International Egyptian Journal of Nursing Sciences and Research (IEJNSR)

Original Article

Received 15/09/2021
Accepted 16/10/2021
Published 01/01/2022

E-Learning: Perception, Effectiveness and Factors Affecting Its Quality among Nursing Students

Soha Mamdouh El-kholy[1], Doaa Fawzi El-boudy[2]

1,2Lecturer of Nursing Administration Department, Faculty of Nursing, Menoufia University

ABSTRACT

Background: E-learning is described as the electronic transmission of a learning, training, or education program. It entails the use of a computer or other electronic device, such as a cellphone, to give training, education, or learning materials in some form. The development of e-learning at the university level necessitates a support system from lecturers, students, and technology professionals, as e-learning are in high demand in the learning process. However, knowing the adoption drivers as well as the primary problems that contemporary e-learning systems confront is necessary for successful use. **Aim:** The current study was conducted to investigate the relationship between E-Learning perception, effectiveness and factors affecting its quality among nursing students. **Research design:** Non-experimental descriptive correlational research design was used in conducting this study**. Setting:** The study was implemented at Faculty of Nursing, Menoufia University, Menoufia governorate. **Sample:** A simple random sample of 856 nursing students was recruited from faculty of nursing, Menoufia University. They accept to participate in the study. They were in 1st, 2nd, 3rd, and 4th grade. **Tools:** Three tools were used namely; E-learning Perception scale, effectiveness of E-learning scale, and Factors Affecting the Quality of E-Learning scale. **Results:** response of nursing students' of total e-learning perception, e-learning effectiveness, and factors affecting the quality of e-Learning levels all were at a moderate level. There was a highly statistically significant positive link between students' perceptions of e-learning, its effectiveness, and the elements impacting its quality among students. **Conclusion:** a highly significant positive correlation between students' Perceptions of E-learning, the effectiveness of e-learning, and the factors affecting the quality of e-Learning among students were found (P-value < 0.05). Also, nursing students' response of total of e-learning perception, e-learning effectiveness, and factors affecting the quality of e-Learning levels all were at a moderate level. **Recommendations:** The use of e-learning courses in educational institutions should be guided by both governmental and institutional support in order to improve learning opportunities for students and improve learning outcomes and skills, provide adequate in-service training for instructors on how to manage E-learning, and conduct training programs for students on how to use e-learning platforms and tools.

Keywords: E-Learning, Perception, Effectiveness, Factors Affecting Quality, and Nursing Students.

Introduction

The Covid-19 pandemic has gotten a lot of attention from individuals all around the world.

The pandemic has a substantial impact on several aspects of a country's economy, social life, tourism, and education [1]

In the education sector, the Covid-19 pandemic has compelled the government to relocate school-based teaching and learning activities to home-based distance learning (e.g., web-based learning, e-learning, m-learning). On the plus side, this shift encourages all educational institutions to incorporate technology into the learning process. A thorough online course, in general, necessitates a design that includes audio and

video content that is suited for learning materials in a certain field. Since the pandemic's quick spread, academia has been confronted with unforeseeable obstacles such as a lack of online teaching experience, setting the context, and so on. [2].

The delivery of a learning, training, or education program by electronic means is referred to as e-learning. It entails using a computer or other electronic device, such as a mobile phone, to give training, education, or learning materials in some form. It has several advantages including temporal and spatial flexibility, fast and convenient access to interactive contents included into the educational process. In addition to engagement of students in different activities, which encourage critical thinking [3].

Furthermore, because the e-learning system is strongly linked to digital media and communication, difficulties that arise in e-learning might have an impact on user dissatisfaction. Meanwhile, at the university level, the development of e-learning necessitates a support system comprised of lecturers, students, and technology professionals, as e-learning are becoming increasingly popular in the learning process [4].

The e-learning system offers a number of great features that might be useful during the COVID-19 epidemic. However, knowing the adoption drivers as well as the primary problems that contemporary e-learning systems confront is necessary for successful use. A survey of the literature found various obstacles to implementing the e-learning system. These difficulties can be divided into four categories: (1) technological difficulties, (2) individual difficulties, (3) cultural difficulties, and (4) course difficulties. Due to differences in culture, context, and preparation, these problems vary greatly from one country to the next. For instance, a lack of ICT [5].

In Egypt's economy, education is an important sector. Controlling costs, attracting students, and meeting customers' demands for convenience and technical innovation are all things that learning institutions may do by recognizing the value of investing in technology. E-learning has helped Egypt solve difficulties including overcrowding in classrooms and transportation issues. The gap between the number of university places available in Egypt and the growing demand for higher education can be bridged through the use of e-learning, which can give a more cost-effective and appropriate solution to the problem of higher education [6].

Because nursing is a discipline with very specialized needs for students, the researchers (academic staff) at the Faculty of Nursing at Menoufia University in Egypt produced various nursing electronic courses. The first E-curriculum experience cannot be overlooked because students are at the heart of the learning process and support the claim that learners are experts in their own experiences. As a result, the purpose of this study was to look into the relationship between nursing students' perceptions of e-learning, its effectiveness, and the elements that influence its quality.

Significance of the study

Egypt's higher education system confronts a number of obstacles that are preventing it from progressing. Egypt must now endeavor to expand and strengthen higher education by utilizing modern technology. The current scenario, which is linked to the COVID-19 epidemic, has compelled a rapid overhaul of the educational system. The current educational model is insufficient in light of the current threat and the demand for social distance. Universities all over the world have been obliged to move their whole curriculum to the internet. This includes utilizing the e-

learning model on a massive scale, which poses numerous obstacles for students, universities, and academic faculty **[7].** Nonetheless, Egypt's adoption and use of e-learning is still in its early phases. Many obstacles and problems must be overcome before e-learning may be broadly embraced. As a result, the purpose of this study was to look into the relationship between nursing students' perceptions of e-learning, its effectiveness, and the elements that influence its quality.

Aim of the study:

The current study was conducted to investigate the relationship between E-Learning perception, effectiveness and factors affecting its quality among nursing students.

Research questions:

1. What is the perception level of nursing students towards E-Learning and effectiveness of E-Learning?
2. What are the factors affecting E-Learning quality among nursing students?
3. What is the relationship between E-Learning perception, effectiveness and factors affecting its quality among nursing students?

Subjects and Method

Research design: Non-experimental descriptive correlational research design was used in conducting this study.

Subjects:

A simple random sample of 856 nursing students was recruited from faculty of nursing, Menoufia University. They accept to participate in the study. They were in 1st, 2nd, 3rd, and 4th grade. The total population of nursing students at this Faculty was (2584).

Setting:

The present research was implemented at Faculty of Nursing, Menoufia University, which is affiliated to Ministry of Higher Education, Egypt. It consists of seven departments namely: Fundamental nursing, medical surgical nursing, obstetric nursing, pediatric nursing, community nursing, geriatric nursing, and nursing administration department. The College of Nursing is an academic unit of Menoufia University units that teach and scientific research to contribute to improving the health of the individual, family and society. The college provide great opportunities for education and skills, and develop research and consultations in a wide professional and academic fields.

Data collection instruments:

Three instruments were used to investigate three variables used in this study namely; E-learning Perception, effectiveness of E-learning scale, and Factors Affecting the Quality of E-Learning scale. Also, the socio-demographic data also included.

The instruments I: E-learning Perception tool: It involved two sections as the follow:

Part (I): Socio-demographic data was created by the researchers to collect the socio-demographic data of the entrant nursing student (ex. gender, educational grade, and housing).

Part (II): This tool was adapted from (Mohammed etal., 2021) [8] , to assess E-learning perception level, this instrument included (14) descriptive items ranked in a five-point Likert scale that ranged from '1' response that represent (Strongly Disagree) to '5' that signifies (Strongly Agree). This scale measured nursing students' response to E-learning and estimated the degree to which nursing students see E-learning.

Scoring of Students' Perceptions of E-learning scale:

The total score of Perceptions of E-learning was ranged from (14 – 70), which is the sum of all students' responses in this scale were ranged from (14 – 27) points were considered as "low Perceptions of E-learning", scores from (28- 41) were denoted as "moderate Perceptions of E-learning", and scores from (42-70) were considered as "high Perceptions of E-learning".

Tool II: effectiveness of E-learning scale.

This scale was adapted from (Olszewska, 2020) [9] and used to assess effectiveness of E-learning. This variable was measured by (21) question items. Every item was assessed on a five-point Likert scale where (1) reflect strongly disagree to (5) rate that mean strongly agree.

Scoring of The effectiveness of E-learning scale:

The total score of effectiveness of E-learning was ranged from (21 – 105), which is the sum of all students' responses in this scale were ranged from (21 – 41) points were considered as "low effectiveness of E-learning", scores from (42- 62) were denoted as "moderate effectiveness of E-learning", and scores from (63-105) were considered as "high effectiveness of E-learning".

Tool III: Factors Affecting the Quality of E-Learning scale

Factors Affecting the Quality of E-Learning were measured by (27) items scale adapted from (Elumalai et al., 2020) [10]. All the answers were allocated on a 5-point scale that ranging from (1) response that mean "not at all" to (5) "answer which represents a great extent".

Scoring of Factors Affecting the Quality of E-Learning scale:

The total score of Factors Affecting the Quality of E-Learning was ranged from (27 – 135), which is the sum of all students' responses in this scale were ranged from (27 – 53) points were considered as "low level of Factors Affecting the Quality of E-Learning", scores from (54- 80) were denoted as "moderate level of Factors Affecting the Quality of E-Learning", and scores from (81-135) were considered as "high level of Factors Affecting the Quality of E-Learning".

Validity:

The content and face validity of the instruments were tested by a bilingual group of six specialists. Two experts from the department of nursing administration, two experts from the departments of medical and surgical nursing, one expert from the pediatric department, and one expert from the department of community health nursing made up the panel (Faculty of Nursing, Menoufia University). The panel was asked to evaluate the instrument as a whole, noting areas of concern and examining the instrument's design, flow, and language. The following criteria were assessed by the panel: relevance to the study's purpose, clear and simple language of research questions, tool is easy to be understood, comprehensive questions, appropriate length of the tool and of each question, appropriate ordering of questions, unbiased, and no redundancy in questions. Necessary modifications and deleting of some questions were done to reach the final valid version of the instruments. The instruments were considered valid from the experts' perspective.

Reliability analysis

All three tools (I, II, III) were tested for reliability using the Cronbach Alpha Coefficient factor test to determine the internal consistency of each scale and all were satisfactory for the nursing Students' Perceptions of E-learning instrument; The effectiveness of E-learning instrument, Factors Affecting the Quality of E-Learning instrument respectively. In most social science study circumstances, a dependability

coefficient of 0.70 or above is deemed appropriate. The Cronbach alpha reliability was calculated, and the results showed that all of the instruments' reliability coefficients were over 0.70, indicating that they were all safe to use.

Cronbach alpha was calculated for all four variables in Table 1 for this investigation.

Table (1): Cronbach Alpha Coefficients for Study Variables

Study Variables	No of Items	Cronbach's Alpha
Nursing Students' Perceptions of E-learning	14	.966
The effectiveness of E-learning	21	.967
Factors Affecting the Quality of E-Learning	27	.982
All Constructs	62	.988

Method of Data Collection

An assent to execute the study was attained from ethical committee of Faculty of Nursing, Menoufia University, and Menoufia governorate.

Ethical Considerations was maintained

Verbal approval was obtained from all nursing students before assembling any data. The data was gathered by the researchers through on line student groups after portraying the study aim to all participants. Anonymity and exclusiveness of participants' information were assured. Elective participation in the study was guaranteed to all participants as well. All the nursing entrant personnel were informed about their rights to retreat from the yielded study at any period without giving any reason of obligation.

Pilot Study

Pilot study was implemented on nursing students (n=68) excluded from the study sample and necessary modification and clarification of some questions were done.

Data Collection Phase

The researchers collected data of (the tool I, II, and III) from studied nursing students by creating special Google forms link and send this link to each nursing students' grade group, then statistically analysis was done for all answers submission of studied students. The data assemblage stage of the study started from the first of February 2021 until the end of March 2021.

Data Analysis

The analysis was carried out with the help of the Statistical Package for the Social Sciences (SPSS) (SPSS V. 23). Descriptive statistics (means and standard deviations, chi-square) were used to characterize and summarize the data. Inferential statistics (including correlation) were also used to measure the degree of the relationship between variables. A p-value of $P < 0.005$ was considered significant **[11].**

Table (2): Showed the socio-demographic characteristics of participant students. The table indicated that about two thirds (59.1%) of participant students were females and 40.9% of them were males and students were distributed over the four academic years of study (25.5%), (25.2%), (25.5%), and (23.8%) for First Year, Second Year, Third Year, and Fourth Year, respectively. Also, (54.6%) of students' housing was rural.

Table (3): Illustrated that Nursing Students' response of total of E-learning perception, E-learning effectiveness, and Factors Affecting the Quality of E-Learning levels All were at a moderate level (2.67.35, SD=1.019), (2.55, SD= .93), and (2.58, SD= .99), respectively and there were slight differences between the mean scores of all three variables. Also, the majority of students perceived all the three variables moderately. All are at a moderate level (3.03, SD=.52), (2.83, SD= .58), and (3.14, SD= .48) respectively and there are slight differences between the mean scores of all three variables.**Table (4):** It indicated a highly

statistically significant positive correlation between students' Perceptions of E-learning, the effectiveness of E-learning, and the Factors Affecting the Quality of E-Learning among students (P-value < 0.05).

Table (5): The table shows a significant positive correlation between students' perceptions of E-learning and the eight factors affecting E-learning quality, namely administrative support, course content, course design, social support, technical support, instructor characteristics, learner characteristics, and E-learning quality. The eight variables were found to be strongly correlated, r =.660, p < .001, r = .732, p < .001, r =.720, p < .001, r =.698, p < .001, r = .749, p < .001, r =.691, p < .001, r =.728, p < .001, r =.748, p < .001, respectively. Among the students of nursing faculty, the effectiveness of E-learning was positively correlated with the eight factors affecting the quality of E-Learning, r =.714, p < .001, r = .769, p < .001, r = .753, p < .001, r = .715, p < .001, r =.757, p < .001, r = .717, p < .001, r =.773, p < .001, and r =.773, p < .001for administrative support, course content, course design, social support, technical support, instructor characteristics learner characteristics, and quality of E-learning, respectively.

Table (2): Socio-demographic characteristics of participant students

Characteristics items(n=856)	No.	%
Educational grade		
First Year	218	25.5
Second Year	216	25.2
Third Year	218	25.5
Fourth Year	204	23.8
Gender		
Female	506	59.1
Male	350	40.9
Housing		
Rural	467	54.6%
Urban	389	45.4%

Table (3): Nursing Students' response of total of E-learning perception, E-learning effectiveness, and Factors Affecting the Quality of E-Learning levels.

Study variables	Total levels of nursing student response (n=856)						Mean± SD	Chi-square	p-value
	Low		Moderate		High				
	No.	%	No.	%	No.	%			
E-learning Perceptions	382	44.6	308	36.0	166	19.4	2.67±1.02	806.09	.000**
E-learning effectiveness	409	47.8	338	39.5	109	12.7	2.55±.93	794.46	.000**
Factors Affecting the Quality of E-Learning	410	47.9	309	36.1	137	16.0	2.58±.99	1212.36	.000**

** High Significant at P < 0.005/ mean score; Low: 1.00 to 2.33, Average (Moderate): 2.34 to 3.66, High: 3.67 to 5.00

Table (4): Correlation between study variables among students

Correlations				
Study variables of studied students (n=856)		1	2	3
1. Students Perceptions of E-learning	Pearson Correlation	1	.801**	.776**
	Sig. (2-tailed)		.000	.000
2. The effectiveness of E-learning	Pearson Correlation	.801**	1	.809**
	Sig. (2-tailed)	.000		.000
3. Factors Affecting the Quality of E-Learning	Pearson Correlation	.776**	.809**	1
	Sig. (2-tailed)	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5: Correlation between Factors Affecting the Quality of E-Learning and Perceptions of E-learning & the effectiveness of E-learning among nursing students.

Factors Affecting the Quality of E-Learning		Students Perceptions of E-learning	The effectiveness of E-learning
Administrative Support	Pearson Correlation	.660**	.714**
	Sig. (2-tailed)	.000	.000
Course Content	Pearson Correlation	.732**	.769**
	Sig. (2-tailed)	.000	.000
Course Design	Pearson Correlation	.720**	.753**
	Sig. (2-tailed)	.000	.000
Social Support	Pearson Correlation	.698**	.715**
	Sig. (2-tailed)	.000	.000
Technical Support	Pearson Correlation	.749**	.757**
	Sig. (2-tailed)	.000	.000
Instructor Characteristics	Pearson Correlation	.691**	.717**
	Sig. (2-tailed)	.000	.000
Learner Characteristics	Pearson Correlation	.728**	.773**
	Sig. (2-tailed)	.000	.000
Quality of E-learning	Pearson Correlation	.748**	.773**
	Sig. (2-tailed)	.000	.000

**. Correlation is significant at the 0.01 level (2-tailed).

Discussion

The coronavirus pandemic has altered the interaction between teachers and students in higher education institutions, causing alterations in the teaching-learning process. Universities were forced to conduct all of their activities with students online as a result of the pandemic. Many governments made steps

to prevent the virus from spreading and to preserve the educational process's continuity, and colleges all around the world adopted online learning. While internet-based learning is generally thought of as an alternative to traditional learning, it became a vital component of keeping the activity going during the Coronavirus pandemic [12].

Students' perceptions of this method of education may change as a result of this paradigm shift, and their perceptions may differ from those obtained in research before to the epidemic. As a result, the current study's goal was to look into it. The relationship between E-Learning perception, effectiveness and factors affecting its quality among nursing students.

Before getting into the outcomes of the research questions, it's important to look at the socio-demographic characteristics of the people who participated in the study, which are listed in table 1. (2). the findings of this investigation revealed that about two thirds of participant students were females and were distributed over the four academic years of study semi-equally. Also, more than half of students' housing was rural.

When it came to overall perceptions of E-learning, the current survey found that a large majority of students had a negative attitude about using the system. This outcome was consistent with prior study where nursing students' possessed unfavorable perception towards E-learning [13]. Also, the highest percentages of nursing students in Menoufia University had negative perceptions of using the E-learning system to complete their studies and curricula during the COVID-19 pandemic, with approximately two-thirds of the study sample having negative perceptions and more than one-third having positive perceptions which was consistent with present study findings [14]. Furthermore, this result is comparable to [15] who found that the overall 77% of students have negative perceptions towards e-learning.

This may be justified in the researcher's opinion since E-learning is a new technique in our faculty, and nursing students are afraid of or reluctant to transition their traditional learning mode to e-learning.

On the other side of the coin, this finding contrasted with the previous research done by Elbasuony (2018) [16] where the students had average perception in using E- learning system.

The present study findings revealed that; the majority of participant students reported low effectiveness of E-learning. This finding go hand with hand with a study that mentioned that there was little tangible effectiveness of E-learning in terms of alleviating the problems of the higher education system in Egyptian universities[17].

Several studies reported that e-learning is less effective or has no difference in outcomes when compared to traditional instruction which was in agreement with the present study results [18]. On the other hand , the present study result was opposed to a study that mentioned that majority of students were extremely pleased with their e-Learning experience, rating the courses as useful and beneficial, and stating that they were able to achieve their goals, enhance communication skills with colleagues and patients, and improve administrative abilities[19].

Furthermore, the current study's findings are at odds with those of [20] who found that students found the e-learning method to be effective and that it had deepened their understanding of the subject. They also stated that after completing the e-learning program, their technology and computer skills had improved. Overall, the study group's students were pleased with the e-learning program as a teaching tool.

This dispute could be warranted because e-learning is a new method in our faculty, and nursing students require further support in using E-learning tools.

Regarding Willingness of students to study from home and use E-learning, the present study showed that the participant students were not willing to study from home. Students did not want to attend another e-learning program unless they had a computer and Internet at home and had improved their computer abilities. They preferred face-to-face training till then. To prevent ambiguity, they choose the traditional on-campus learning style [21].

In the same line of disproving the hypotheses, students prefer online learning and while the students appreciate the benefits of online learning, they are neither prepared nor willing to fully switch to that form of learning [9].

High confidence that university students are willing to accept a large number of on-line courses was reported by [16] which were contradicting with our study's findings.

Egypt faced technological infrastructure issues such as Internet speed and bandwidth, in addition to the familiarity of the regular routine of traditional on-campus education, which may be attributed to developing countries.

Regarding nursing students' response toward factors affecting the quality of E-learning levels. The majority of the participant students reported that the highest factor affecting the quality of E-learning levels was the technical support and the lowest factor was administrative support. According to the study, this could be due to poor internet speed and connectivity, since they were unable to take advantage of e-learning courses that replaced face-to-face learning.

Another justification could be related to students' lack of information technology abilities, which would allow them to use and profit from an e-learning course.

Technical support, increasing technology awareness and an attitude toward e-learning, enhancing basic technology knowledge and skills, improving learning content, requiring computer training, and motivating users to use e-learning were the most important factors influencing e-learning success in developing countries [23].

Also, similar study highlighted crucial characteristic that can aid in determining the success aspects of e-learning programs. Technical assistance, adequate user training, and organizational commitment were highlighted as success factors [22].

The majority of interviewees stated that Egyptian institutions' technology infrastructure and technical assistance are adequate and ready to implement e-learning. Participants were asked about the technology infrastructure and technical assistance in Egyptian universities, as well as if they were ready to implement e-learning [17].

The results of this study demonstrated that among nursing students, there was a highly statistically significant positive association between students' opinions of E-learning, its effectiveness, and the factors determining the quality of E-learning.

Conclusion:

A highly statistically significant positive correlation between students' Perceptions of E-learning, the effectiveness of E-learning, and the Factors Affecting the Quality of E-Learning among students were found (P-value < 0.05). Nursing Students' response of total of E-learning perception, E-learning effectiveness, and Factors Affecting the

Quality of E-Learning levels all were at a moderate level

Recommendation:

Based on the findings of this study and the review of the literature, the following recommendations are proposed:

The following suggestions are made based on the findings of this study and a review of the literature:

1. Government and institutional assistance should facilitate the implementation of e-learning courses in educational institutions in order to improve learning possibilities for students and improve learning outcomes and abilities.
2. Ensure that instructors receive adequate in-service training on how to handle E-learning, and that students receive instruction on how to use e-learning platforms and gain confidence in their use.
3. Faculty instructors and the person in charge of the university's information technology unit must make tremendous efforts to assist pupils.
4. Increased browsing speed of the web site will require technical work from the university's E-learning division.
5. Prior to implementing any new information technology teaching tools, it is necessary to assess the instructor's knowledge and command of information technology abilities, as well as their attitudes toward e-learning.
6. Offering incentives to encourage faculty members to improve their productivity and performance, such as acknowledgment, a certificate of gratitude, a reduction in workload, or the renewal of a foreigner's contract, as well as a point in the yearly review.
7. Blending e-learning with other traditional teaching methods appears to enhance nursing students' learning experience.

Acknowledgment

The authors thank nursing faculty students for their participation and helping the authors in collecting data.

REFERENCES

1. Nicola M., Alsafi Z, Sohrabi C., Kerwan A., Al-Jabir., Iosifidis C. (2020). The socio-economic implications of the coronavirus and COVID-19 pandemic: A review. International Journal of Surgery, 78, 185-193. https://doi.org/10.1016 /j.ijsu .2020.04.018
2. Bao W. (2020). COVID 19 and online teaching in higher education: A case study of Peking - University. Human Behavior and Emerging Technologies, 2, 113-115. https://doi.org/10. 1002/h be2.191
3. Ismail A., Weheida S., Basal A., and shokier M. (2020). E – Learning Barriers as Perceived by Students in the Faculty of Nursing at Tanta University. IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN: 2320–1959.p-ISSN: 2320–1940 Volume 9, Issue 1 Ser. X. (Jan - Feb. 2020), PP 28-41 www.iosrjournals.org
4. Siron Y., Wibowo A., & Narmaditya B. (2020). Factors affecting the adoption of e-learning in indonesia: Lesson from Covid-19. Journal of Technology and Science Education, 10(2), 282-295. https://doi.org/10.3926/jotse.1025
5. Almaiah M., Al-Khasawneh, A. and Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. Educ Inf Technol 25,

5261–5280 (2020). https://doi.org/10.1007/s10639-020-10219-y

6. El-Zeftawy A and Hassan L. (2017). Perception of students regarding blended learning implementation of community health nursing course at faculty of nursing, Tanta University, Egypt. Journal of Nursing Education and Practice 2017, Vol. 7, No. 3. DOI: 10.5430/jnep.v7n3p83.
7. El Sayad G., Saad N., and Thurasamy R. (2021). How higher education students in Egypt perceived online learning engagement and satisfaction during the COVID 19 pandemic. J. Comput. Educ. https://doi.org/10.1007/s40692-021-00191-y .
8. Mohammed Arshad Khan, Mohammed Kamalun Nabi, Maysoon Khojah, and Muhammad Tahir(2021): Students' Perception towards E-Learning during COVID-19 Pandemic in India: An Empirical Study. Sustainability2021,13, 57. https://dx.doi.org/10.3390/su13010057 .
9. Olsazewska k (2020): The effectiveness of online learning in the era of the SARS-COV-2 pandemic on yhe example of students of Polish Universities. World Scientific News. An international scientific journal.148, 108-121. Available online at www.worldscientIficnews.com
10. Elumalai K, Sankar J, Menon N, Alqahtani M, and Abumelha M. (2020): Factors affecting the quality of e-learning during the COVID-19 pandemic from the prespective of higher education students. Journal of information Technology Education: Research, 19,731-753.
11. Pallant A. (2019): SPSS survival manual: A step by step guide to data analysis using SPSS for Windows (versions 23): SPSS student version 23 for Windows. Open University; 100-50.
12. Sobaih A., Hasanein A., Abu Elnasr A. (2020). Responses to COVID-19 in Higher Education: Social Media Usage for Sustaining Formal Academic Communication in Developing Countries Sustainability, 12, 6520. [CrossRef]
13. Sasmal S. and Roy M.) (2021). Perception of undergraduate nursing students regarding e-learning during COVID-19 pandemic in West Bengal. International Journal of Community Medicine and Public Health. Apr; 8(4):1892-1898. DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20211251
14. Diab G. and Elgahsh N. (2020). E-learning during COVID-19 pandemic: Obstacles faced nursing students and its effect on their attitudes while applying it. American Journal of Nursing, 9(4), 300–314, doi: https://doi.org/10.11648/j.ajns.20200904.33
15. Abbasi S., Ayoob T., Malik A., Memon S. (2020). Perceptions of students regarding E-learning during Covid-19 at a private medical college. Pak J Med Sci. 36 (COVID19- S4): COVID19-S57-S61. doi: https://doi.org/10.12669/pjms.36.COVID19-S4.2766
16. Elbasuony M., Gangadharan P, Janula R., Shylaja J., and Gaber.,F.(2018).Undergraduate nursing students' perception and usage of E-learning and blackboard learning system. Middle East Journal of Nursing 2018; 12(2): 3-13. DOI: 10.5742/MEJN.2018.93394
17. AlShabrawy H. (2015).Critical success factors for e-learning implementation in Egyptian public universities: a stakeholders' analysis [Master's thesis, the American University in Cairo]. AUC Knowledge Fountain.https://fount.aucegypt.edu/etds/65

18. Abraham D., Bissonnette A., Cheung J., Corbould L., Dhaliwal P., Kumari A., Nguyen N., Shahrokhi T., and Vera C. (2021). An Exploration of a Nursing Cohort's Online Learning Experiences during the COVID-19 Pandemic: Communication, Comradery, and Comprehension. Canadian Journal of Nursing Informatics, 16(2). https://cjni.net/ journal/ ?p=9070 .

19. Abo Seada A and Mostafa M. (2017). Students' Satisfaction and Barriers of E–Learning Course among Nursing Students, Mansoura University. World Journal of Nursing Sciences 3 (3): 170-178, 2017 ISSN 2222-1352. DOI: 10.5829/idosi.wjns.2017.170.178

20. Narayan N. A. (2018). Evaluation of an E-learning training package by nurses for various designations for developing clinical skills and knowledge. (Master of Nursing (Research)). University of Notre Dame Australia. https://researchonline .nd.edu.au/theses/198

21. Zalat M, Hamed M., Bolbol S. (2021) The experiences, challenges, and acceptance of elearning as a tool for teaching during the COVID-19 pandemic among university medical staff. PLoS ONE 16(3): e0248758. https://doi.org/10.1371/ journal.pone.0248758

22. Santoso B., and Septiani E (2020). Success and failure factors of the implementation of computer based information system in the government institutions of Mataram city: information system resources perspective. Journal of Management and Business 8(1):79-92.DOI: 10.29303/distribusi. v8i1 .97

23. Claudiu C. , Laurent T , Luiza M, Schmitz I, Carmen S. and Maria C. (2020). Online Teaching and Learning in Higher Education during the Coronavirus Pandemic: Students' Perspective. Sustainability 2020, 12, 10367; doi:10.3390 /su122410367 www.mdpi.com/j ournal/ sustaina bility