form. Throughout the data collection process, the students who constituted the population were communicated with through smartphone applications such as WhatsApp and Telegram.

### *2.6. Ethical Aspect of the Research*

The ethical appropriateness of the research was evaluated by the Scientific Research and Publication Ethics Committee of our University and it was concluded that the research was ethically appropriate (E.6183). Written consents were obtained from the students included in the study group, and those who disapproved to participate in the study were not included.

### *2.7. Data analysis*

Data were evaluated using IBM SPSS Statistics v23 (IBM Corp., Chicago, IL, USA) package program. In the analysis of descriptive data, numbers and percentages were used for discrete data while mean ± standard deviation was used for continuous data. Levene's test was implemented to check for the homogeneity of variances. Parametric tests, namely t-test and ANOVA test were used because descriptive statistical tests displayed a normal distribution in the analysis of the study data. When non-normal distributions were specified, Mann-Whitney U test was used to compare the means of the two groups, and Kruskal Wallis test was used to compare the means of more than two groups. Significance was evaluated at the $p < 0.05$ level.

## 5. Results

Mean age of the 3rd year nursing students participating in the study was 21.90 ± 1.08 years, 69.2% were female and 39.6% were living in the town center. As for the parents of the students, mothers of 8.8% and fathers of 67.0% were working. The income level of 74.7% of the students was determined as medium. All of the students had a personal mobile device while only 34.1% had a personal computer.

*Level of readiness, expectation, and level of satisfaction*

When the readiness and expectation factor scores of the nursing students regarding the e-learning process were examined in Table 1, the mean value for the access to teknology factor was X = 10.54, and the mean value for the ICT competencies factor was X = 27.35. When the satisfaction factor scores of the nursing students regarding the e-learning process were analyzed, the mean value for the instructional content factor was X = 12.13, and the mean value for the interaction and evaluation factor was X = 29.46.

**Table 1**.

Readiness and expectation level and satisfaction level of nursing students regarding the e-learning process

| | Variable | N | X | S.D |
|---|---|---|---|---|
| Readiness and Expectation Level | F1: Individual Properties | 91 | 11.07 | 3.9 |
| | F2: Access to Teknology | | 10.54 | 4.9 |
| | F3: ICT Competencies | | 27.35 | 8.7 |
| | F4: Motivation and Attitude | | 11.37 | 4.5 |
| | F5: Factors that affects Success | | 19.37 | 6.4 |
| Satisfaction Level | F1: Communication and Usability | 91 | 22.23 | 8.05 |
| | F2: Teaching Process | | 23.60 | 8.7 |
| | F3: Instructional Content | | 12.13 | 4.6 |
| | F4: Interaction and Evaluation | | 29.46 | 11.2 |

*Satisfaction level with respect to nursing students' informative features, computer skills, frequency of internet connection*

In the study, mean satisfaction score of the students concerning the e-learning process was determined as 87.42 ± 30.49. There was a significant relationship between students' family income and the level of satisfaction regarding e-learning process ($p < 0.009$). The level of satisfaction was statistically significantly higher among students with high family income with respect to those with middle and low family income. In the meantime, there was also a significant relationship between satisfaction about e-learning process and internet access status ($p < 0.031$). Students having regular internet access had a statistically significantly higher level of satisfaction in comparison to those with medium and low level of internet access.

*Readiness and expectation level with respect to nursing students' informative features, computer skills, and frequency of internet connection*

Mean score of readiness and expectation of students in e-learning environments was found as 79.72 ± 23.66. There was a significant relationship between the age of the students and the value of readiness and expectation regarding e-learning ($p=0.012$). This value decreased with the increasing age of the students. Students with working fathers had higher level of readiness and expectation regarding e-learning ($p = 0.002$), which also increased significantly as the income level of the families increased ($p < 0.000$). It was

also relatively higher among students having a personal computer. Moreover, it displayed a significant correlation with internet availability ($p<0.000$). Having continuous internet connection yielded a statistically significantly higher level of readiness and expectation score concerning the e-learning process with respect to those with interrupted and irregular internet access. Furthermore, this score was statistically higher among students having better computer skills when compared to those having lower and moderate level computer skills (Table 2).

**Table 2**.

Mean scores of nursing students' informative features, computer skills, frequency of internet connection, and readiness and expectation, satisfaction regarding the e-learning process (n = 91)

| Variables | | | Satisfaction Scale | | | Readiness and Expectation Scale | | |
|---|---|---|---|---|---|---|---|---|
| **Gender** | **n** | **%** | **X ± SD** | **Test** | **P** | **X ± SD** | **Test** | **P** |
| Female | 63 | 69.2 | 88.49±30.37 | t=.497 | .620 | 79.12±25.20 | t=-.392 | .720 |
| Male | 28 | 30.8 | 85.03±31.18 | | | 81.07±20.14 | | |
| **Age (years)** | | | | | | | | |
| 20-21 | 33 | 36.3 | 93.03±30.03 | r=-.134 | .207 | 87.66±21.19 | r=-262 | **.012** |
| 22-23 | 53 | 58.2 | 83.62±28.80 | | | 75.45±24.60 | | |
| 24-25 | 5 | 5.5 | 90.80±41.23 | | | 72.60±17.51 | | |
| **Number of siblings** | | | | | | | | |
| 0-1 | 11 | 12.1 | 85.09±21.41 | r=.184 | .080 | 87.90±17.68 | r=-.199 | .058 |
| 2 | 14 | 15.4 | 73.42±36.53 | | | 80.28±33.67 | | |
| 3 | 19 | 20.9 | 84.78±28.90 | | | 81.84±21.10 | | |
| ≥4 | 47 | 51.6 | 93.21±30.29 | | | 76.78±22.29 | | |
| **Place of living** | | | | | | | | |
| City center | 32 | 35.2 | 86.96±28.46 | $X^2$=.730 | .694 | 82.78±22.67 | $X^2$=3.581 | .167 |
| County town | 36 | 39.6 | 90.19±27.81 | | | 82.63±24.30 | | |
| Village | 23 | 25.2 | 83.73±37.49 | | | 70.91±22.77 | | |
| **Family type** | | | | | | | | |
| Extended family | 22 | 24.2 | 81.18±35.73 | U=640.0 | .270 | 71.31±24.41 | U=552.5 | .056 |
| Nuclear family | 69 | 75.8 | 89.42±28.63 | | | 82.40±22.95 | | |
| **Work status of the mother** | | | | | | | | |
| Working | 8 | 8.8 | 83.75±27.56 | U=308.50 | .742 | 87.00±26.38 | U=275.50 | .428 |
| Not working | 83 | 91.2 | 87.78±30.89 | | | 79.02±23.44 | | |
| **Work status of the father** | | | | | | | | |
| Working | 61 | 67.0 | 89.96 ±29.19 | t=.555 | .581 | 90.53±22.91 | t=3.209 | **.002** |
| Not working | 30 | 33.0 | 86.18 ±31.27 | | | 74.40±22.34 | | |
| **Family income** | | | | | | | | |
| High | 7 | 7.7 | **122.28 ±17.3 [a] | $X^2$=9.42 | **.009** | ***116.28±11.81[a] | $X^2$=19.23 | **.000** |
| Medium | 68 | 74.7 | 85.51±28.25 [b] | | | 79.44±21.01 [b] | | |
| Low | 16 | 17.6 | 80.31±35.46 [b] | | | 64.93±21.78 [c] | | |
| **Grade point average** | | | | | | | | |
| 0.00-2,99 | 48 | 52.7 | 84.39±29.56 | t=-1.002 | .319 | 78.10±22.60 | t=-.688 | .493 |
| 3.00-4.00 | 43 | 47.3 | 90.81±31.50 | | | 81.53±24.93 | | |
| **Term grade** | | | | | | | | |
| 0.00-2,99 | 23 | 25.3 | 91.82±25.76 | U=697.00 | .437 | 82.08±23.03 | U=716.50 | .550 |
| 3.00-4.00 | 68 | 74.7 | 85.94±31.97 | | | 78.92±23.98 | | |
| **Having a PC** | | | | | | | | |
| Yes | 31 | 34.1 | 87.83±32.96 | t=.092 | .927 | 89.64±29.32 | T=2.604 | **.013** |
| No | 60 | 65.9 | 87.21±29.42 | | | 74.60±18.39 | | |
| **Internet Access** | | | | | | | | |
| Noncontinuous | 26 | 28.6 | ****75.76±19.82[a] | $X^2$=6.865 | **.032** | *****68.46±19.82[a] | $X^2$=24.168 | **.000** |
| Intermittant | 32 | 35.2 | 86.90±22.58[b] | | | 71.65±15.61[b] | | |
| Continuous | 33 | 36.3 | 97.12±30.82[c] | | | 96.42±24.00[c] | | |
| **Internet Use Skills** | | | | | | | | |
| Low | 16 | 17.6 | 87.18±25.55 | $X^2$=3.000 | .223 | ******66.12±16.03[a] | $X^2$=21.950 | **.000** |
| Average | 45 | 49.5 | 82.97±29.66 | | | 74.28±20.67[b] | | |
| High | 30 | 33.0 | 94.23±33.69 | | | 95.13±23.72[c] | | |
| **Daily internet use frequency** | | | | | | | | |
| < 1 hr | 9 | 9.9 | 64.00±33.07 | r=.046 | .666 | 63.44±17.99 | r=.073 | .491 |
| Between 1-3 hr | 35 | 38.5 | 94.40±29.46 | | | 84.14±21.01 | | |
| Between 4-6 hr | 22 | 24.2 | 88.36±26.44 | | | 78.68±23.86 | | |
| > 7 hr | 25 | 27.5 | 85.28±31.59 | | | 80.32±27.17 | | |
| **Daily social media access frequency** | | | | | | | | |
| < 1 hr | 23 | 25.3 | 76.56±35.47 | r=.092 | .385 | 68.26±19.91 | r=.196 | .063 |
| Between 1-3 hr | 39 | 42.9 | 94.79±28.43 | | | 85.61±24.95 | | |
| Between 4-6 hr | 19 | 20.9 | 84.15±29.40 | | | 76.57±20.94 | | |
| >7 hr | 10 | 11.1 | 89.90±22.64 | | | 89.10±22.79 | | |

* The percentages were taken over n, since more than one option was marked.

**a>b=c

***a>b>c

****c>b=a

*****c>b=a

*Nursing Students' Experiences and Opinions About Distance Education*

A large part of the research participants (82.4%) had no prior experience of taking lessons via distance education. The students stated that actual child health and nursing course was not totally appropriate for learning online (37.4%) and that they would not prefer taking the course online in the future (65.9%). In case the course had to be provided by distance education, 73.6% of the the students preferred interactive video narration of the content, 52.7% PowerPoint presentations, 37.4% online presentations. In case of having an alternative for distance education for the current course, 72.5% of the students would still choose face-to-face formal education, 52.7% stated that online learning was not beneficial in achieving the learning objectives of the course, 65.9% evaluated the systems used in distance education as rich and useful with videos, documents and internet resources and 72.5% stated that examining the recorded courses on the system were helpful in getting prepared for the exams. When the students were asked about the advantages of distance education, the most common answers were availability of studing anywhere (60.4%) and flexible study time (58.2%). The most frequent problems that students encountered in distance education were related to internet connection (54.9%) and lack of motivation due to studying individually (34.1%) (Table 3).

**Table 3.**

Nursing students' experiences and opinions about distance education (n = 91)

| | N | % |
|---|---|---|
| **Previous experience in distance education** | | |
| Yes | 16 | 17.6 |
| No | 75 | 82.4 |
| **If the actual learning program is adequate for distance education or not** | | |
| Yes | 31 | 34.1 |
| No | 26 | 28.6 |
| Partially | 34 | 37.4 |
| **If they would take Child Health and Disease Nursing course online in the future or not** | | |
| Yes | 31 | 34.1 |
| No | 60 | 65.9 |
| **How should the "Child Health and Disease Nursing" course be implemented?*** | | |
| Presenting the content via Interactive Videos (by the instructer) | 67 | 73.6 |
| By means of Power Point Presentations | 48 | 52.7 |
| Online (live lectures on internet) | 34 | 37.4 |
| Via YouTube Videos (prepared by other instructors or institutions) | 33 | 36.3 |
| By readings (articles, book chapters, etc.) | 19 | 20.9 |
| **Whether face to face education would still be preferred even if there were an alternative distance education version of the course** | | |
| Yes | 66 | 72.5 |
| No | 25 | 27.5 |
| **Beneficialness of distance education in achieving the learning goals of the course** | | |
| Yes | 43 | 47.3 |
| No | 48 | 52.7 |
| **Richness and beneficialness of distance education systems in terms ıf videos, documents, and internet sources** | | |
| Yes | 60 | 65.9 |
| No | 31 | 34.1 |
| **Beneficialness of reviewing recorded courses on distance education systems in preparion for the exams** | | |
| Yes | 66 | 72.5 |
| No | 25 | 27.5 |
| **Advantages of distance education programs*** | | |
| Opportunity to continue learning at any place | 55 | 60.4 |

| | | |
|---|---|---|
| Flexible study periods | 53 | 58.2 |
| Opportunity to learn at one's own pace | 42 | 46.2 |
| **The most frequent problem encountered during following a distance education program*** | | |
| Problems in internet connection | 50 | 54.9 |
| Motivation problems arising from studying individually | 31 | 34.1 |
| Difficulty in following the courses on computer | 24 | 26.4 |
| I don't encounter any problem | 17 | 18.7 |

* The percentages were taken over n, because more than one option was marked.

## 6. Discussion

The opportunities provided by e-learning environments in recent years have increased the demand for e-learning. However, the issue of whether students were ready to study in online learning environments was not questioned sufficiently (Baber, 2020; Korhonen et al., 2019; Sharadgah & Sa'di, 2020). This study aimed to determine whether the nursing students were ready for the e-learning experience, as well as their opinions about various positive and negative aspects and their level of satisfaction with e-learning.

In the study, access to technology constituted the weakest factor of the readiness and expectation scale regarding the e-learning process. Studies showed that students' access to technology can affect their level of readiness in e-learning environments (Watkins et al., 2004; Salyers, 2007), technical problems they experience can reduce satisfaction with e-learning and consequently they may quit using e-learning environments (Moule et al., 2010; Salyers, 2007). In e-learning environments, feedback from users should be taken into account, hardware and software incompatibilities should be eliminated and all multimedia should be tested and made certain to be working properly, and technical support should be made available at any time to resolve any technical problems that may occur (Bloomfield & Jones, 2013). These strategies will help to minimize students' dissatisfaction, reduce stress, and prevent interruptions during the learning process.

In the study, a significant relationship was also found between age and readiness and expectation of students in e-learning environments. Studies showed that students of young age have a tendency to adopt e-learning and the levels of readiness and the expectation were higher (Ngampornchai & Adams 2016; Lai & Wang 2012).

It is observed that only individuals with high and medium economic status can use the internet as an educational tool. It is underlined that online learning causes inequality of opportunity for individuals with lower economic levels, due to the high cost of benefiting from universities offering distance education through the internet (Çevik & Özden 2020). Considering the circumstances of our country, it is known that students of low economic level do not have access to computers and internet (Andsoy et al., 2013). It was concluded in our study too, that the satisfaction, readiness and expectation levels of the students regarding the e-learning process decreased, as their income level decreased.

In the study, students having a computer at home with continuous internet access and high level computer skills displayed higher levels of readiness and expectation regarding the e-learning process. Furthermore, satisfaction level of students with continuous internet connection was also high. Wattakiecharoen and Nilsook (2013) revealed in their study that the postgraduates having higher levels of score for online learning readiness, displayed higher levels of technology acceptance as well. It was stated that, the better the students' basic computer skills (using the internet, office programs and other software, uploading and downloading files, using e-mail, accessing online resources, etc.), the more readiness to participate in an online course, whereas lower level competence in basic computer skills can negatively affect students' desire to participate in online courses (Abdelaziz et al., 2011; Coopasami, 2014; Wattakiecharoen & Nilsook, 2013).

One of the main findings of this study was that the students were not ready to give up traditional teaching methods and they esteemed face-to-face learning in general, even though had favourable opinions about e-

learning. In the study, 72.5% of the students reported that they would still decide on face-to-face education even if they had distance education alternatives in the program that they studied. Other studies concerning nursing students' transition to e-learning system also support this finding (Koch et al., 2011; Sit et al., 2005). Kahyaoğlu and Küçükkaya (2016) reported that most of the nursing students (87.5%) did not prefer distance education. In another study, only 31.9% of nursing students stated that they preferred e-learning (Ali, 2016).

The majority of the study group remarked that distance education was advantageous in terms of being available anywhere (60.4%), and providing them flexible study schedule (58.2%). Other studies also support this finding (Bloomfield & Jones, 2013; Koch et al., 2011). Nursing students' opinions concerning the advantages of distance education including "minimizing time and space limitations", "boosting individual learning" and "allowing for technology use" were already indicated in a study by Şenyuva (2013). Bloomfield and Jones (2013) reported that most of the nursing students particularly appreciated flexible access to e-learning resources as well as opportunity for independent learning in terms of place and time. In terms of varying demographic characteristics and expectations of nursing students, it is essential that e-learning environments should be accessible and acceptable. As the socio-economic and socio-cultural characteristics of students become heterogeneous, the need for flexibility becomes more and more important, concerning learning opportunities (Bloomfield & Jones, 2013; Koch et al., 2011).

In our study, the most common problems experienced by students in distance education were determined as the problems related with internet connection (54.9%), lack of motivation due to studying individually (34.1%) and difficulty in following the courses on PC (26.4%). In the other studies too, students' difficulty at receiving sufficient feedback and expressing themselves, minimized interaction between teacher-student and student-student, and limited coverage of practice-based subjects were mentioned among the problems encountered in distance education (Bernard et al., 2009; Şenyuva, 2013; Yu & Yang, 2006). It was recommended in a meta-analysis study that, planning for e-Learning should not only focus on the educational content, but also on how to support various interactions essential in the learning process (Bernard et al., 2009)

In the study, the lowest factor of the satisfaction scale regarding the e-Learning process was the learning content. Other studies also pointed out that it was not appropriate to implement all the courses in nursing via distance education. Distance education in a practice-oriented profession such as nursing, may cause significant inadequacies, particularly in clinical and laboratory practices (Kahyaoğlu & Küçükkaya 2016; Tasocak et al. 2014; Yu & Yang 2006).

As expected, interactive videos about clinical skills were the most popular course material for the students in this study. Because visual materials were determined to create mental representations, ensuring permanent outcomes in learning experience (Gagné & Gagné, 1985). Furthermore, visual materials had a stronger effect on remembering the information, with respect to textual materials (Berry et al., 1997). Taşlıbeyaz et al. (2015) examined the opinions of medical faculty students about interactive training videos and determined a positive approach for using interactive videos in medical education. Studies revealed that interactive videos could provide a better learning opportunity than normal videos (Bloomfield & Jones, 2013; Taşlıbeyaz et al., 2015). Video applications in the nursing program can be recommended n distance education, as they strengthen the competence by means of learning and practicing basic procedural steps in the courses and facilitate a practical understanding of how to perform clinical skills (Bloomfield & Jones, 2013).

## 7. Conclusion and Recommendations

It was aimed to reveal the level of satisfaction, readiness and expectation of nursing students about distance education. In the context of our findings, it can be stated that paying more attention to interaction, particularly in practical courses, and using materials enriching the course content will positively influence students' expectations and satisfaction, during online Child Health and Disease Nursing courses. Moreover, improving teacher-student interaction, providing opportunities for the development of clinical skills, and

planning an enriched course content with alternative learning environments are highly recommended. It is thought that the conclusions in this study will contribute to increase students' expectations and satisfaction with distance education in nursing.

*7.1. Limitations*

The small sample size and collecting data only from students of the Pediatric Nursing Course can be considered as the main limitations of this study, as they prevent our findings to be generalized.

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