

## Female Nursing Students' Attitude toward Digital Learning Technology at Al-Azhar university

Fatma A. Eiz - Elregal<sup>(1)</sup>, Doaa Sadek Ahmed Fathy<sup>(2)</sup>, Nada Gehad Abotaha<sup>(3)</sup>  
Hadeer M. Abdel-Hameed<sup>(4)</sup>, Nada A. Abdalazim<sup>(5)</sup>

(1) Assistant prof., Community Health Nursing, Faculty of Nursing (for girls), Al-Azhar University, Egypt.

(2) Lecturer, Community Medicine and public health, Faculty of Medicine (for girls), Al-Azhar University, Egypt.

(3) Assistant Lecture. Medical and Surgical Nursing, Faculty of Nursing (for girls), Al-Azhar University, Egypt

(4&5) Community Nursing Students, Faculty of Nursing, Al-Azhar University, Egypt

### Abstract

**Background:** Technology continues to shift the nursing field in many ways, with the pace of change expected to increase with time. Nursing students need to be aware of the different types of digital learning technology that complement the academic curriculum. Many online learning tools are available and offer an efficient and flexible way to acquire new skills and expand knowledge.

**Aim:** This study aimed to assess female nursing students' attitudes toward Digital Learning Technology (DLT). **The study design:** a web-based descriptive cross-sectional study. **Setting:** The study was conducted at the Faculty of Nursing, Al-Azhar University. **The sample:** A convenience sample of nursing students (237) from the third and fourth academic years. **Tools of data collection:** The study included two tools: a pre-constructed self-administered questionnaire and a self-report scale attitude. **Results:** Most of the nursing students were aged between 20 and 21 years old, and all were single. The majority of nursing students used smartphones. About two-thirds of them had a positive attitude towards DLT, about one-third of the nursing students considered distance learning and online education as advantages of DLT, while more than one-third mentioned that lacked active participation and interactive as disadvantages of DLT. Nursing students did not receive formal digital learning technology training. **Conclusion.** The study denoted that there was a positive attitude toward using digital learning technology. **Recommendation:** Nursing students need formal courses of training to increase awareness about different types of digital learning technology and the many benefits of their uses

**Keywords:** Attitude - digital learning technology –nursing students

### Introduction:

Technological improvements in the educational process have made life easier for students. In addition to the oldest methods, students nowadays use various software and tools to create presentations and projects. Technology is embedded within learning and teaching to prepare students for a more predictive future where technology will play an important role (Alfadda and Mahdi, 2021).

Digital technology includes online and blended learning and any learning that is accompanied by instructional practice that makes effective use of technology (Hsieh, 2020). It includes a set of powerful student-centered tools and collaboration-based learning environments that enhance teaching and learning and improve performance; supplemental learning enhances learning outcomes (Seppälä, 2020).

Digital learning can access quality education and allow learners to be flexible with their learning and adjust their schedules. Integrating digital learning tools can create interactive participation, discussion forums, and virtual collaboration experiences to create an interactive strategy learning environment (Amin & Sundari, 2020).

The Egyptian Ministry of Higher Education has encouraged universities in Egypt, including Al-Azhar University, to use DLT to encourage formal learning and teaching using computers and other devices to enable students to play a more proactive role through free communication platforms, such as Google Classroom and Zoom. Social media, such as Facebook, WhatsApp, YouTube, online courses, webinars, SlideShare, and mobile applications (Sobaih and Moustafa, 2016).

Many studies confirm that nursing students play an essential role in enhancing the health literacy of clients and families. Computers and personal digital assistants (PDAs), through which they are given the ability to download scientific research, watch videos or simulation training, and use discussions on the science platform, thus increasing the competence of nursing students in clinical settings (Männistö et al., 2019).

Several studies concluded that the use of DLT has become more popular worldwide in all different learning fields during the last decade (Gurung and Ryan, 2011). Because technology has become most used, it was necessary to know the extent of attitude among students towards adopting the new DLT (Alfadda and Mahdi, 2021).

Success of integrating technological aids in the learning and teaching process. Young people today are more “connected” than ever. Young people aged 15–24 generally outnumber others in terms of the overall online population, and 44.3% of their internet activities are for educational purposes (MCIT, 2017). Young people have shown preferences for using the internet for gaming, chatting, and social networking purposes (YinHou et al., 2022)

Nursing students use various DLT tools to cope with academic and practical activities, but there are not enough studies on the extent of adoption and attitudes of nursing students toward DLT during the educational process. In addition, hardware and software issues, connectivity, security and safety of personal information, and lack of face-to-face interaction are other challenges to the optimal use of technology in teaching and learning (Dhir et al., 2018). This was an essential reason for doing this study to evaluate their attitude about DLT.

#### Significance of the study:

Technology prepares students for the life of the twenty-first century as they can develop their competencies to be able to gain knowledge and information. This is due to the capability of DLT to provide a dynamic and interactive teaching and learning environment (Ghavifekr et al., 2014).

The Egyptian Ministry of Education in 2019 is highly investing in the digital and physical resources in all public and private schools; other factors strongly influence the success of integrating technological aids in the learning and teaching process.

Gamal & Aziz (2012) examined improving higher education in Egypt through e-learning programs. The study results showed that 96% of students use the internet on a daily basis, and most of the sample (92.1%) uses the web for educational purposes.

#### Aim of the Study:

This study aimed to assess female nursing students' attitude toward digital learning technology.

**Research question:** What is the attitude of female nursing students toward digital learning technology?

#### Subjects and methods

- **Research design:** A Web-based descriptive cross-sectional study was conducted from April 2024 to May 2024 among undergraduate nursing students who use DLT
- **Study Setting:** The study was carried out at the Faculty of Nursing at Al-Azhar University during the academic year 2023-2024.
- **Sampling technique:** A convenience sample of 237 out of 263 nursing students who represent the total number in the third and fourth academic years, the sample was calculated by **Epi Info 7 (2018)**, with considering a margin of error of 3%, confidence level of 95%, and an assumed prevalence of positive attitudes set at 50%, the minimum sample size was 212 and then increased to 237.
- **Tools of the study:** Pre structured self-administered questionnaire was designed in simple English language to collect the following data:

#### First tool:

- A) Demographic characteristics of the studied nursing students, which included age, academic year, previous academic study,

marital status, residence, and family income/month.

- B) Characteristics of DLT used by female nursing students, such as most used electronic devices by students, sources of information about DLT, attendance of training courses about DLT, availability of DLT methods at AL-Azar University, availability of DLT in all courses and grades at the faculty of nursing, type of online educational methods used by students, and criteria that must be involved in DLT.
- C) Advantages and disadvantages of using DLT. The advantages included personalized learning, interactive learning, accessibility and flexibility, diverse learning resources, real-time feedback and evaluation, informal learning and life learning, distance learning, and online education, and the disadvantages consisted of lack of access, lack of accurate content, lack of active participation and interaction, and lack of time management.

**Second Tool:** Self-report scale attitude utilized to evaluate nursing students' attitudes relevant to the DLT which developed by **Jyothi and Vijayabhinandana (2021)**.

This scale included 20 items; its statements indicate both positive and negative attitudes toward DLT. The scoring system of the attitude scale was calculated as follows: out of the twenty selected statements, nine statements were the indicators of favorable attitude, and eleven statements were the indicators of unfavorable attitude. Response was categorized by a 7-likert scale of either very strongly agree, strongly agree, agree, undecided, disagree, strongly disagree, or very strongly disagree of 7, 6, 5, 4, 3, 2, 1 for favorable statements and 1, 2, 3, 4, 5, 6, 7 for unfavorable ones. Final scores were obtained and classified according to the median into the two mentioned categories.

#### **Validity and Reliability:**

Content validity was performed by one professor from the Community Health Nursing Department - Faculty of Nursing and. Two professors from the Community Medicine Department - Faculty of Medicine All experts were affiliated with Al-Azhar University,

Egypt. The developed tools were tested for reliability. The reliability test of the translated version was established by using Cronbach's alpha (0.85), which showed good internal consistency construct validity.

#### **Ethical consideration:**

Official permissions to conduct the proposed study were obtained from the Scientific Research Ethical Committee, Faculty of Medicine, Al-Azhar University. It was approved by the Institution Research Board (IRB) by the number of (2024.404.2337). All nursing students were informed about the importance and aim of this study. All nursing students were informed that their participation is voluntary, their rights to withdraw at any time, and the confidentiality of the information obtained. Also, the nursing students were informed that the collected data would be used only for the purpose of the present study, as well as for their benefit.

**Pilot study:** It was carried out on 10% (26) of the total study sample. It was conducted to test the study process, to evaluate the applicability and clarity of the tools, to assess the feasibility of fieldwork, and to detect any possible obstacles that might face the researchers and interfere with data collection. Necessary modifications were done based on the pilot study findings to strengthen the contents or for more simplicity and clarity. The pilot sample was not included in the main study analysis.

**Procedure.** The investigator conducted a Zoom application for half an hour to explain the aim and purposes of the study to students in the fourth year and then the third year. During the Zoom meeting, the investigator explained how to fill out the questionnaire and answer any questions from students. The questionnaire for the study was placed on Google Forms, and the link was sent to them via the WhatsApp of each study group for a week to give them the opportunity to participate in the study.

**Statistical analysis.** The collected data were organized, categorized, and analyzed using the statistical package for social studies (SPSS) version 22. Data were presented using descriptive statistics in the form of frequencies

and percentages for qualitative variables; a chi-square test was used to compare qualitative variables. Statistical significance difference was considered when  $p\text{-value} \leq 0.05$ .

### Results:

**Table (1)** revealed that 57.8% of the nursing students were between the ages of 20 and 21, with 53.2% in their third academic year. Additionally, all nursing students were unmarried. 65.4% of them residing in rural areas. Similarly, 58.6% of them had enough income.

**Table (2)** showed that 89% of the studied nursing students used smartphones for digital learning, 65% mentioned social media as a source of information about DLT, but only 14.8 % of them attended courses about DLT. Also, 50.6% reported the availability of DLT

methods, while 62.9% reported lack of DLT methods in all courses and grads at the faculty of nursing. Likewise, 35.4% used application in education. Moreover, 42.6% revealed the DLT should be tailored according to learning objective.

**Figure (1,2)** revealed that the best aspects of DLT were online education and distance learning, while the worst aspects were the lack of interaction and participation as perceived by the nursing students. While **Figure (3)** illustrated that 60.0% of students had a positive attitude towards DLT

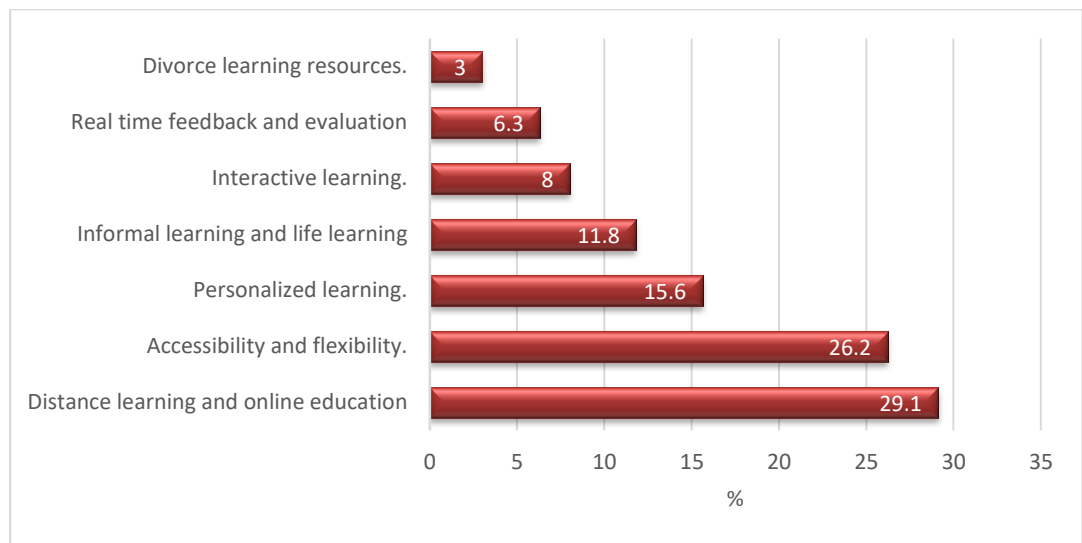
**Table (3)** showed that 67.6% of students with a positive attitude towards DLT graduated from the secondary institutes, but only 9.2 % of them mentioned that they had training courses in DLT with a statistically significant difference.

**Table (1): Socio-Demographic Characteristics of the Studied Nursing Students**

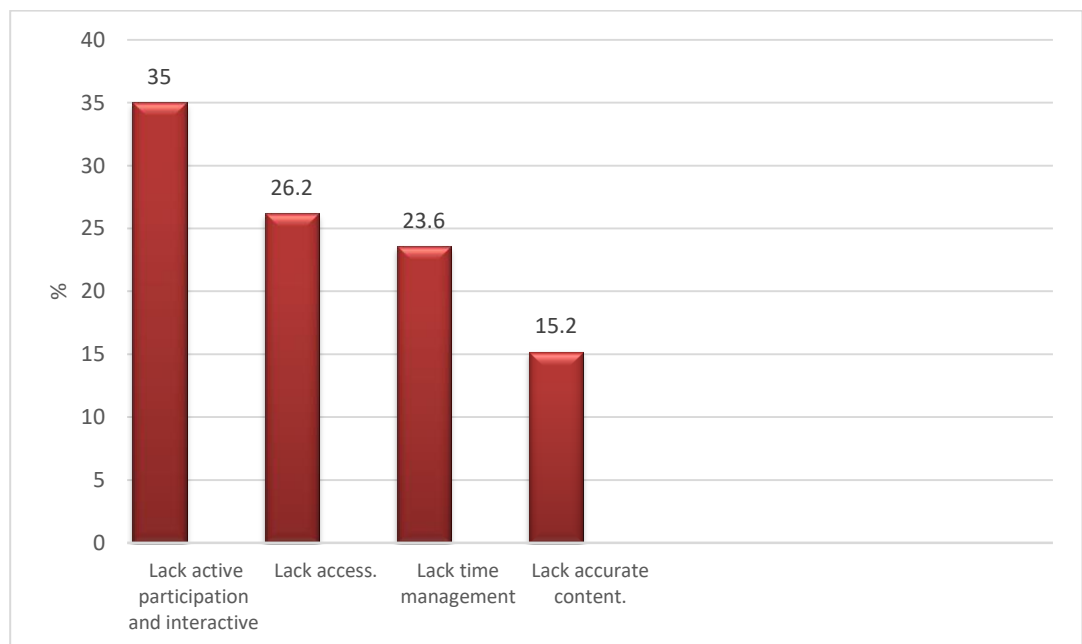
Items	No= 237	%
<b>Age/year</b>		
○ 18 - 19 years.	62	26.2
○ 20 - 21 years.	137	57.8
○ 22 - 23 years.	35	14.8
○ $\geq 23$ years	3	1.3
<b>Academic year</b>		
○ Third year	126	53.2
○ Fourth yea	111	46.8
<b>Previous academic study</b>		
○ Secondary school.	152	64.1
○ Nursing technical institute	85	35.9
<b>Marital status</b>		
○ Single	237	100.0
<b>Place of residence</b>		
○ Rural	155	65.4
○ Urban	82	34.6
<b>Family income/month</b>		
○ Enough.	139	58.6
○ Hardly enough.	73	30.8
○ Not enough.	25	10.5

Table (2): Characteristics of Digital Learning Technology Among the Studied Nursing Students

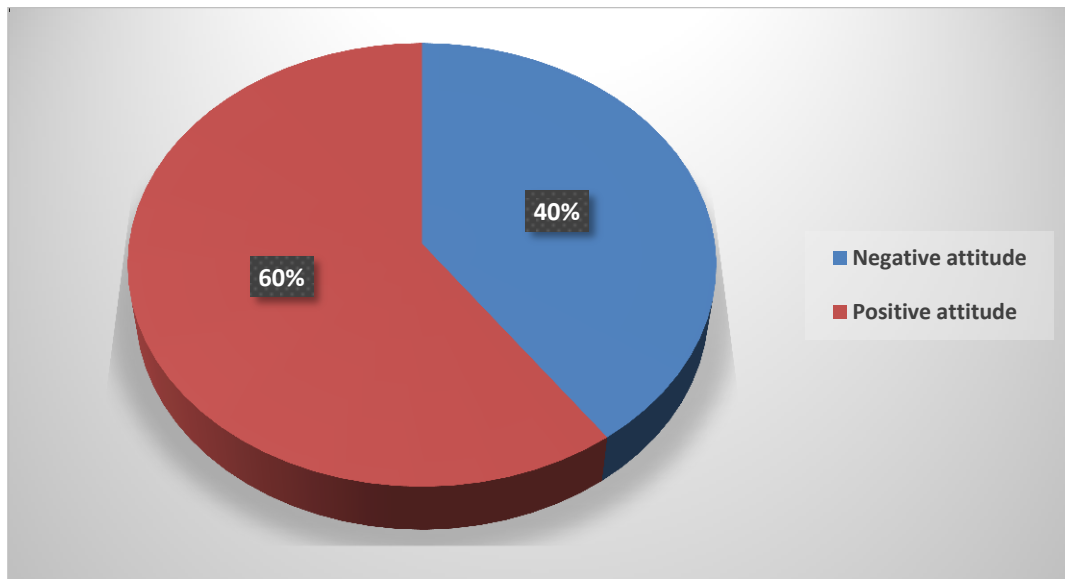
Items	No= 237	%
<b>Most used electronic devices by students in digital learning</b>		
○ Smartphone	211	89.0
○ Laptop	18	7.6
○ Computer	5	2.1
○ Tablet	3	1.3
<b>Source of information about DLT</b>		
○ Social media	154	65.0
○ Family	18	7.6
○ Friends	5	2.1
○ Others	3	1.3
<b>Attendance of training courses about DLT</b>		
○ Yes	35	14.8
○ No	202	85.2
<b>Availability of DLT methods at AL-Azar University</b>		
○ Yes	120	50.6
○ No	117	49.4
<b>Availability of DLT in all courses and grades at the faculty of Nursing</b>		
○ Yes	88	37.1
○ No	149	62.9
<b>Type of online educational methods used by students</b>		
○ Website.	90	38.0
○ Program.	38	16.0
○ Application.	84	35.4
○ Speech to text and text speech	25	10.5
<b>Criteria that must be in digital learning technology</b>		
○ Easy to use.	84	35.4
○ Maintain privacy and security	52	21.9
○ According to learning objective.	101	42.6



**Fig. (1): Advantages of DLT Among the Studied Nursing Students (N=237).**



**Fig. (2): Disadvantages of DLT Among the Studied Nursing Students (N =237).**



**Figure (3): Attitude Classification Towards DLT Among the Nursing Students**

**Table (3): Relation between Attitude and Sociodemographic Characteristic of The Studied Students.**

Attitude Factors	Negative N = 95		Positive N = 142		Significant test P Value
	N	%	N	%	
<b>Current residence:</b>					
○ Rural	59	62.1	96	67.6	$X^2=0.761$ P=0.383
○ Urban	36	37.9	46	32.4	
<b>Previous academic study:</b>	42	44.2	43	30.3	$X^2= 4.801$ P= 0.028*
○ Nursing technical institute	53	55.8	99	69.7	
○ Secondary school					
<b>Family income</b>					$X^2=2.16$ P= 0.340
○ Enough	60	63.2	79	55.6	
○ Hardly enough	28	29.5	45	31.7	
○ Not enough	7	7.4	18	12.7	
<b>Previous attendance of training courses of DLT</b>					$X^2=8.876$ P=0.003*
○ No	73	76.8	129	90.8	
○ Yes	22	23.2	13	9.2	

### Discussion:

Technology has been integrated into various sources of education, and it is a big part of students' daily lives. It is used in nursing, including laboratory training, classroom education, and clinical settings, because it is the backbone of teaching, learning, and communication (Alsayed et al., 2020). Students using DLT may be adapted to their educational and personal needs, which

translates into more student-centered teaching. (Loureiro et al., 2021).

The present study showed that about half of the studied nursing students were 20–21 years old and studied in the third academic year. Also, two-thirds of them were from rural areas. Likewise, more than half of the studied nursing students had enough income. Furthermore, they were all single, which may be due to Faculty of Nursing rules prohibiting marriage during the

study term. These results are in line with **Lazar et al. (2020)**, who reported that most undergraduate students were unmarried females.

According to the characteristics of DLT usage, the majority of studied students used smartphones in their course activities. This might result from how essential a smartphone is to their everyday lives as well as how convenient it is to carry and use. These results were in accordance with **Alsayed et al. (2020)**, who stated that most of the students check their phones as their first task upon waking up in the morning. Also, these results, supported by **Grønlien et al. (2021)**, stated that in higher education, tablets and mobile phones have been shown to improve learning through better observations and higher motivation.

Social media was cited by two-thirds of the studied students as the primary source of DLT. This is in consistent with **Alsaqri (2018)**, who revealed that widespread use of social media and smartphones has had a significant impact on nursing education, offering numerous opportunities and challenges.

The current findings of previous untraining of the studied students about DLT corroborated those of **Loureiro et al. (2021)**, who reported that most of the sample lacked formal training in DLT.

As regard the availability of DLT, the study's findings showed that 50% of the students indicated that Al-Azhar University had DLT technology available, which is consistent with the findings of **Loureiro et al. (2021)**, that the majority of students utilized DLT within their institution. However, two-thirds of students reported a lack of DLT methods equally in all courses and grades, which may be due to a lack of organizational resources and teachers not guiding students to use this type of technology.

In concern with the type of online education tool and criteria, the present study revealed that slightly more than a third of studied students used websites followed by applications for learning, which agrees with **Azat et al. (2020)**, as more than one-thirds of students used web conferences, which can save their time and prevent the inconveniences of traveling.

According to the current study's findings, one-third of nursing students reported that distance learning and online education, as well as DLT's accessibility and flexibility, are its advantages, which was similar to the study by **Azat et al. (2020)**, in which they concluded less than one third of students preferred online education because they are easy and quick to search. Also, **Coopasami et al. (2017)** mentioned that the one clear benefit of technology usage in teaching and learning is its flexibility of the location.

While regarding disadvantages of DLT, the current study showed that more than one-third of the nursing students perceived lack of interaction and participation and lack of access as common disadvantages. The results are similar to the study by **Uprichard (2020)**, who reported that nursing education must not lose the unique potential of the relationship between human interaction and participation. Several students reported feeling a lack of personal connection with their teachers, which they felt further impeded their learning progress. In addition, **Alshammari & Fayeze Alanazi (2023)** reported that lack of access and technical difficulties were disadvantages associated with digital technology use.

Because DLT has played a major role in increasing students' knowledge and skills in the educational process, the current study detected that two-thirds of nursing students had a positive attitude toward using DLT. This result correlates with the study performed by **Tubaishat (2014)**, who reported that nursing students attending the target university in Jordan hold an overall positive attitude toward technology. On the other hand, the study of **Alshammari & Fayeze Alanazi (2023)**, revealed that the attitudes towards e-learning among nursing students in Saudi Arabia are varying, with both positive and negative attitudes being expressed.

By discussing the association between attitude and demographic characteristics of studied nursing students, the present study demonstrated that there was a statistically significant relation between attitude and previous academic studying and attendance of training courses of DLT, while there was no statistically significant relation to their current



residence and family income. This results in the same line of the study conducted by **Terkes et al. (2018)**, who reported that nursing female students, in the upper grade, and had a good academic degree used more technology to reach professional knowledge than the others. Furthermore, **Loureiro et al. (2021)** stated that there was no significant difference between villages, towns, or cities concerning these network-related problems. The large percentage of students in our study who exhibit a positive attitude in spite of their lack of training could be attributed to the low percentage of nursing students who enroll in training programs

### Conclusion:

Depending on the results of this current study; it was concluded that nursing students have a positive attitude towards digital learning technology using smartphones due to the availability of internet connectivity. The results also revealed that DLT's benefits include online education and distance learning, but its drawbacks include a lack of interactive and dynamic learning environments.

### Recommendation:

Based on the results of the present study, the following recommendations can be suggested:

- Workshops should be given on the use of digital education technologies to increase students' awareness by providing a lot of information about them.
- Formal training programs must be created to give them much information and decrease fear about DLT. This helps students overcome the difficulties they face during their studies.
- Further researches are recommended to investigate level of acceptance of different types of digit learning technology.

### References

**Alfadda, H. A., & Mahdi, H. S. (2021).** Measuring students' use of Zoom application in language course based on the technology acceptance model (TAM). *Journal of Psycholinguistic Research*, 50(4), 883-900. <https://doi.org/10.1007/s10936-020-09752-1>

**Alsaqri, S., Alkweiese, M., & Dayrit, R. (2018).** Impact of social networking sites on study habits among Saudi nursing students in Hail University. *Int J Adv Appl Sci*, 5(4), 100-8.

**Alsayed, S., Bano, N., & Alnajjar, H. (2020).** Evaluating practice of smartphone use among University students in undergraduate nursing education. *Health Professions Education*, 6(2), 238-246. <https://doi.org/10.1016/j.hpe.2019.06.004>

**Alshammari, A., & Fayeze Alanazi, M. (2023).** Use of technology in enhancing learning among nurses in Saudi Arabia; a systematic review. *Journal of Multidisciplinary Healthcare*, 16, 1587-1599. <https://doi.org/10.2147/jmdh.s413281>

**Amin, F. M., & Sundari, H. (2020).** EFL students' preferences on digital platforms during emergency remote teaching: Video Conference, LMS, or Messenger Application? *Deleted Journal*, 7(2), 362-378. <https://doi.org/10.24815/siele.v7i2.16929>.

**Azat, M., Norair, A., Aelita S., Azat G., Gulchachak G., & Albina G. (2020).** Students' attitude to e-learning. *SHS Web of Conferences* 97, 01042 (2021). <https://doi.org/10.1051/shsconf/20219701042>

**Coopasami, M., Knight, S., & Pete, M. (2017).** E-Learning readiness amongst nursing students at the Durban University of technology. *Health SA Gesondheid*, 22, 300-306. <https://doi.org/10.1016/j.hsag.2017.04.003>

**Dhir, A., Yossatarn, Y., Kaur, P., & Chen, S. (2018).** Online social media fatigue and psychological wellbeing—A study of compulsive use, fear of missing out, fatigue, anxiety and depression. *International Journal of Information Management*, 40, 141-152. <https://doi.org/10.1016/j.ijinfomgt.2018.01.012>

- Egyptian Ministry of Education (2019).** “Measuring the Information Society Report”. “Digital and Physical resources Report”.  
<https://dergipark.org.tr/en/download/article-file/816029>.
- Epi Info 7 (2018).** Community medicine for academic and lay learner  
<https://communitymedicine4asses.wordpress.com/2018/06/23/how-to-calculate-sample-size-with-epi-info-7/>.
- Gamal, S. E., & Aziz, R. A. (2012).** Improving higher education in Egypt through E-Learning programs: HE students and senior academics perspective. *International Journal of Innovation in Education*, 1(4), 335. <https://doi.org/10.1504/ijiie.2012.052738>
- Ghavifekr, S., Razak, A. Z. A., Ghani, M. F. A., Ran, N. Y., Meixi, Y., & Tengyue, Z. (2014).** ICT integration in education: Incorporation for teaching & learning improvement. *Malaysian Online Journal of Educational Technology*, 2(2), 24-45.
- Gurung, R. A., & Martin, R. C. (2011).** Predicting textbook reading. *Teaching of Psychology*, 38(1), 22-28. <https://doi.org/10.1177/0098628310390913>
- Grønlien, H. K., Christoffersen, T. E., Ringstad, Ø., Andreassen, M., & Lugo, R. G. (2021).** A blended learning teaching strategy strengthens the nursing students’ performance and self-reported learning outcome achievement in an anatomy, physiology and biochemistry course – A quasi-experimental study. *Nurse Education in Practice*, 52, 103046. <https://doi.org/10.1016/j.nepr.2021.103046>
- Hsieh, M. Y. (2020).** The most sustainable niche principles of social media education in a higher education contracting era. *Sustainability*, 12(1), 399. <https://doi.org/10.3390/su12010399>
- Jyothi, V., & Vijayabhinandana, B. (2021).** A scale to measure the attitude of students towards online learning. *Indian Res. J. Ext. Edu*, 21(2&3), 37-42.
- Lazar, I. M., Panisoara, G., & Panisoara, I. O. (2020).** Digital technology adoption scale in the blended learning context in higher education: Development, validation and testing of a specific tool. *PLOS ONE*, 15(7), e0235957. <https://doi.org/10.1371/journal.pone.0235957>
- Loureiro, F., Sousa, L., & Antunes, V. (2021).** Use of digital educational technologies among nursing students and teachers: An exploratory study. *Journal of Personalized Medicine*, 11(10), 1010. <https://doi.org/10.3390/jpm11101010>
- Männistö, M., Mikkonen, K., Kuivila, H., Virtanen, M., Kyngäs, H., & Kääriäinen, M. (2019).** Digital collaborative learning in nursing education: A systematic review. *Scandinavian Journal of Caring Sciences*, 34(2), 280-292. <https://doi.org/10.1111/scs.12743>
- Ministry of Communications and Information Technology (MCIT), (2016):** ICT Indicators in Brief, November 2017 | Monthly Issue at [https://mcit.gov.eg/Upcont/Documents/Publications\\_3012018000\\_En ICT Indicators in Brief November 2017.pdf](https://mcit.gov.eg/Upcont/Documents/Publications_3012018000_En ICT Indicators in Brief November 2017.pdf).
- Mohamed, A. Shaymaa, F. & Nermin, E. (2021).** Comparative Study between Egypt and Saudi Arabia to Empirically Examine Students’ E-learning Acceptance in Educational Private Sector during COVID 19 Pandemic, *Turkish Journal of Computer and Mathematics Education*, Vol.12 No.6, 3146-3159.
- Seppälä, S. (2020).** Technological solutions in nursing education: A scoping literature review. *Metropolia University of Applied Sciences*. Retrieved May 3, 2021, from <http://www.theseus.fi/handle/10024/339273>

**Sobaih, A. E., & Moustafa, M. A. (2016).**

Speaking the same language: The value of social networking sites for hospitality and tourism higher education in Egypt. *Journal of Hospitality & Tourism Education*, 28(1), 21-31. <https://doi.org/10.1080/10963758.2015.1127169>

**Terkes, N., Celik, F., & Bektas, H. (2018).**

Determination of nursing students' attitudes towards the use of technology. *Japan Journal of Nursing Science*, 16(1), 17-24. <https://doi.org/10.1111/jjns.12207>

**Tubaishat, A. (2014).** An investigation into the

attitudes of nursing students toward technology. *Journal of Nursing Research*, 22(2), 119-125. <https://doi.org/10.1097/jnr.0000000000000029>.

**Uprichard, K. (2020).** E-learning in a new era:

Enablers and barriers to its implementation in nursing. *British Journal of Community Nursing*, 25(6), 272-275. <https://doi.org/10.12968/bjcn.2020.25.6.272>.

**Yin Hou,C., Rutherford,R., Chang,H.,**

**Chang,F., Shumei,L., Hui Chiu,C., Chen,P., et al.,(2022).** Children's mobile-gaming preferences, online risks, and mental health, *PLoS One*. 1;17(12):e0278290. doi: 10.1371/journal.pone.0278290 <https://pmc.ncbi.nlm.nih.gov/articles/PMC9714941/>.