

Challenges and benefits of Using Virtual Learning Environment as Perceived by Nurse Educators and Students

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Abstract

Background: Virtual learning environment is a self-contained computer based online enabling interactions between instructor and learner on the same time. **Aim:** Was to assess challenges and benefits of using virtual learning environment as perceived by nurse educators and students. **Design:** A descriptive design was used in this study. **Setting:** This study was conducted at nursing technical institutions of the General Authority for Hospitals and Educational Institutes in Cairo and Giza- Egypt which contains eight. **Subjects:** All nurse educators who worked in the technical institutes (N=40) and all students in the second year (N=200). **Tools:** Three tools were used for data collection: Nurse Student knowledge about virtual learning, Nurse Student's perception about virtual learning questionnaire and Nurse Educator's perception about virtual learning questionnaire. **Results:** About two thirds of nurse students had unsatisfactory level of total knowledge about virtual learning, more than three quarters of nurse educators had a negative perception about time and resources and communication challenges. Regarding benefits of virtual learning, the majority of them had a positive perception. Meanwhile, more than two- thirds of nurse students had a negative perception about time and resources and communication challenges. While the majority of them had a positive perception about benefits of virtual learning environment. **Conclusion:** The highest percentage of nurse students had unsatisfactory level of knowledge about virtual learning. Additionally, more than half of nurse educators and nurse students had negative perception about virtual learning. **Recommendation:** Provide courses at educational institutions about virtual learning for both nurse educators and students.

Keywords: *Benefits, Challenges, Innovative teaching, Nurse Educators Nurse Students, Virtual learning*

Introduction:

A paradigm shift has altered our world in practically every sphere, and it can be attributed to the Coronavirus pandemic. Modern science and technologies have been called upon to redesign various processes to cope with this outbreak and the changes it has wrought. Even the world of education has been subject to severe disruption. To deal with the new situation, the students and teachers have been forced to change the way they customarily taught, learned and interacted. The entire educational framework will have to be transformed from the traditional face-to-face or physical system to the virtual learning environment model education system (*Somasundaram & Thanigaivelan, 2021; Putro, 2023*).

Virtual learning on all types of education has been emphasized by the development of Internet-based technologies, in particular the World Wide Web. Thus, the basic definition of virtual learning refers to the online learning environment where teachers and students are separated by time or space, or both. Where the teacher provides course content through the course management applications and students receive the content from the teacher and communicate with the teacher via the same technologies and not in a face-to-face setting (*Khan & Javaid, 2022; Gavronskaya et al., 2023*).

However, there are more challenges in virtual learning environment for nurse educators and students, students have faced challenges such as lack of access to internet facilities, poor communications with peers and teachers, as well as delayed feedback from their teachers in this virtual learning environment, teacher may face challenges such ineffective building relationships between student during virtual learning (*Alkhowailed et al., 2021 & Bestiantono et al., 2021*). Due to COVID-19 nursing institutions were forced to stop clinical learning experiences as case numbers surpassed the capability to hold students for on-site learning. Nursing institutes need the flexibility to leverage online learning experiences (*Loades et al., 2020; Ziehm et al., 2021 & Nel, 2022*)

Furthermore, virtual learning provides nursing care with digital technologies, which has challenged traditional ways of engaging with patients, namely in-person and face-to-face nurse and patient interactions. Digital health presents both drawbacks and opportunities in these caring relationships. Among the downsides of digital health is the potential for dehumanizing and depersonalizing patient care (*Gavronskaya et al., 2023*)

Additionally, virtual learning challenges for nurse students, the student failure rate caused by the behavior problems and their interactions in the virtual learning, for instance, some students lack of their ability in accessing learning material, assignment submission, and interaction during a discussion, lack of interaction with classmates and teachers is one of the obstacles in virtual learning (*Roddy et al., 2020 & Jackson, 2021*).

On the other hand, benefits for nurse educators were forced to act swiftly with few resources and little time to responses courses and scholarly projects, virtual important for teachers and organizations, provides a good opportunity for effective learning and training, develops online educational experiences, time and space flexibility, suitable to derive a context of education. Using virtual learning for nurse educators in teaching can provide a good compensation to the face-to-face teaching environment, can create a favorable atmosphere of learning and virtual learning environment assists educators to achieve learning goals and understand learning needs (*Hayter & Jackson, 2020; Yancey, 2020 & Alshammari et al., 2022*).

Vol. 3, Issue 5, Month: March 2024, Available at: <https://hijnrp.journals.ekb.eg/>

Also, virtual learning provides more benefits for nurse educators and students, prevent the spread of the disease by imposing lockdowns, social distancing, and home quarantine, students will more easily understand the material in teaching and learning if delivered in pictures, films, videos, or animations. Awareness and behavior of students undergoing a period of learning change are exciting to study because changes in learning habits at this time will impact students' learning outcomes. (*Najahah et al., 2022*).

However, virtual learning empowering suitable, safe, and confidential patient-nurse interactions via technology requires tools that support social environments and foster experiences similar to face-to-face communication. The current and ongoing shortage of healthcare practitioners, coupled with increase in access to healthcare insurance and an aging population (*Barton et al., 2020*). Besides that, a virtual learning provides tools for assessment, communication, uploading of content, returning of students' work. All the functions of a virtual learning application are useful for both nurse teachers and nurse students to use in the teaching and learning process (*Harding, 2020 & McDonald, 2021*).

Significance of the study:

Due to the unprecedented situation generated by the Coronavirus pandemic, the impact of the pandemic on education, universities, teachers and students, became a subject of great interest for researchers to study perception of virtual learning during the Coronavirus showed that educators and students had a positive attitude towards virtual learning, considering it helpful and useful in the time of the crisis created by the pandemic (*Allo et al., 2020; Konig et al 2021 & Aldulaimi, 2023*).

In addition, the nursing education programs to transition quickly from traditional face-to-face teaching to a virtual platform in which clinical skills are simulated to adjusting with learning technology (*Fogg et al., 2020*).

Also, the Coronavirus pandemic delivery of distance education showed similarities across countries but country specific distance education practices were implemented. For example, in Italy and the United States, distance education heavily relied on virtual instruction through online engagement and support through video-based instruction (*Frederick et al., 2020 & Cheok 2023*). In Nigeria, distance education is mostly delivered during pandemic (*Greguol et al., 2021*). In Serbia and Hungary, the distance education relied on both Television channels, national online platforms where students could join broadcasted classes, and virtual courses (*Molnar et al., 2020*). In Turkey, The Ministry of National Education (MoNE) made a quick a decision to shift from face-to-face education in schools to virtual learning (*Yucesoy et al., 2020*).

In addition, overall student survey responses were favorable to the virtual labs innovative teaching and learning strategies in a virtual environment to promote knowledge, skills, and attitudes (*Roddy et al., 2020 & Gonzalez et al., 2022*). Therefore, this study spotlight on challenges and benefits of virtual learning as perceived by nurse educators and students.

Subjects and Methods

Research design:

Descriptive research design was used to achieve the aim of this study.

Setting:

The study conducted at nursing technical institutions of the General Authority for Hospitals and Educational Institutes in Cairo and Giza, Egypt, that contains eight nursing technical.

Sample size:

Consisted of a representative sample of all nurse educators who worked in the technical institutes (N=40) and all students in the second year at the nursing technical institutes (N=200).

Tools of data collection:**Three tools were used for collecting data included:**

First tool: Nurse Students' knowledge about virtual learning environment questionnaire: It was developed by researcher after reviewing the relevant literature (Barker, et al., 2020 & Sina&Juanjuan, 2021) to assess nurse students' knowledge about virtual learning environment.

It consisted of two parts:

Part I: Personal data of students: Included: age, gender, educational qualification and academic level...etc.

Part II: Nurse Student knowledge about virtual learning environment: This part consisted (23) questions about virtual learning environment as: definition, purpose, importance, types and benefits of virtual learning environment.

Scoring system: The total score was (23) nurse students' responses were scored as (1) for the correct answer and (0) for the incorrect. So, ones the cut point was done at 70%=16 grades.

Total knowledge score was calculated as follows:

- Satisfactory level equal or more than 16 grades ($\geq 70\%$).
- Unsatisfactory level less than 16 grades ($< 70\%$).

Second tool: Nurse student's perception about virtual learning questionnaire: It was developed by the researcher after reviewing the relevant literature to assess perceived challenges and benefits of using virtual learning by nurse students (Bedir, et al., 2020 & Yancey, et al., 2020). This part included questions about perceived challenges and benefits about virtual learning environment by nurse students.

Nurse students' responses were measured on a 3-points likert scale ranging from 1=disagree, 2=neutral and 3=agree. Total score (39).

All perception questionnaire items were positively worded which made score (27) except items (1-12) which were reversed items which score (12). The cut point was at 72% =67 grades.

- Positive equal or more than 72 grades ($\geq 72\%$).
- Negative less than 72 grades ($< 72\%$).

Third tool: nurse educator's perception about virtual learning environment questionnaire: It was developed by researcher after reviewing the relevant literature (Bedir, et al., 2020 & Alkhawailed, et al., 2020). This part included questions about perceived challenges and benefits about virtual learning environment by nurse educators.

Nurse educators' responses were measured on a 3-points Likert scale ranging from 1=disagree, 2=neutral and 3=agree. Total score (34).

Vol. 3, Issue 5, Month: March 2024, Available at: <https://hijnrp.journals.ekb.eg/>

All perception questionnaire items were positively worded which made score (23) except items (1-11) which were reversed items which score (11). The cut point was at 75%=60 grades.

- Positive equal or more than 60 grades ($\geq 75\%$).
- Negative less than 60 grades ($< 75\%$).

B-Validity of study tools:

Face and content validity for the study tools were done. Tools were translated into Arabic and were tested by a experts group of three experts specialized in nursing education from two universities through an opinionative sheet to measure the face and content validity of tools.

Face validity:

Face validity of instrument appear to be an adequate of obtaining the data needed for the research study, it was examined by experts opinions regard the tools format, layout, and clarity of parts.

Content validity:

Content validity is concerned with the scope or range of items used to measure the variable. In other words, are the number and type of items adequate to measure the concept. It was evaluated by either comparing the content of instrument with the literatures or by a panel of experts The content validity of these instruments was tested by a group of experts to determine the appropriateness of each item to be included in the questionnaire sheet. Minor modifications were done based on the jury's recommendations ex (add student qualification on personal data remove point from challenges about virtual learning environment on student sheet).

Reliability of study tools:

Tools were tested by Cranbach's alpha:

- First tool: the nurse students' knowledge questionnaire yield Cranbach's alpha showed (0.90).
- Second tool: the nurse students' perception questionnaire showed (0.90).
- Third tool: the nurse educators' perception questionnaire showed (0.90).

Ethical considerations

Prior study conduction, approval was obtained from the scientific research ethical committee at faculty of nursing, Helwan University. In addition, informed consent was obtained from every institute manager for data collection. The subject were informed about aim of the study, anonymity and confidentiality were guaranteed. Written consent obtained from the study subjects before inclusion in the study. Subject were informed that were allowed to predicate or not in the study and that, they had the right to windrow from the study at any time. Ethical, values and beliefs were respected during collection data.

Pilot study:

A pilot study was conducted on 10% of the study subjects, 20 nurse students and 4 nurse educators. The pilot study was done to confirm clarity and applicability of the tools and to estimate the time required for fulfilling the questionnaire sheets. Based on the pilot study, no modifications were done and the final version was prepared for distributing to the nurse educators and nurse students. Those participants were included in the study sample.

Field work

The actual field work started in the middle of July 2022 and was completed by the middle of August 2022. The researcher met the director of each school to explain the aim of the study to gain their approval for data collection. The researcher collected data by herself through meeting nurse educator and nurse student and explaining the purpose of the study to them in the study setting. The questionnaire sheet were completed by nurse educator and nurse student .the researcher went to each school two days per week and was present during fulfilling the questionnaire to answer any question related to the study .The time needed by nurse educator to completed both of the study tools were ranged between (5-10) minutes and the time needed by nurse students to completed both of the study tools were ranged between (10-15) minutes .The researcher checked the completeness of each filled sheet after the nurse educators and nurse students completed it to ensure the absence of any missing data.

III-Administrative Item:

To carry out the study, an official letter was issued from the Faculty of Nursing Helwan University and explain the aim of the study to every school manager in the research for obtaining their permission for data collection in their schools.

IV. Statistical design

Data was described and analyzed using the SPSS statistical package version 25 for windows. Numerical data presented as mean standard deviation, median and rang values. qualitative data were presented as frequencies (n) and percentage (%). parsons' correlation confident was used to determine significant was used to different quantitative variables. Cranbach's alpha coefficient was used to determine the readability of the tool.

RESULTS:

Table (1): Shows that the study subjects consisted of (40) nurse educators. The highest percentage of nurse educators had 30 years old or more (65%) with mean \pm SD 33.4 \pm 6.8, and females (92.5%). In relation to the level of education in nursing, the study subjects were distributed as follows: slightly more than half (52.5%) had a bachelor's degree, more than one-third had a master's degree (35%), and only 12.5% had a post-graduate diploma. As well more than half of them (55%) were teaching more than three subjects. Regarding years of experience in teaching, the table reveals about two-thirds of the nurse educators (67.5%) had less than 10 years of experience while only 32.5% had 10 years or more of experience.

Table (2): Shows that the study subject consisted of 200 nurse students. The highest percentage of them were in the age group of more than 20 years (60%) with mean age \pm SD19.8 \pm 0.7 and more than two-thirds (87.5%) of nurse students were females. While only (12.5%) were males.

Vol. 3, Issue 5, Month: March 2024, Available at: <https://hijnrp.journals.ekb.eg/>

Figure (1): Shows that slightly more than one-third (34%) of nurse students had satisfactory knowledge about virtual learning environment. While the highest percentage (66%) of nurse students had unsatisfactory knowledge.

Figure (2): Shows that the highest percentage (85%) of nurse educators had a positive perception about benefits of virtual learning environment. While only 15% had a negative perception.

Figure (3): Shows that more than half (57.5%) of nurse educators had a negative perception about virtual learning environment. While 42.5% had a positive perception.

Figure (4): Shows that the highest percentage (80.5%) of nurse students had a positive perception about benefits of virtual learning environment. While only 19.5% had a negative perception.

Figure (5): Shows that more than one-third of nurse students had a positive perception regarding virtual learning environment (44%). While more than half (56%) had a negative perception.

Table (3): Shows that female nurse educators had statistically significant higher positive attitude about virtual learning than their male nurse educators ($p=0.036^*$). Nurse educators with a master's degree and above have had statistically significant higher positive attitude than their colleagues with bachelor's and post-graduate diploma degree ($p<0.001^{**}$), meanwhile, the nurse educators who teach three subjects or more had statistically significant higher positive attitude than their colleagues with teach less than three subjects ($p<0.001^{**}$) and the nurse educators with more than ten years of experiences had statistically significant higher positive attitude than their colleagues with experiences less than ten years ($p=0.002^*$).

Table (4): Indicates that nurse students had 20 years old or more have a statistically significant satisfactory knowledge than students had less than 20 years old ($p<0.001^{**}$)

Table (5): Indicates that there is no statistically significant correlation between the personal data of the nurse students and their perception about virtual learning.

Table (1): Frequency and percentage distribution of nurse educators' personal data (n=40).

Items	N	%
Age (Years)		
< 30	14	35.0
30 or More	26	65.0
Mean \pmSD	33.4 \pm6.8	
Gender		
Male	3	7.5
Female	37	92.5
Educational Level in nursing		
Bachelor's degree	21	52.5
Post graduated diploma degree	5	12.5
Master's degree or higher	14	35.0
Number of Subjects teaches		

< 3	18	45.0
3 or More	22	55.0
Years of experience in teaching		
< 10	27	67.5
10 or More	13	32.5
Mean ±SD	9.2 ±3.8	

Table (2): Frequency and percentage distribution of nurse students' personal data (n=200).

Items	N	%
Age (Years)		
< 20	80	40.0
20 or More	120	60.0
Mean ±SD	19.8 ±0.7	
Gender		
Male	25	12.5
Female	175	87.5

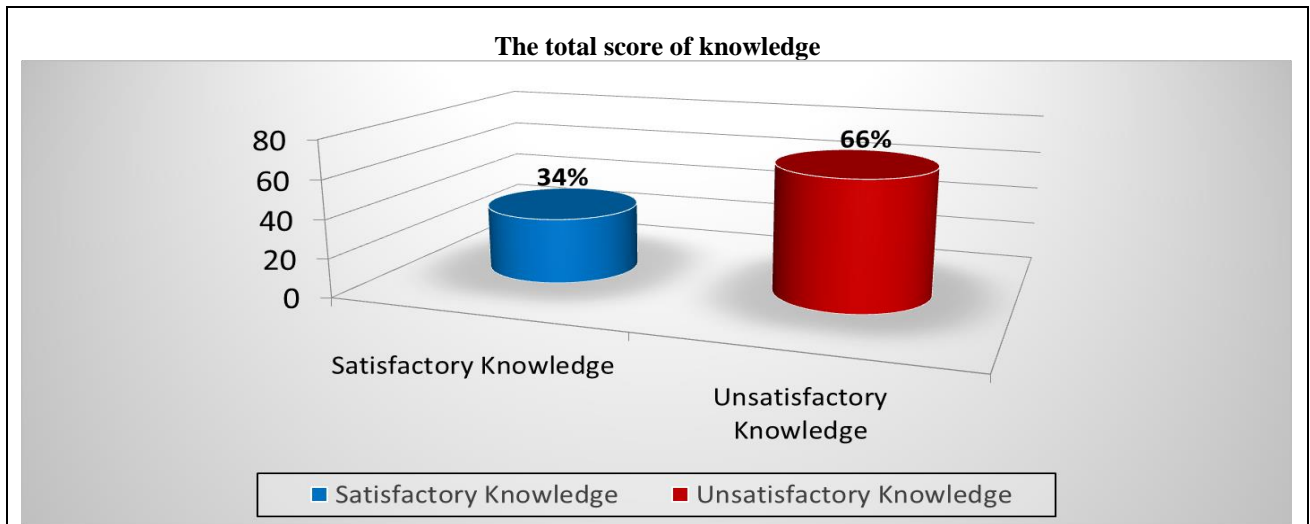


Figure (1) Total score of students' knowledge about virtual learning environment (N=200).

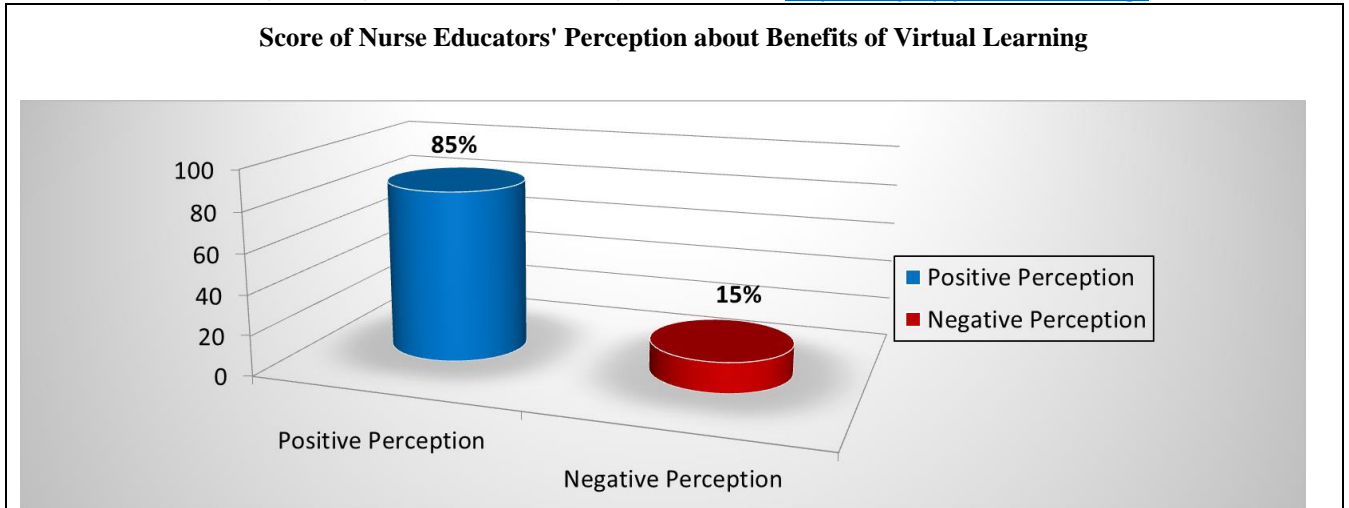


Figure (2) Total score of educators' perception about benefits of virtual learning environment (n=40).

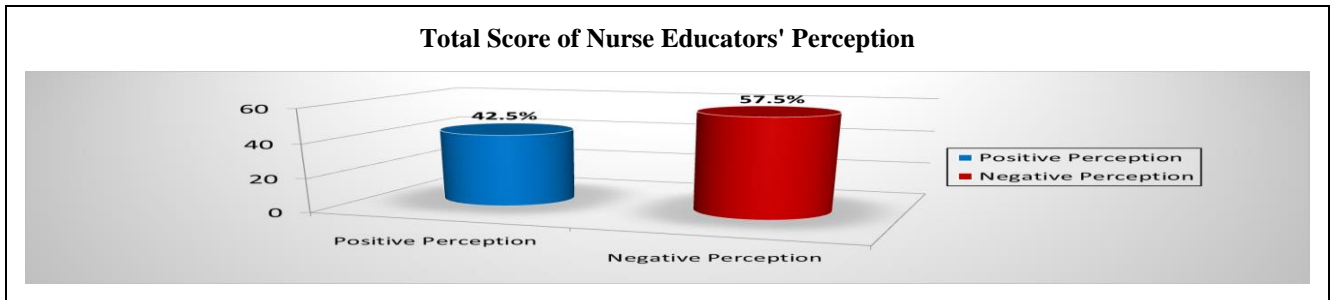


Figure (3) Total studied nurse educators' perception about virtual learning environment (n=40).

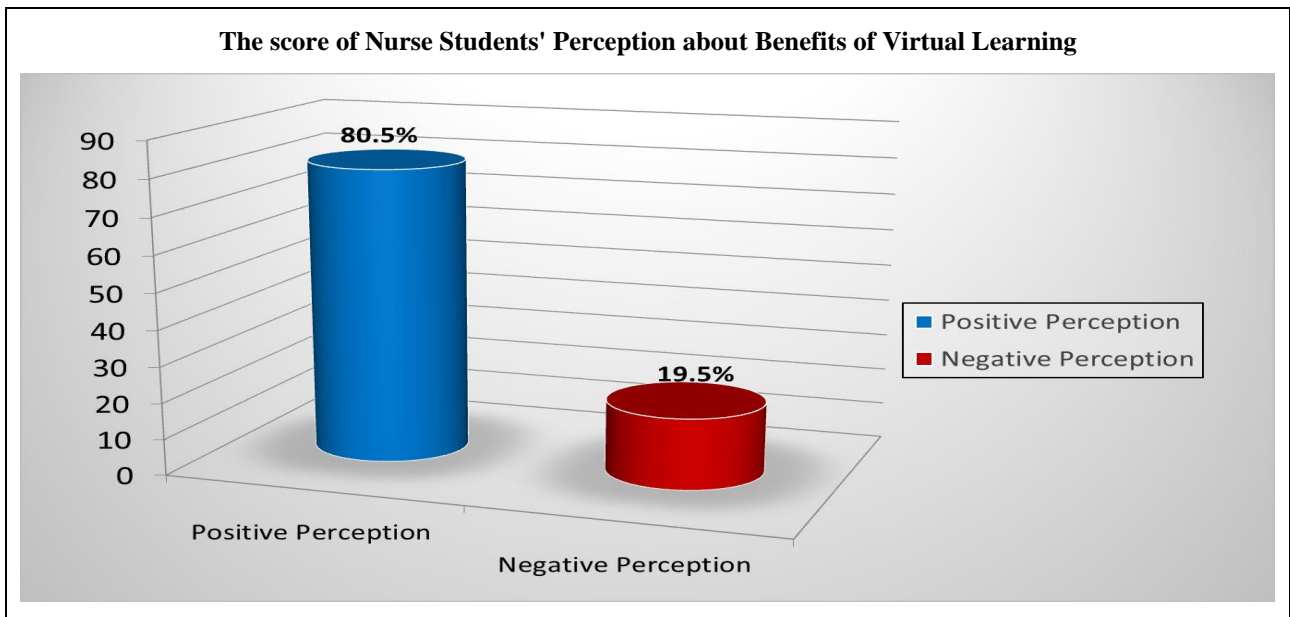


Figure (4) Score of students' perception about benefits of virtual learning environment (n=200).

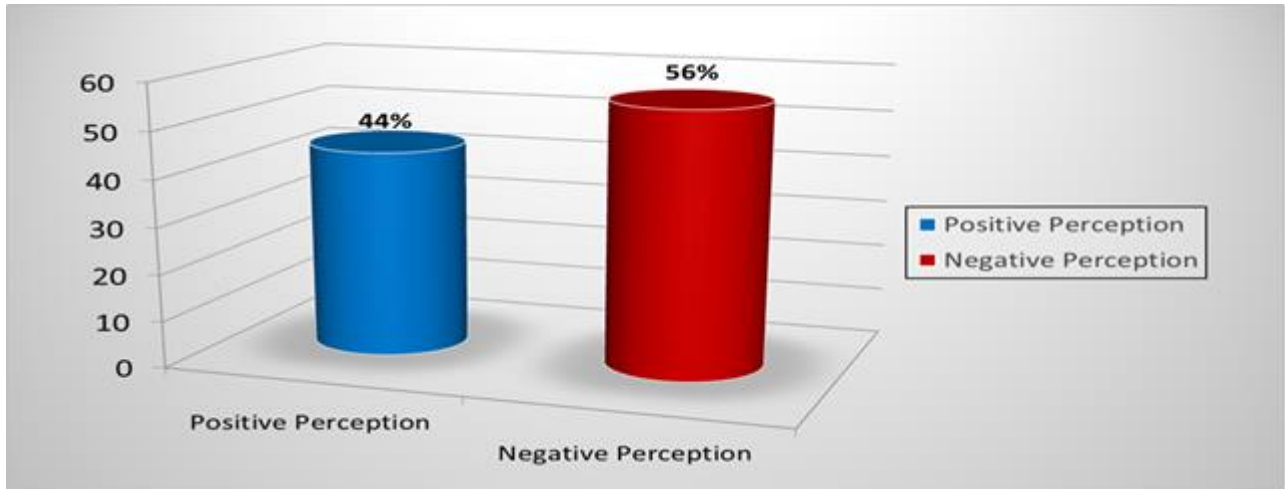


Figure (5) Score of students’ perception about virtual learning environment (n=200).

Table (3): Correlation between personal data of nurse educators and perception about of virtual learning environment (n=40).

Items	Positive Perception (n=17)		Negative Perception (n=23)		Fisher’s exact test	
	N	%	N	%	X ²	P
Age (Years)						
< 30	4	23.5	10	43.5		
30 or More	13	76.5	13	56.5	1.710	0.191
Gender						
Male	3	17.6	0	0.0		
Female	14	82.4	23	100.0	4.388	0.036*
Educational Level						
Bachelor degree	5	29.4	16	69.6		
Post graduated diploma degree	0	0.0	5	21.7		
Master degree or higher	12	70.6	2	8.7	17.396	<0.001**
Number of Subjects they teach						
< 3	2	11.8	16	69.6		
3 or More	15	88.2	7	30.4	13.195	<0.001**
Experience Years						
< 10	7	41.2	20	87.0		
10 or More	10	58.8	3	13.0	9.339	0.002*

Significant at $p \leq 0.05^{**}$

Table (4): Correlation between personal data of nurse students and knowledge about virtual learning environment (n=200).

Items	Satisfactory Knowledge (n=68)		Unsatisfactory Knowledge (n=132)		Chi-Square	
	N	%	N	%	X ²	P
Age (Years)						
< 20	8	11.8	72	54.5		
20 or More	60	88.2	60	45.5	34.225	<0.001**
Gender						
Male	8	11.8	17	12.9		
Female	60	88.2	115	87.1	0.051	0.821

*Significant at p≤0.05**

Table (5): Correlation between personal data of nurse students and perception about virtual learning environment (n=200).

Items	Positive Perception (n=88)		Negative Perception (n=112)		Chi-Square	
	N	%	N	%	X ²	P
Age (Years)						
< 20	35	39.8	45	40.2		
20 or More	53	60.2	67	59.8	0.003	0.954
Gender						
Male	13	14.8	12	10.7		
Female	75	85.2	100	89.3	0.742	0.389

Discussion:

Virtual learning environment can be effectively used to teach nursing students. However, student should be had a knowledge about virtual learning environment, and should be recognized as individuals and offered learning situations that take their diversity into consideration. Virtual learning allows independent learning and repetitions in a safe, near-authentic environment and they can improve students' confidence, assessment and decision-making skills (Foronda et al., 2023).

Regarding nurse students' knowledge about virtual learning environment, the present study findings revealed that the slightly more than one-third of nurse students had satisfactory knowledge about virtual learning. These findings were supported by (Talingdan et al., 2023) who studied "Students' Perspective on the New Normal Virtual Learning" and showed that the majority of students had a lack of knowledge about virtual learning. In addition, (Tarek et al., 2023) who studied "Nursing Students' Perception regarding Online Learning and its Relation to their Academic Satisfaction" who showed that only one quarter of nurse students had knowledge about online virtual learning.

Also, this result on the same line with the studies conducted by (Irfan et al., 2020) "Challenges during the pandemic: Use of e-learning in mathematics learning in higher education" who showed that the students had lack of proper knowledge and skill in online platforms and virtual learning. Also (Gaikar et al., 2021) who conducted a study entitled



Vol. 3, Issue 5, Month: March 2024, Available at: <https://hijnrp.journals.ekb.eg/>

“An Impact of COVID-19 on Virtual Learning: The Innovative Study on Undergraduate Students of Mumbai Metropolitan Region” who found that the students had a lack of knowledge about virtual learning and suggested, recommended to improved scientific knowledge for the successful working of the education.

Virtual learning environment has more benefits, and it is important for educators, students, and organization. Virtual classes provide a good opportunity for effective learning and training (*Sofi-Karim et al., 2023*). The study revealed that the majority of educators had a positive perception about benefits of virtual learning. This result is on the same line with (*Liqaa, 2020*) who conducted study “Using Virtual Learning Environment as a Medium” and showed that the highest percentage of study subjects agreed about the benefits of virtual learning environment for educators.

In addition, (*Rosli et al., 2023*) who conducted study entitled “A Secure Learning Environment Framework of Virtual Reality Application for technical and vocation education training (TVET) Education Using Block chain Technology” who found that more than half of the study sample agreed upon benefits of virtual learning for example that the learning the effectiveness of virtual in-service teacher training, including organization and management, educational technology, educational objectives, content, design, and user interface, information and communication technology ethics, interaction, evaluation, support services and quality of outcomes, had a significant effect. Moreover, these results were supported by (*Rashidi et al., 2023*) who conducted study entitled “The effect of dynamic computer-based scaffolding on the effectiveness of virtual in-service teacher training” who found the virtual learning more beneficial.

Regarding nurse educators' perception the study revealed that more than half of nurse educators had a negative perception about virtual learning environment beside that (*Liu, 2021*) who conducted study entitled “The effects of virtual simulation on undergraduate nursing students' beliefs about prognosis and outcomes for people with mental disorders”, who mentioned that the highest percentage agreed upon challenges of virtual learning environment for educators. From the researcher's point of view,

these results may be due lack of educators' awareness and information regarding virtual learning, negative believes regarding ways to use virtual learning, and virtual classes consumes teacher's time during preparation. And an ineffective design and arrangement of multimedia materials during virtual learning.

Virtual learning environments the effect to student's success, problem-solving skills, and motivations. Virtual Learning Environments have impact on increasing the academic success of student's good opportunity for effective learning (*Seda, et al., 2020*). The present study findings revealed that the majority of nurse students had a positive perception about benefits of virtual learning. The results on the same line with those of (*Islam et al., 2023*) who conducted a study entitled “United Arab Emirates university students' experiences of virtual classroom learning during COIVD-19” who reported that the majority of students agreed upon benefits virtual learning.

Moreover, these results were supported by (*Salminen, 2023*) who found that the majority of nurse students (85%) rated the virtual learning as helpful to learning in nursing and that there are more benefits for nurse students. Meanwhile, (*Saab et al., 2021*) who conducted a study entitled “Incorporating virtual reality in nurse education: a qualitative study of nursing students' perspectives” who found that the nurse students agreed upon benefits of virtual learning. And reported that the virtual class can increase participants' confidence in assessing and managing patients.

Vol. 3, Issue 5, Month: March 2024, Available at: <https://hijnrp.journals.ekb.eg/>

From the researcher's point of view, these results may be due the total benefits and cooperation were high in virtual learning, which may be due to students' desire to be more involved in the learning process, which gave them more opportunities to gain a higher level of benefits from virtual learning.

Regarding correlation between personal data of nurse educators and perception about of virtual learning environment, the study results revealed that there are a positive correlation between gender, educational level, number of teaching subjects and experiences and perception of nurse educators. This finding was on the same line with (*Semlambo et al., 2023*) who reported that there was a positive correlation between personal data age, gender, experiences of educator and perception about virtual learning environment.

In addition, correlation between personal data of nurse students and knowledge about virtual learning environment, the present study results revealed that there are a positive correlation between age and total knowledge of nurse students about virtual learning environment. This finding was supported by (*Mamdouh & Elboudy, 2022*) who conducted a study entitled "E-Learning: Perspective, Effectiveness and Factors affecting Its Quality among Nursing Students " who reported that there was a positive correlation between age, gender for nurse student and knowledge about quality of electronic learning, virtual classes among nursing students.

Also, correlation between personal data of nurse students and perception about virtual learning environment, the present study revealed that there was no statistically significant correlation between perception virtual learning and personal data among nursing students. This finding was supported by (*Yekefallah et al., 2021*) who applied a study to identify factors related to students' perception with e-learning during the COIVD-19 pandemic based on the quality dimensions of e-learning and showed that there was no statistically significant relationship between perception and personal data about quality of virtual online class and variables of age, academic level, and gender.

Conclusion:

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

More than one third of nurse students had satisfactory level of knowledge about virtual learning environment. While the highest percentage of them had unsatisfactory level of knowledge about virtual learning environment .

Additionally, about more than half of nurse educators had a negative perception about virtual learning environment. While about third had a positive perception. Meanwhile more than two thirds of nurse students had positive perception regarding virtual learning environment. While more than half had negative perception.

Also, the highest percentage (85%) of nurse educators had a positive perception about benefits of virtual learning environment. While, only 15% had a negative perception. Additionally, the highest percentage (80.5%) of nurse students had a positive perception about benefits of virtual learning environment, and only 19.5% had a negative perception.

Finally, that there was a statistical highly significant association about perspective scores about virtual learning environment among nursing educators. Additionally, there was a statistical highly significant

association between total knowledge scores and total perspective scores about virtual learning environment among nursing students.

Recommendation:

Based on the current study findings, the following recommendations were suggested:

I- Nursing technical institution managers of the General Authority for Hospitals and Educational Institutes should:

- 1- Provide courses at educational institutions about virtual learning for both nurse educators and students.
- 2-Continuously supporting institutions of higher education for the infrastructure regarding virtual learning.

II-Nurse educators should:

- 1- Improve their competencies regarding using platforms and electronic curriculums before the start of the academic year.
- 2- Update their educational and teaching competencies about virtual learning.
- 3-Simplify and develop educational content to suit students' individual differences and satisfying their needs about virtual courses.

III-Nurse students should:

- 1-Use updated technology about virtual learning.
- 2- Attend training about how to use e-learning platforms and educational tools, to increase their technological awareness and knowledge about virtual learning.

IV- Further studies:

- 1- Examine the impact of virtual learning on nursing students' competence and improvement of clinical skills.
- 2-Compare the effectiveness of virtual learning classroom with a simulations classroom.

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Vol. 3, Issue 5, Month: March 2024, Available at: <https://hijnrp.journals.ekb.eg/>

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