ASSESSMENT OF NURSING STUDENTS' PERSPECTIVE ABOUT QUALITY IN ELECTRONIC LEARNING

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Abstract

Background: Quality in electronic learning is critical to ensuring beneficial nursing student experiences in electronic courses as it is based on the perspective of students. **Aim** was to assess nursing students' knowledge and perspective about quality in electronic learning. **Methods:** A descriptive research design was used. All third and fourth year nursing students in the academic year 2021-2022 students at faculty of nursing; Fayoum University (n=821). Two tools were used for collecting data I- Nursing students' knowledge about quality in electronic learning questionnaire and II- Nursing students' perspective questionnaire. **Results**: Regarding total level of knowledge, less than half of nursing students 41% had correct knowledge about quality in electronic learning, whereas more than half of them 59% had incorrect knowledge about quality in electronic learning. Regarding perspective about quality in electronic learning, more than two thirds 69.3% of nursing students had a positive perspective about quality in electronic learning. While less than one quarter 21.33% of them had a negative perspective about quality in electronic learning with. Additionally that there was a statistical highly significant association between total knowledge scores and total perspective scores among nursing students. **Conclusion:** The study findings concluded that more than two fifth of the study sample had satisfactory level of knowledge and two thirds of nursing students had positive perspective about quality in electronic learning. **Recommendation**: •Training programs about electronic learning and quality in e-learning should be conducted to improve nursing educators and nursing students' knowledge, skills, and attitude toward e-learning.

Keywords: Quality, E-Learning, Knowledge, Perspective, Nursing students, Nursing educators.

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INTRODUCTION

Electronic learning is an innovative web-based system founded on digital technologies and other forms of educational materials, the principal goal of which is to offer students an open, learner-centered, personalized, enjoyable, and interactive learning environment that enhances the learning processes. Electronic learning platform as one of these modern technologies enables flexibility in teaching and learning from anywhere, anytime, and interactivity which encourages nursing students and instructors to collaborate and share ideas (**Rodrigues et al. 2022**).

Electronic learning is a very important alternative plan in crises as happened during the COVID-19 pandemic which compelled all educational institutions to shift their whole traditional instructional method to an alternative electronic learning approach to prevent the spread of the virus regardless of how ready they were for this transformation where students become more responsible for their learning as a result of electronic learning (**Hery et al., 2022**).

Nursing students' performance in e-learning depends on the interplay of factors, ranging from students' motivation, behaviors, learning styles, and level of computer skills. In addition, factors such as institutional or administrative support, environmental factors, system configuration and technical design, as well as instructors' characteristics, determine student performance. Therefore, it is necessary for higher education institutions to understand the challenges and experiences of students in relation to quality in e-learning (**James 2023**).

Student perspective can be defined as an attitude or point of view resulting from an evaluation of students' educational experience, in the quality of e-learning, when assessing achievement in the implementation of electronic courses, one of the most important aspects considered is the nursing student perspective and satisfaction. Increased student participation in e-learning can lead to the enrichment of student's knowledge and perspective about the quality of electronic courses; nursing students evaluate electronic courses depending on how well the content satisfies their demands (**Goh et al., 2022**).

To ensure quality in e-learning, educational institutions must have strong administrative support, and administrative support is among the features of

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successful e-learning as the effective use of technology in e-learning requires administrative support at all levels of the institution. Administrative support includes assistance in the form of funding, guidance, oversight, and assistance in removing the obstacles that hinder quality in electronic learning and providing training courses for nursing educators and students on how to use e-learning platforms and gain confidence in their use (**Cheng et al. 2022**).

The quality of an e-learning course includes nursing students who are ready to learn, adequate resources, and content reflected in relevant curricula for the acquisition of relevant skills, assessment, and evaluation. Challenges related to the quality of e-learning are the fact that nursing students were missing out on the real essence of practical aspects of nursing care, lack of facilities and recourses, lack of technical resources, high cost, and internet connectivity consistency, financial crisis, and the psychological burden on students, lack of technological skills, high cost, difficulties with the teaching platforms (**Moradi 2023**).

SIGNIFICANCE OF THE STUDY

Electronic learning is becoming an important approach to teaching and learning in higher education institutions including nursing education especially after COVID-19 pandemic which affected the transition of teaching and learning activities into e-learning were carried out to avoid mass gatherings which were potential risks for the spread of the virus (**Hair et al., 2021**).

Quality in e-learning is influenced by many factors such as administrative support, infrastructure , technical skills, nursing students characteristics, nurses educators characteristics, technical problems, cost and access to the internet, effective course design, course development and arrangement of multimedia materials (**Regmi et al., 2022**).

Quality in electronic learning constitutes a process of co-production between nursing students and the learning environment, positive nursing students' perspective towards quality in e-learning has resulted in the greater efficiency and effectiveness of students' electronic learning performance and outcomes, so nursing students' perspective about quality in electronic learning is especially critical because the educational process depend on the students (**Oyedotun, 2022**).

Therefore, the present study aims to assess nursing students' knowledge and perspective about quality in electronic learning.

AIM OF THE STUDY

The present study was aimed to assess nursing students' perspective about quality in electronic learning through:
1- Assess nursing students' knowledge about quality in electronic learning.

2- Determine nursing students' perspective about quality in electronic learning.

RESEARCH QUESTIONS
1-What is nursing students' knowledge about quality in electronic learning?
2-What is nursing students' perspective about quality in electronic learning?

SUBJECT AND METHODS MATERIAL
I- Technical item:
The technical item included research design, setting, subject and tools for data collection
Research design:
Descriptive research design was used in this study.
Setting:
The study was conducted in the Faculty of Nursing Fayoum University.
Sampling:
Type of the sample: Purposive sample included 821 nursing students' academic year 2021-2022.
Sample criteria: All third and fourth year nursing students in the academic year 2021-2022 were included in the study sample from faculty of nursing, Fayoum University.
Tools of data collection:
Two tools were used for collecting data included:
The first tool: Nursing students' knowledge questionnaire: It was developed by the researcher after reviewing the relevant literature (**Aboaagye et.al. 2021**) and consulting experts in a related field.

It consisted of two parts:-
Part I: Personal data of nursing students: This part included (age/year, gender, academic level in nursing, sources of internet access, and attended previous courses in internet).
Part II: Nursing students' knowledge about quality in electronic learning: It is a self-administered questionnaire. It consisted of (16) questions about quality in electronic learning.
Scoring system:
The questions were scored as (1) for correct answer and (zero) for incorrect answer. So, the total score was (16), and the cut point was done at 75% =12 points.
Total knowledge score was calculated as follows:
- Satisfaction equal or more than 12 points ($\geq$75%).
- Unsatisfaction less than 12 points (<75%).
The second tool: Nursing students' perspective questionnaire.
It was developed by the researcher after reviewing the relevant literature (**Aljawarneh et al., 2021; Stells et al., 2021**), and consulting experts in related fields.
It is a self-administered questionnaire. It consisted of (30 items).

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Scoring system

Nursing Students responses were measured on a 3-points Likert scale ranging from 1=disagree, 2=neutral and 3=agree. Total score 68 points, and the cut point was done at 75% =51 points.

(19) Perspective questionnaire items were positively worded which made score (57) and the rest are (11) reversed items with score (11).

- Positive perspective equal or more than 51 points
- Negative perspective less than 51 points (<75 %)

Validity:

Face and content validity for study tools were done. Tools were translated into Arabic and were tested by a jury group of three experts specialized in nursing education and nursing administration, one professor from faculty of nursing; Cairo University and two professor from faculty of nursing; Damanhour University through an opinionnaire sheet to measure the face and content validity of the tools.

Reliability:

First tool: Nursing students' knowledge questionnaire yield Cronbach's alpha showed (0.73) which indicated an acceptable reliability.

Second tool: Nursing students' perspective questionnaire showed (0.82) which indicated good internal consistency.

ETHICAL CONSIDERATIONS:

Prior study conduction, approval was obtained from the scientific research ethical committee at faculty of nursing; Helwan University. In addition, an approval was obtained from faculty of nursing; Fayoum University for data collection.

I. Operational Item

Preparatory phase:

It includes reviewing past, current, national, and international related literature and theoretical knowledge of various aspects of the study.

Pilot Study

A pilot study was conducted on 10% of the study subject 82 nurse students from middle of January 2022 to middle of March 2022. The aim of the pilot study was to confirm clarity, applicability, feasibility, practicality of the tools, and to estimate the time required for fulfilling the questionnaire sheets.

Fieldwork

The actual fieldwork started at the beginning of April 2022(27.5%) was completed by the end of July 2022.The researcher collected data by herself from students in the study settings and explained the purpose of the study and method of the study. The researcher obtained written informed consent from study subjects. Also, went to the faculty 3 days per week for 4 hours/day and was present during fulfilling the questionnaires to answer any question related to the study.

Administrative Item:

To carry out the study, an official letter was issued from faculty of nursing; Helwan University explains the aim of the study and the study sample to the dean of faculty of nursing; Fayoum University that to obtain the permission for data collection at faculty of nursing; Fayoum University.

IV- Statistical Analysis:

The collected data will be statistically analyzed using SPSS software version 22. Data were presented using descriptive statistic in the form of number, percentages. Chi-square test. Mean and Standard deviation (SD) for quantitative data. Frequencies (n) and percentages (%) for qualitative data: age, gender, educational level, source of internet. Reliability of the questionnaire was assessed using Cronbach's alpha reliability coefficient. Pearson correlation coefficient was used to determine significant correlations between the variables.

RESULTS

Table (1) Table (1) indicates that more than half of study subjects 53% were aged 20 years and the mean±SD 20.4±0.49. More than half of them 55% were female, 53% were in third academic level in nursing, and 52.5% had smart phone. All of nursing students 100% attended previous courses via internet.

Table (1): Socio demographic Characteristics of the Studied Sample (n=821).

Personal data	No.	%
Age / year		
20	433	53
21	388	47
Mean±SD		**20.4±0.49**
Gender		
Male	373	45
Female	448	55

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Academic level in nursing		
Third level	433	53
Forth level	388	47
Sources of internet access		
Computer	21	3
Smart Phone	431	52.5
Laptop	286	35
Tablet	77	9
Others	6	0.5
Attended previous courses via internet		
Yes	821	100.0
Inside the faculty		
Yes	821	100.0

Table (2) displays that less than half of nursing students 41% had correct knowledge about quality in electronic learning, whereas more than half of them 59% had incorrect knowledge with a total mean±SD 11.1±2.7. It presents that more than three-quarters of nursing students 77.5% had correct knowledge about barriers in implementing electronic learning. Also, 73.2% had incorrect knowledge regarding instructor's responsibility in electronic learning.

Table (2): Frequency distribution of nursing students' knowledge about quality in electronic learning (n=821).

Nursing student's knowledge items	Correct		Incorrect	
	No.	%	No.	%
Definition				
1-Electronic learning definition	531	64.7	290	35.3
2-Quality in electronic learning definition	263	32.0	558	68.0
3-Asynchronous electronic learning definition	555	67.6	266	32.4
Total	**478**	**59**	**332**	**41**
Benefits				
1-Advantage of using electronic learning	564	68.7	257	31.3
2-Electronic learning is self-paced because it allows students to.	550	67.0	271	33.0
3-Advantage of using synchronous electronic learning	528	64.3	293	35.7
4-Importance of quality in electronic learning	577	70.3	244	29.7
Total	**555**	**67.6**	**266**	**32.4**
Disadvantages				
1-Disadvantage of electronic learning.	596	72.6	225	27.4
2-Disadvantage of using synchronous electronic learning.	242	29.5	579	70.5
Total	**419**	**51.0**	**402**	**49.0**
Barriers				
Barrier in implementing electronic learning.	636	77.5	185	22.5
Dimensions				
The most important dimension of quality in electronic learning.	518	63.1	303	36.9
Media				
The most effective media used in electronic learning.	586	71.4	235	28.6

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Table (2): Frequency distribution of nursing students' knowledge about quality in electronic learning (n=821) Cont.

Nursing student's knowledge items	Correct		Incorrect	
	No.	%	No.	%
Uses				
Electronic learning uses in nursing education.	273	33.3	548	66.7
Factors				
The most critical factor determining the quality of electronic learning.	592	72.1	229	27.9
Responsibilities				
Instructor's responsibility in electronic learning.	220	26.8	601	73.2
Examples				
Example of synchronous electronic learning.	630	76.7	191	23.3
Total knowledge	**340**	**41**	**481**	**59**
Mean±SD	**11.1±2.7**			

Fig. (1) Shows that more than two fifth 41% of study subjects had satisfactory level of knowledge about quality in electronic learning.
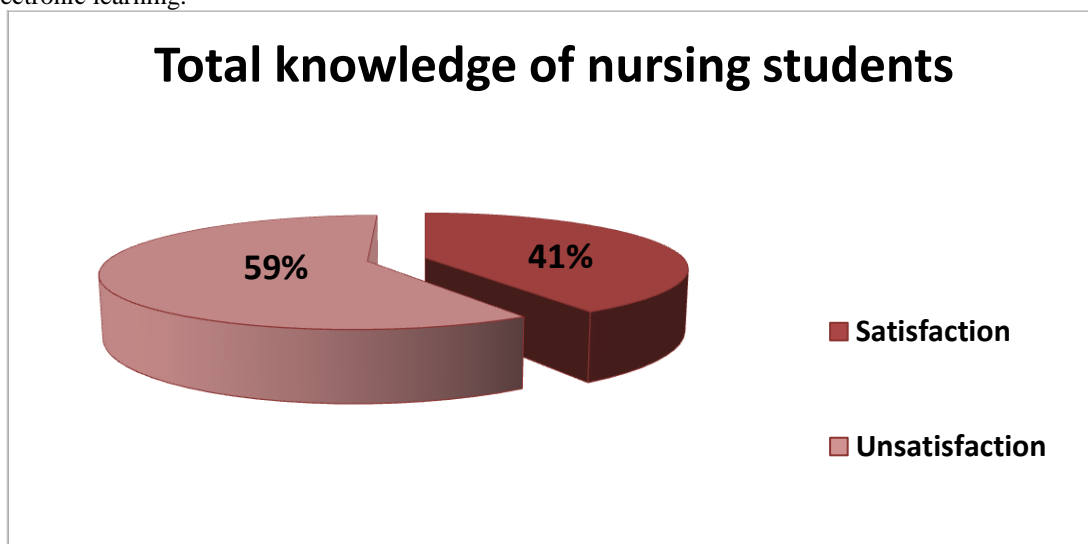

Figure (1): Nursing students total knowledge about quality in electronic learning (n=821).

Figure (2). reflects that more than two thirds of nursing students 69.3% had positive perspective about quality in electronic learning while less than one quarter of them 21.3% had negative perspective.
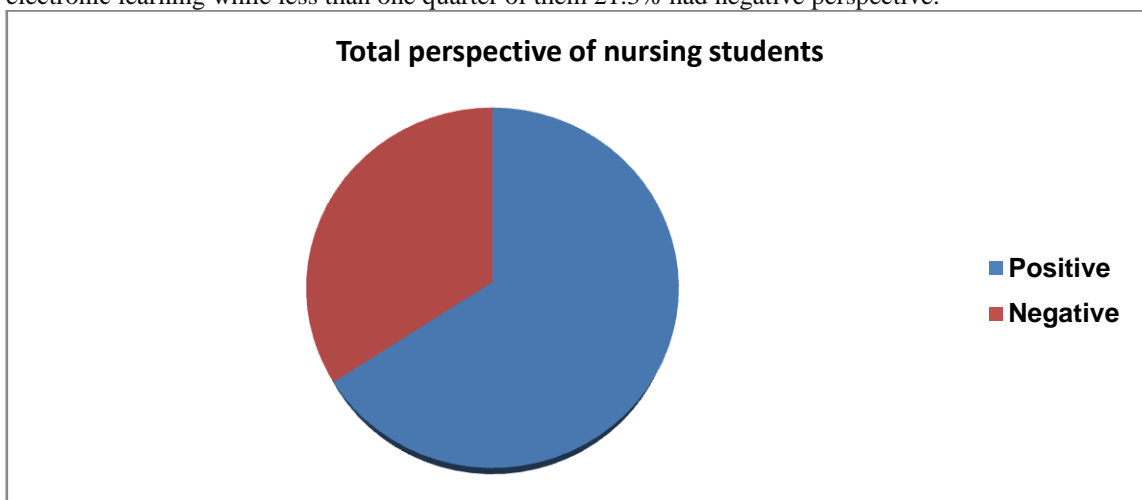

Fig. (2): Nursing students total perspective about quality in electronic learning (n=821).

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Table (4) reflects that there was a statistical highly significant association between total knowledge scores and total perspective scores about quality in electronic learning among nursing students p= 0.001.

Variables	Correlation coefficient	P-value
Knowledge and perspective scores	0.22	0.001**

DISCUSSION

Before getting into the outcomes of the research questions, it is important to look at the personal data of the studied nursing students who participated in the study. The present study revealed that more than half of the study sample was aged 20 years. Also more than half were female and were in third academic level in nursing.

When it came to sources of internet access, the present study results demonstrated that more than half of study sample had smartphones. These results were supported by **Mohammed et al., (2021)** who conducted a study entitled "Challenges towards Electronic Classes during COVID-19 Pandemic" who found that the majority of the study samples are using mobile phones for electronic learning. While these findings were inconsistent with **Kaoud et al., (2021)** who studied "The attitudes and challenges faced by undergraduate students in electronic learning and it is effect on the electronic learning quality throughout the COVID-19 pandemic" who found that more than half of the undergraduate students using laptop in electronic learning.

Meanwhile, regarding attending previous courses via internet, the present study results showed that all the nursing students attended previous courses via internet in the faculty. These results of the current study were supported by **Abumelha M. (2022)** study entitled "Factors affecting the quality of e-learning during the COVID-19 pandemic from the perspective of higher education students" who found that all students have studied educational courses via e-learning. On the other side, these findings were inconsistent with **Seada, & Mostafa, (2021)** study entitled "Nursing Students' Perception regarding Online Learning and its Relation to their Academic Satisfaction" who showed that only one quarter of nursing students attended courses via internet.

The present study results revealed that more than two fifth of studied nursing students had satisfactory level of knowledge about quality in electronic learning. While more than half of them had unsatisfactory level of knowledge about quality in electronic learning. These results were supported by **Mohamed et al., (2022)** who "Assessed Perception, Satisfaction, and Obstacle of Quality in Electronic Learning faced by Academic Nursing Students" who reported that about two-thirds of students were unsatisfied with their electronic learning experience due to lack knowdge about quality of electronic learning. While the study findings were contradicted with **Nicola et al., (2020)** who studied nursing

satisfaction and behavioral intentions towards quality electronic learning and showed that the majority of study sample had a satisfactory level of knowledge about quality in electronic learning.

The present study results revealed that more than three-quarters of nursing students had correct knowledge about barriers in implementing electronic learning. These findings were supported by **Saleem et al., (2022)** study entitled " Factors Affecting the Quality of Electronic Learning During COVID-19" who found that the majority of the study sample have a correct knowledge about barriers that affecting the quality of electronic learning and emphasized that the highest factor affecting the quality of e-learning was the cost and access to the internet and the lowest factor was administrative support. While the findings of present study were inconsistent with **Ismail et al., (2022)** study entitled "E-Learning Barriers as Perceived by Students in the Faculty of Nursing at Tanta University" who reported that more than half of nursing students had poor level of knowledge related to the barriers of electronic learning.

The present study results reflected that more than two thirds of nursing students had positive perspective about quality in electronic learning. While less than one quarter of them had negative perspective about quality in electronic learning. These results were supported by **Salmani et al., (2022)** who assessed Iranian nursing student's experiences regarding the quality of e-learning during COVID-19 pandemic and revealed that the most of study sample had a positive perspective in the quality of E-learning and believed that e-learning could supplement face to face education. While the current study results in contrast with **El-kholy & Elboudy (2022)** who investigated the relationship between electronic learning perspective, effectiveness and factors affecting its quality among nursing students and found that the highest percentages of nursing students had negative perspective of e-learning quality.

Moreover the present study findings revealed that the majority of nursing students agreed upon that quality in electronic learning represented maintaining course development processes, course materials, and learning activities. These results were supported by **Hazem & Emad (2023)** who examined the factors that influencing the e-learning effectiveness and its reflection on e-learning quality based on students' perspective and revealed that the most of study sample indicated that quality in e-learning depend on course design development.

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While these results were inconsistent with the study done by **Al-Qudah & Hamed, (2022)** who Analyzed and evaluated the quality of electronic learning and its impact on the degree of satisfaction of students and found that the most of study sample agreed upon that age, motivation, and knowledge of the instructors have a positive influence on students perspective on e-learning quality.

Additionally more than three-quarters of nursing students disagreed upon that electronic learning is too time-consuming, these findings goes at the same line with a study done by **Al Rawashdeh et al., (2022)** who studied advantages and disadvantages of using e-learning depending on students' perspectives and revealed that the most of study sample disagreed that electronic learning ineffective in managing time and they prefer to attend electronic courses.

In the present study results shows that there was a statistical highly significant association between total knowledge scores and total perspective scores about quality in electronic learning among nursing students. These findings goes at the same line with **El-kholy & Elboudy, (2022)** study entitled " E-Learning: Perspective, Effectiveness and Factors affecting Its Quality among Nursing Students " who reported that there was a statistical significant relation between knowledge and perspective about quality of electronic learning among nursing students.

CONCLUSION
In the light of the current study findings, it can be concluded that:

More than two fifth of study subjects had satisfactory level of knowledge about quality in electronic learning.While more than half of them had unsatisfactory level of knowledge about quality in electronic learning. Additionally more than two thirds of nursing students had positive perspective about quality in electronic learning while less than one quarter of them had negative perspective about quality in electronic learning.

Recommendation
Based on the current study findings, the following recommendations were suggested:
❖ **Educational institutions should:**
- Facilitate the implementation of electronic learning courses in order to improve quality in e-learning and improve learning outcomes.
- Effective preparation to use e-learning platforms and curriculums electronically before the start of the academic year.
- Address and overcome barriers and improve the utilization of e-learning as an essential education tool rather than as an emergency.
❖ **Nursing educators**
- Training programs about electronic learning and quality in e-learning should be conducted to improve nursing educators' knowledge, skills, and attitude toward e-learning.

❖ **Nursing students**
- Training programs about electronic learning and quality in e-learning should be conducted to students to improve Nursing students' knowledge, skills, and attitude toward e-learning.

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