

▪ **Basic Research****Maternity Students' Perception of Virtual Lab Education Environment Based on Dundee Ready Education Environment Measure (DREEM) Questionnaire**¹Amira Morsy Yousif, ²Nageya Ezzat¹ Assistant Professor of Maternity and neonatal health Nursing, Faculty of Nursing, Ain Shams University.² Lecturer of Maternity and neonatal health Nursing, Faculty of Nursing, Ain Shams University.**Abstract**

Background: The achievement of learning goals via practical laboratory could be limited by laboratory time, incurred cost, safety, self-efficacy and inadequate staff so prior preparation of learners is very important in maternity nursing field. Hence, virtual laboratory simulation (vLAB) may be an appropriate E-learning tool to overcome these restrictions and the accomplishment of competence. **Aim:** To assess maternity students' perceptions of virtual Lab education environment based on DREEM Questionnaire. **Design:** This is an analytic descriptive study. **Subjects:** A simple random sample technique was used to recruit 132 Maternal and neonatal health nursing students registered in the 3rd year at academic year 2022-2023, Faculty of Nursing, Ain Shams University. **Setting:** This study was carried out at Virtual lab learning environment that allocated inside E learning platform for maternal and neonatal health nursing department at faculty of nursing, Ain Shams University, Egypt. **Tool:** two tools were used a self administrative interviewing questionnaire and the DREEM questionnaire. **Results:** The total mean score for maternity students' perception of the virtual lab education environment using (DREEM) Questionnaire were 115.0 ± 23.02 and 110.3 ± 17.4 ; for female and male students respectively. Indicating a 'more positive than negative' perception of the virtual lab educational environment, also there was statistical significant deference between male and female students regarding their' perception of the virtual Lab learning domain ($p=0.02$). As 45.5% and 38.9% of female and male students respectively viewed that virtual lab learning is more positive. Where there was no statistically significant differences were detected in other domains. Moreover regarding the students' perception of staff responsible for virtual Lab, (44.7% and 44.4%) of female and male students respectively viewed that staff providing good direction for virtual lab. In addition regarding the students' academic self -perceptions after using virtual Lab (43.8% and 43.5%) of female and male students respectively were Feeling more on the positive side after using virtual Lab experiment. Regarding to the students' perceptions of virtual Lab atmosphere (44.6% and 44.4%) of female and male students respectively had positive attitude with Virtual Lab learning. Concerning students' social self-perception with using virtual Lab according to DREEM subscale (67% and 67.6%) of female and male students respectively mentioned that Virtual Lab learning isn't a nice place. Concerning percentage distribution of the maternity students regarding total DREEM score .This study showed that 46.9% and 47.2% of female and male students respectively viewed that virtual lab has plenty problems **Conclusion:** The total mean score for maternity students' perception of the virtual lab education environment using (DREEM) Questionnaire were 115.0 ± 23.02 and 110.3 ± 17.4 ; for female and male students respectively. Indicating a 'more positive than negative' perception of the virtual lab educational environment, with statistical significant deference between male and female students regarding their' perception of the virtual Lab learning domain where there was no statistically significant differences were detected in other domains. Although the overall questionnaire score was showed to be "more positive than negative" there were slightly more than two thirds of the students mentioned that Virtual Lab learning isn't a nice place. Also 46.9% and 47.2% of female and male students respectively viewed that virtual lab has plenty problems **Recommendation:** in the light of the previous results this study recommended that

- Complementing and strengthening the attainments of virtual lab learning goals and outcomes
- Increase motivation of the students to use virtual lab by solving their problems and obstacles

Keywords: Maternity students' Perceptions, Virtual Lab Learning Environment, DREEM Questionnaire

Introduction:

Educational Environment is defined as anything that happens in a classroom, department, college or university. These include teachers, teaching and learning methods, learning resources, monitoring and assessment. The educational environment has been shown to directly affect student performance and is fundamental to a student's academic success. An educational environment that is hostile to learning not only impedes learners' ability to acquire new knowledge and thus their professional development, but also adversely affects their social life and contribution to the community, which has a significant impact on assessment deficits and withdrawal from courses. Make comparisons between different groups and make appropriate necessary changes **(Rozario et al., 2022)**.

Evidence suggests that the educational environment a student experiences has a significant impact on a student's overall well-being and satisfaction with lifelong knowledge and practice. Perception of the educational environment also has a direct impact on student motivation, satisfaction, and is critical to effective learning. Since the educational environment is measurable, evaluating it is important to make necessary changes and improvements when needed. As such, it can play an integral role in the planning and implementation of comprehensive courses. **(Abuadas, 2022)**.

The ideal educational environment is one that best prepares students for their future careers and promotes their personal and physical development as well as their social wellbeing. In addition, prospective nurses acquire the knowledge, skills and values needed for professional competence and integrate into the nursing profession through participation in a hands-on learning environment **(Carli Ochs and Andreas Sonderegger 2022)**

The educational environment consists of three components: the physical environment and the emotional and intellectual climate. Educational climate refers to the various physical environments, backgrounds and values in which students are educated. The quality of the educational environment indicates the effectiveness of the educational program. The capacity of health workers affects patient safety and well-being, and their training is critical to health initiatives. According to World Federation of Medical Education (WFME) guidelines, improving the learning environment has been recognized as one of the goals of evaluating medical education programs. **(Hamid Bakhshialiabad,etal,2019)**

The learning environment is an extremely important part of a student's life and comprises two main aspects, the psychosocial and the physical. The psychosocial dimension consists of three components: the individual component, the social component, and the organizational component. The physical dimension consists of two components: physical spaces (eg buildings, hospitals, clinics, surgeries/laboratories, community facilities) and virtual spaces (eg e-learning environments, computer networks). (*Thilanka, and Sarath, 2021*).

A positive correlation was found between using virtual reality (VR) and learning. VR is a computing technology consisting of hardware and software that simulates a user's physical presence in a virtually created environment. The outbreak of the COVID-19 pandemic in early 2020 led to a further surge in demand for virtual labs, as anytime, anywhere access to online lab facilities for practical activities was essential during the lockdown. Despite their advantages, selecting the appropriate VLab design or type to ensure an efficient and enhanced learning process is complex. Therefore, an online virtual education system becomes a necessity and will become a regular teaching practice in various countries indefinitely in the future. (*Aziz et al., 2021*).

Virtual Lab -based learning has been proposed as an educational strategy that can replace the clinical practicum because it makes it possible to construct a controlled clinical environment and perform repeated practices without impacting patient safety (Tolarba, 2021). Virtual Lab -based learning is interactive clinical scenarios "offered on a computer, the internet, or in a digital learning environment including single or multiuser platforms (*Pence., 2022*). Numerous advantages of virtual lab educational environment have been demonstrated .These include the provision of a safe and effective mechanism to educate and evaluate students' performances and the promotion of safe practices and decision-making skills among them. Furthermore, virtual lab educational environment not only provides nursing students with immersive experiences within a simulated clinical setting but also allows them to interact with characters therein to exercise critical thinking. The use of virtual lab educational environment enables the creation and repetition of entire procedures with reduced manpower, costs, and time. (*Jallad and Işık, 2022*).

Researchers in the field of education have tried to explain and measure the education environment, with the most widely used tool being the Dundee Ready Education Environment Measure (DREEM) .It is a validated and universal instrument, which has been translated into many languages, including the Persian, Greek, Swedish, Spanish, Arabic, Chinese, Malay, Portuguese, Norwegian, and Thai languages. Furthermore, this valuable tool has been used in undergraduate courses by health professionals and

in health care fields universally, including medicine, dentistry, nursing, midwifery, anesthesiology, medical emergencies, paramedical sciences, and chiropractic learning environments. A significant part of identifying the efficiencies and fields where developments could be made is to receive ‘feedbacks’ from students on designing the learning environment (**Anderson Ise Orobor and Helen Elohor Orobor, 2020**).

Significant of the study:

The educational environment (EE) plays an important role in effective student learning. And to identify areas of weaknesses and strengths as well as scope for improvements in the current EE. So there is a need to evaluate student’s perceptions of the educational environment as part of any assessment of quality standards for education. (**Danett, et al., 2021**).it is clear that the quality of the educational environment reflects the quality of the curriculum. So *studying* the learning environment is essential for improving the quality of nursing educational program. (**Imen, et al., 2022**).

In nursing education, understanding how the university environment influences students' experience of learning, that is their construction of knowledge and acquisition of skills, is very important in refining curricula. Taking into consideration student preferences for learning (e.g. use of technology, physical amenities) were important elements in evaluating the university learning environment (**Joanne, et al., 2019**).

Universities are facing increased students numbers and budget constraints, often resulting in reduced funds to support laboratories. Virtual laboratory activities are often instituted as a cost-effective alternative to traditional labs for maternity students. Virtual Lab -based learning has been proposed as an educational strategy that can replace the clinical practicum because it makes it possible to construct a controlled clinical environment and perform repeated practices without impacting patient safety as it enables students to practice different concept and procedures before engaging in real experiment. This reduces the possibilities of damaging equipment. Students can make mistakes with VL with no consequence by experimenting such experiment thereby avoiding risk and safety concerns. (**Birrenbach, et al. (2021)**). Therefore, it is essential to assess maternity students’ perceptions of virtual Lab learning environment as new applied

Aim of the study: To assess maternity students' perceptions of virtual Lab education environment based on Dundee Ready Education Environment Measure(DREEM) Questionnaire.

Research question:

What is level of maternity students' perceptions of virtual Lab education environment based on DREEM questionnaire?

Operational definition

Maternity Students Perception: are maternity nursing student's thoughts, beliefs, and feelings about persons, situations, and events

Virtual Lab education environment: software that provides resources virtually through a computer-based, online, 3-D platform, smooth temporal changes, and interactivity". Interact or Virtual -Simulator for Nursing use VLE technology to provide student nurses with an interactive experience via a computer-based online platform (*National League for Nursing, 2022*).

DREEM questionnaire: is measure that use to assess maternity nursing students' perceptions of virtual Lab education environment. It is contained 50 items under five sub scales which were directly relevant to the educational environment. The sub scales were: (I) students' perception of virtual Lab Learning; (II) students' perception of academic staff responsible for virtual lab; (III) Students' academic self perceptions after using of virtual Lab; (IV) students' perception of virtual lab atmosphere and (V) students' social self – perception

Research Design:

An analytic descriptive design was used in this study.

Research Setting:

This study was carried out at Virtual lab learning environment that allocated inside E learning platform for maternal and neonatal health nursing department at faculty of nursing, Ain Shams University.

Sample type, size & technique:

A simple random sample technique was used to recruit 132 Maternal and neonatal health nursing students registered in the 3rd year at academic year 2022-2023, Faculty of Nursing, Ain Shams University was calculated according to formula statistics

$$n = Z^2 \cdot p(1-p) / d^2.$$

Z: statistic for a level of confidence. (For the level of confidence of 95%, which is conventional, Z value is 1.96).

P: expected prevalence or proportion. (P is considered 0.5)

d: precision. (d is considered 0.05 to produce smaller error of estimate and good precision)

Sample technique: choose each odd number of students list till complete the pre determined sample size.

Tools for data collection

Two tools of data collection were used

I. A self administrative interviewing questionnaire tool: It used to assess general characteristics of the students such as: age, gender, primary source of the internet and No of exposure to virtual lab.

2. Dundee Ready Education Environment Measure (DREEM) Questionnaire: It concerned with assessment of maternity nursing students' perceptions of virtual Lab education environment. The Arabic version of the DREEM, which was translated from the original English version was adopted from (*Al Ayed, and Sheik, 2008*).

DREEM consists a 50 item inventory each of the 50 items is scored on a 5-point scale, where 4 = strongly agree, 3 = Agree, 2 = Unsure, 1 = Disagree and 0 = strongly disagree. Reverse scoring is required for items 4, 8, 9, 17, 25, 35, 39, 48 and 50. Thus, higher scores indicate a more positive evaluation. Depending on DREEM questionnaire student perception on educational environment items subdivided of five subscales. *Students' perception of virtual Lab Learning:* 12 items (items 1, 7, 16, 20, 22, 24, 25, 38, 44, 47 and 48) *Students' Perceptions of academic staff responsible for virtual lab:* 11 items (items 2, 6, 8, 9, 18, 29, 32, 37, 39, 40 and 50) (maximum score

44). Students' academic self perceptions after using virtual Lab: 8 items (items 5, 10, 21, 26, 27, 31, 41 and 45) (maximum score 32). Students' Perceptions of the virtual lab Atmosphere: 12 (items 11, 12, 17, 23, 30, 33, 34, 35, 36, 42, 43 and 49) (maximum score 48). Students' social self perceptions of virtual Lab: 7 items (items 3, 4, 14, 15, 19, 28 and 46) (maximum score 28).

Scoring system

DREEM Score Domain Score Range	Interpretation
Domain #1: Students' perception of virtual Lab Learning 0-12 13-24 25-36 37-48	Virtual Lab learning is very poor Virtual Lab learning is viewed negatively Virtual Lab learning is more positive Virtual Lab learning is highly thought of
Domain #2: Students' perception of academic staff responsible for virtual lab 0-11 12-22 23-33 34-44	Abysmal staff responsible for virtual Lab Staff need of some retraining on virtual Lab experiment Staff providing good direction for virtual Lab Staff excellent on virtual Lab
Domain #3: Students' academic self perceptions after using virtual Lab 0-8 9-16 17-24 25-32	A feeling of total failure after using virtual Lab experiment Many negative aspects after using virtual Lab experiment Feeling more on the positive side after using virtual Lab experiment Confident after using virtual Lab experiment
Domain #4: Students' perception of virtual Lab Atmosphere 0-12 13-24 25-36 37-48	Virtual Lab learning is terrible environment Virtual Lab learning need many changing issues Student has positive attitude with Virtual Lab learning Student has good feeling overall Virtual Lab learning
Domain #5: Students' social self perceptions of virtual Lab 0-7 8-14 15-21 22-28	Depressing self-perception while using virtual Lab experiment Virtual Lab learning isn't a nice place Virtual Lab learning is not too bad Virtual Lab learning is very good socially
Total DREEM Score 0-50 51-100 101-150 151-200	Very poor Plenty of problems More positive than negative Excellent

Validity and Reliability

Tool of data collection was reviewed by a panel of 3 experts in Maternal and Neonatal Health Nursing field to test the face and content validity. Each of the experts was asked to examine tools for content coverage, clarity, wording, length, format, and overall appearance. Modifications were done based on the comments "rephrasing for two questions". Reliability: Alpha Chronbach test was used to measure the internal consistency of the first tool (interviewing questionnaire) used in the current study (Cronbach's $r=.90$).

Ethical Considerations:

An official approval was obtained from the Dean of the Faculty of Nursing Ain Shams University. The main purpose of the study was explained to each student and informed consent to participate was obtained. The students were given an opportunity to refuse to participate and they could withdraw at any stage of the research. Additionally, they were assured that the information would be confidential and used for the research purpose only without any effect on the students current or future academic course assessment.

Pilot study

Pilot study was conducted before data collection for (33) students. It was conducted to evaluate the efficiency and content validity of the tool, to find the possible obstacles and problems that might be faced during data collection, as well as the time needed for data collection. Students included in the pilot study were excluded from the sample, to avoid contamination of research sample.

Field Work:

At the first stage: educational seminars were set up for the maternity nursing students two times about aim and how to use the virtual lab application on one course (maternity nursing course) at the beginning of the current academic year 2022-2023 which developed by collaboration between faculty of nursing and faculty of information technology and allocated inside E learning platform for maternal and neonatal health nursing department at faculty of nursing, Ain Shams University.

At the second stage: follow up the students to overcome the problems to use of the virtual lab with the faculty members who work in the information technology unit and

any ambiguity was addressed, after that aim of study was explained with their voluntary participation and anonymity.

At the third stage: Data was collected using two tools a self administrative interviewing questionnaire tool and DREEM questionnaire which administered on the last week of end of clinical area. This time was selected to ensure maximum participation. Also, by this time every student would have spent sufficient time to understand the educational environment using virtual lab application and develop perceptions regarding it. Students were briefed about the aims of the study and the importance of high levels of participation during a face to-face session in a lecture hall. Questionnaire was distributed a hard copy students of the maternity students who accept to participate in the study. The students were asked to return the completed questionnaire on the same day to help ensure a high response rate at the end of lecture. Students were requested to complete the questionnaire within 20 minutes and returned it to concerned authority. Students were instructed to avoid discussion in order to avoid bias and timely completion of questionnaire. If they complete all sections before the designated time they were allowed to leave the Lecture Hall.

Statistical analysis:

The data were analyzed using SPSS version 21, the χ^2 tests were employed. Descriptive analysis was done by calculating mean +SD. Mean scores were calculated at individual item, domains, sub scales

Results:

Table (1): Displays that 67.5% of the maternity students were female students. While, 32.5% of them were male students. Concerning place of residence, 70.5% of students raise in urban areas. Regarding educational background 83.3% of the maternity students have secondary education. Concerning primary internet connection source to access virtual Lab 90.9% of the maternity students were using mobile data source. Relating to number of exposure to virtual lab 69% of the maternity students were exposed to virtual lab experiments from 2-3 times throughout maternal neonatal nursing course. In addition to the mean age of the studied students was 20.8 ± 0.74 .

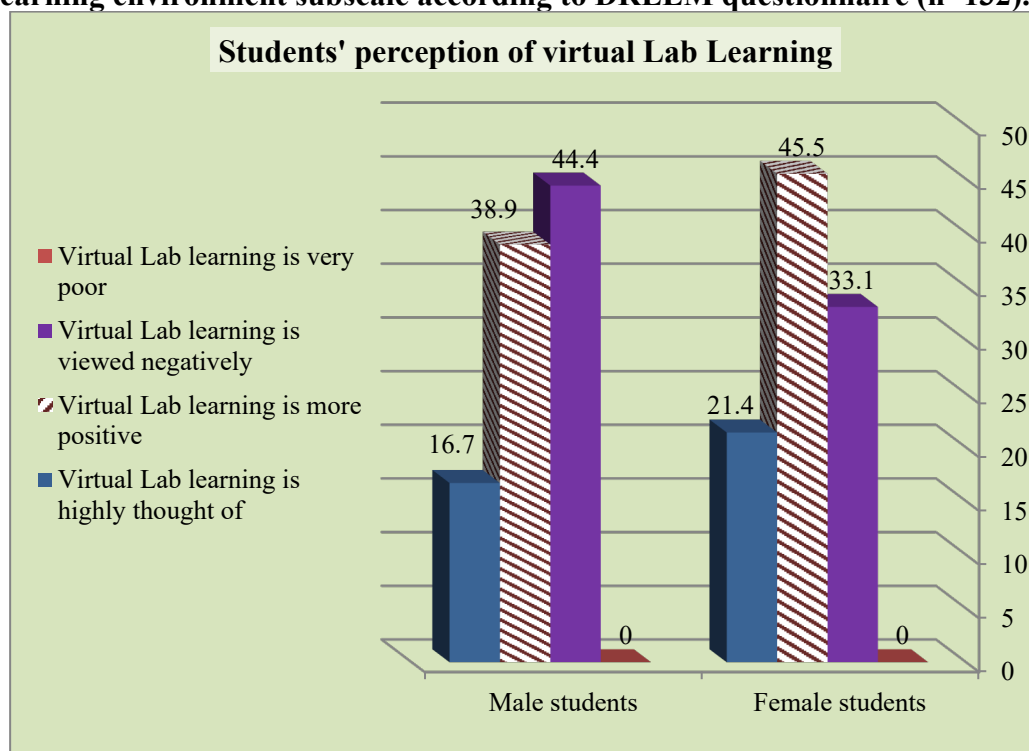
Table (2): Displays that the total DREEM mean score for maternity students 115.0 ± 23.02 and 110.3 ± 17.4 ; for female and male students respectively.

Table (1): Distribution of the maternity students according to their general characteristics (n=132).

Items	No	%
Gender		
Female	89	67.5%
Male	43	32.5%
Residence		
Rural	39	29.5%
Urban	93	70.5%
Educational Background		
Secondary school	110	83.3%
Technical Nursing institute	22	16.6%
Primary internet connection source to access Virtual Lab		
LAN	6	4.5%
Wi-Fi	6	4.5%
Mobile data	120	90.9%
No of exposure for Virtual Lab		
One time	11	8.3%
2 times	91	69%
3 times	24	18.1%
More than 3 times	6	4.5%
Age in years (Mean \pm SD)	20.8 \pm 0.74	

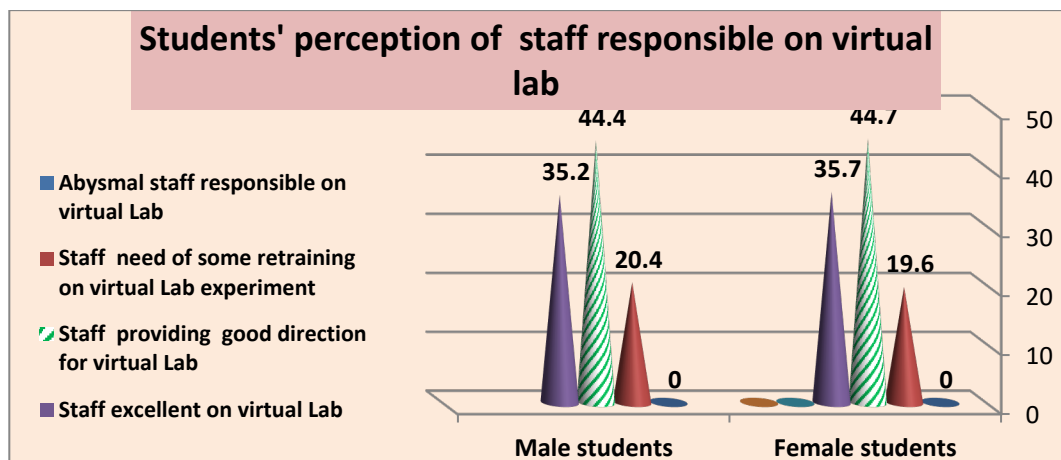
Table (2): Distribution of the maternity students' total mean scores of DREEM (n=132).

Item	Male scores	Female scores
Very poor	92	99
Plenty of problems	112	119
More positive than negative	127	120
Excellent	110	122
(Mean ± SD)	110.3±17.4	115.0±23.02

Figure (1): Distribution of the maternity students' perception of the virtual Lab learning environment subscale according to DREEM questionnaire (n=132).

This figure illustrates that 45.5% and 38.9% of the female and male students respectively viewed that virtual lab learning is more positive with statistical significance between them

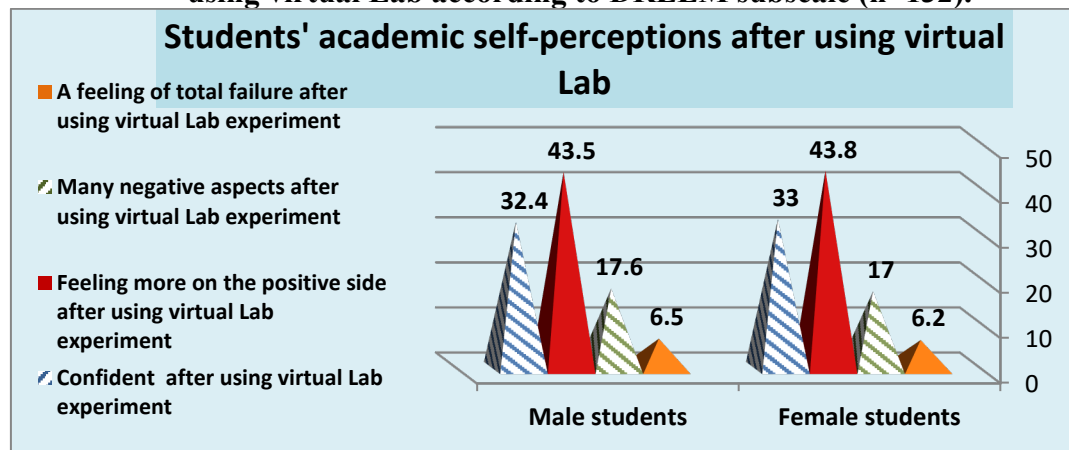
Figure (2): Distribution of the studied students' perception of staff responsible on virtual Lab subscale according to DREEM questionnaire (n=132).



$X^2 = 1.73$ $P = 0.627$

This figure shows that (35.7% and 35.2%) of the female and male students respectively viewed that staff providing good direction for virtual lab with no statistical significance between them

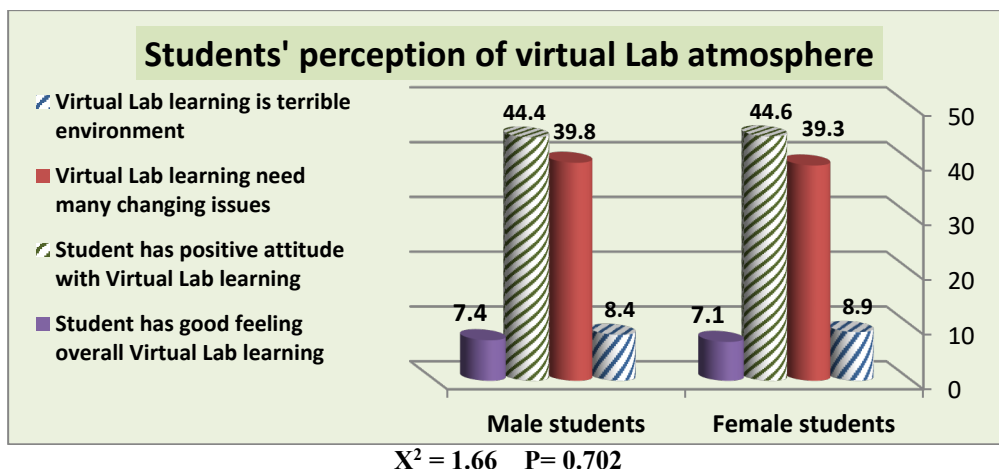
Figure (3): Distribution of the maternity students' academic self -perceptions after using virtual Lab according to DREEM subscale (n=132).



$X^2 = 0.938$ $P = 0.821$

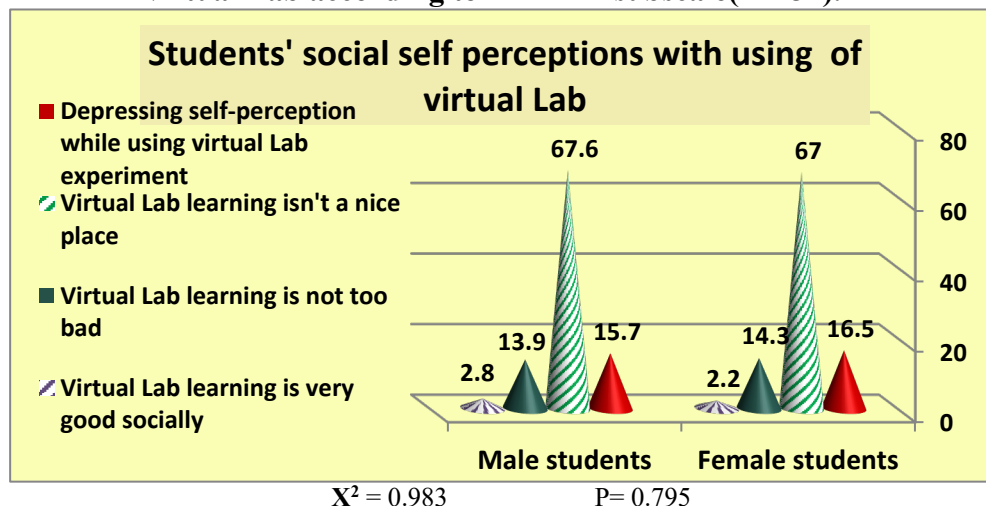
This figure displays that (43.8% and 43.5%) of the female and male students respectively viewed that feeling more on the positive side after using virtual lab with no statistical significance between them

Figure (4): Distribution of the maternity students' perceptions of virtual Lab atmosphere subscale according to DREEM questionnaire (n=132).



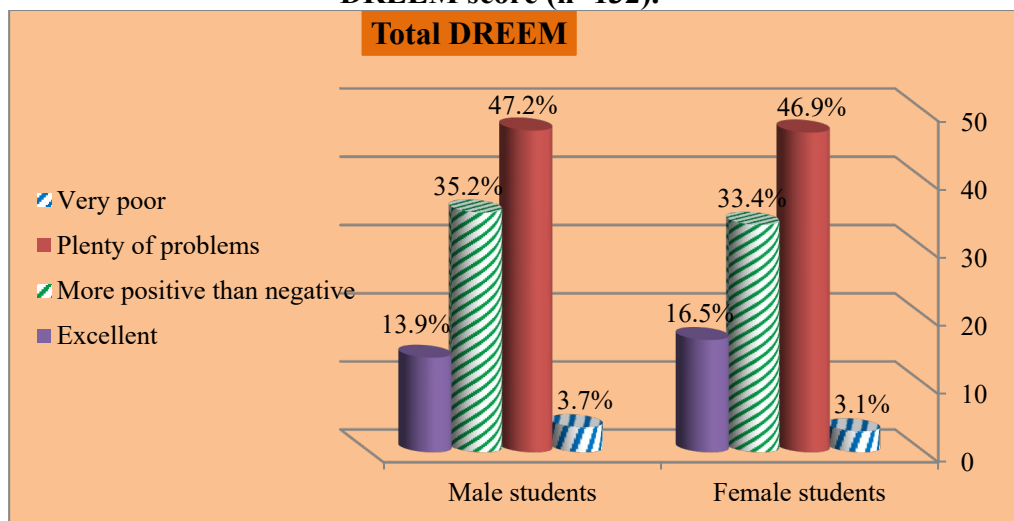
This figure shows that (44.6% and 44.4%) of the female and male students respectively mentioned that students has positive attitude, with virtual lab learning .with no statistical significance between them

Figure (5): Distribution of the maternity students' social self-perception with using virtual Lab according to DREEM subscale(n=132).



This figure illustrates that (67% and 67.6%) of the female and male students respectively viewed that virtual lab learning isn't a nice place, with no statistical significance between them

Figure (6): percentage distribution of the maternity students regarding total DREEM score (n=132).



This figure displays that (46.9% and 47.2%) of the female and male students respectively viewed that virtual lab is more positive than negative according to total DREEM score, with no statistical significance between them

Discussion

Virtual laboratories provide versions are simulated of traditional laboratories that referring to a learner-centered approach in which the student is provided with objects that are virtual representations of real objects used in traditional laboratories. Virtual laboratories may contribute to learning processes and teaching by giving students the opportunity to learn by doing, providing learners with intriguing and enjoyable activities urging them to discover. However, providing students with high quality laboratory facilities can be very expensive, dangerous, difficult, or time-consuming. Educational institutions are not able to keep up-to date laboratory facilities with the rapidly growing technology. Noted the fast development of technology had become an issue for educational institutions to keep up with the pace. Physical laboratory (PL) is however, also constrained, as it is only open at scheduled class hours. In most cases, access to expensive equipment and scarce is restricted, leading to low students utilization. So proposed the adoption of virtual laboratory (VL) **Brinson (2020)**

This study aimed to assess maternity students' perceptions of virtual Lab education environment based on Dundee Ready Education Environment Measure (DREEM) Questionnaire.

The current study displayed that around two thirds of the maternity students were female students. While, third of them were male students. this contradicting with **(Abdel Haleem, et al. (2023)** who studied Medical Students' Perception of Virtual Simulation-Based Learning in Pharmacology in Al Baha University, KSA. And mentioned that 39/60 (65%) were from the male section of the college. This difference could be due to the faculty of nursing is recently graduated male students rather than faculty of medicine it always take both gender students. In addition the mean age of the studied students was $20.8 + 0.74$.this agree with **(Ronni Mol Joji, ,etal (2022)** who studied Perception of online and face to face microbiology laboratory sessions among medical students and faculty at Arabian Gulf University: a mixed method study and mentioned that the mean age for year 3 students was 20.93 (Mean=20.96 for male and 20.92 for female).

Concerning place of residence, 70.5% of students raise in urban areas. Regarding educational background 83.3% of the maternity students have secondary education. Concerning primary internet connection source to access virtual Lab 90.9% of the studied students were using mobile data source. Relating to number of exposure to virtual lab 69% of the studied students were exposed to virtual lab experiments from 2-3 times throughout maternal neonatal nursing course.

In our study the total mean score for maternity students' perception of the virtual lab education environment using **(DREEM) Questionnaire** were 115.0 ± 23.02 and 110.3 ± 17.4 ; for female and male students respectively. Indicating a 'more positive than negative' perception of the virtual lab educational environment his disagree with **Qamar Riaz, Shazia Sadaf, and Abdul Hameed Talpur (2019)** who studied Learning Environment: Students' Perceptions Using DREEM Inventory at an Optometry Institute in Pakistan and found the median DREEM score was 61.5% (123/200). Also our score is better than those reported from traditional medical schools in Saudi Arabia (102/200), Srilanka (103/200) and India (107.44) and a nursing college in Malaysia, suggesting a more positive educational environment. However, much effort is needed to achieve the standards of education to be as Nepalese students (130/200), and for students in a medical school in the United Kingdom (143/200), which is the highest DREEM score reported so far, indicating an environment highly conducive to learning, the reasons have been suggested for this difference from the researcher point of view may be due to a higher expectations at the time of admission, or gradual loss of students interest over time, and increased stress secondary to students involvement in clinical activities,

Regarding to maternity student's perception of virtual lab education environment using DREEM questionnaire domains, there was statistical significant deference between male and female students regarding their' perception of the virtual Lab learning domain ($p=0.02$).as less than half of the male student and one third of the female students respectively mentioned that virtual lab learning is viewed negatively while less than half and two fifth of the female and male students respectively told that virtual lab learning is more positive. Where there was no statistically significant differences were detected in other domains.

This agreed with **Gosak, etal(2021)**who studied perception of the Online Learning Environment of Nursing Students in Slovenia: Validation of the DREEM Questionnaire. And found that differences were detected only in the assessment of learning environment perception, where women had a higher score than men (28.9 for women vs. 24.9 for men, $p = 0.024$). No statistically significant differences were detected in other domains. But this result was disagree with **Nyutu, etal(2021)** who studied correlational Study of Student Perceptions of Their Undergraduate Laboratory Environment with Respect to Gender and Major International and found that major and gender might be impacting students' laboratory experiences This may be due to the students the personal motivations or structure, emphasis, and goals are different for male and female students or maybe due to haven't enough time to conduct many experiment

Regarding to the maternity students' perception of staff responsible for virtual lab less than half of them viewed that Staff providing good direction for virtual Lab. Moreover more than one third of them viewed Staff excellent on virtual Lab this agreed with **Jahan Hassan, Anamika Devi and Biplob Ray(2022)** who studied virtual laboratories in tertiary education: case study analysis by learning theories and revealed that teachers' support (human mediator) for VLabs is important to consider to achieve successful learning outcomes. And Despite the overall success, the VLab has raised unique challenges in its initial offerings due to some students' traditional expectation to perform lab exercises using physical lab setups. This was succeeded by using support of the entire teaching team (human mediator), video instructions and training documents (teaching tool) for students.

This contradicting with **Mária Babinčáková and Paweł Bernard(2020)** who studied Online Experimentation during COVID-19 Secondary School Closures: Teaching Methods and Student Perceptions and stated that Students miss direct contact with the teacher and classmates during online learning. Moreover, they miss the blackboard. Also many students pointed out that their teacher "can explain problems better" in front of the blackboard. But this disagree with **(Teresa A. Kuehne (2020)** who studied doctorate thesis entitled Science Teacher Perceptions Toward Digital Simulations and

Virtual Labs as Digital who indicated that professional development increases in Virtual Labs and digital Simulations also this came in the same line with **Faour, & Ayoubi, (2018)**, who studied The Effect of Using Virtual Laboratory on Grade 10 Students' Conceptual Understanding and their Attitudes towards Physics mentioned that technology tools and, in particular, digital simulations and virtual labs is greatly lacking between staff professionals participants shared that 46.8% of them have not had digital technology tool professional development,

Regarding to the maternity students' academic self -perceptions after using virtual Lab more than two fifth of them reported that Feeling more on the positive side after using virtual Lab experiment. While about one third of them mentioned that they become Confident after using virtual Lab experiment .this in the same line with **Yih-Yih Kok, Hui-Meng Er & Vishna Devi Nadarajah (2021)** who studied An Analysis of Health Science Students' Preparedness and Perception of Interactive Virtual Laboratory Simulation and found that virtual lab facilitates individualized learning and enhances self-efficacy among students and prepares students for physical laboratory sessions and also agreed that virtual lab stimulated their interest to search for additional information, stimulated them to recall their prior knowledge, and helped them retaining their knowledge of the laboratory techniques. They also felt safe to make mistakes and agreed that making mistakes in virtual lab helped them to learn the experimental procedure. Also this agree with **Dhanush Kumar , etal (2018)** who studied Virtual and remote laboratories augment self learning and interactions: Development, deployment and assessments with direct and online feedback ,and found that 82% users were able to use and adapted to self-organized learning through an virtual lab environment.

Regarding to the maternity students' perceptions of virtual Lab atmosphere less than half of them has positive attitude with Virtual Lab learning. while less than two fifth of them stated that Virtual Lab learning need many changing issues this in the same line with **Gülsüm Alıksoy and Didem Islek(2017)** who studied The Impact of the Virtual Laboratory on Students' Attitudes in a General Physics Laboratory and demonstrated that the virtual laboratory experiences had positive effects on the students' attitudes. Additionally, semistructured interviews displayed that they had positive attitudes regarding the virtual laboratory experiences.

While it is disagreed with **Faour & Ayoubi, (2018)**. who reported that the use of virtual laboratory does not influence the attitudes more than the real lab does this may be due to number of participation on virtual lab as this agreed with **(Emily Koehler 2021)**, who studied The Effect of Virtual Labs on High School Student Attitudes

Towards Chemistry ,Theses, Studies where showed that student attitudes were not significantly changed through participating in a single virtual lab.

Regarding the maternity students' social self-perception with using virtual Lab domain the current study illustrated that slightly more than two thirds of the students mentioned that Virtual Lab learning isn't a nice place. This may be because of the VLabs' availability is highly dependent on the steady internet connection. Occasionally some learners face issues in internet connection which can cause dissatisfaction among them. However, learners are able to continue their work and complete it at a later time when internet connection is back. So, with a bit of patience to persevere during the occasional internet connection breakages, VLabs can offer a lot of benefit to the institutes and their learners.

Concerning to percentage distribution of the maternity students regarding total DREEM score this study showed that less than half of maternity students viewed that virtual lab has plenty problems .this result disagreed with **(Sriadhi Sriadhi, Abdul Hamid and Restu Restu)**who studied Web-Based Virtual Laboratory Development for Basic Practicums in Science and Technology and found that the Virtual Labs application is an innovative method to solve the problem of the low competence of students' skills due to the absence of laboratory practicums.

Also this results was contrary **with (Abdel Haleem, et al. (2023)** who mentioned that virtually simulation provides a good learning experience that motivates students to formulate wet hands-on experiments and wish to repeat them in other disciplines rather than pharmacology . this came in the same line with **Didem Keleş etal (2022)** who studied the effect of virtual laboratory simulations on medical laboratory techniques students' knowledge and vocational laboratory education, and found that the majority students commented that the VLab were educational, useful, fun, enjoyable, and easy to learn. And these simulations increased medical laboratory students' interest this difference may be due to it is a new experience of virtual lab application in the faculty of nursing ain shams university or may be due to difficulties of accessibility of internet as majority of the students their source of internet was mobile data. In the researcher point of view this difference may be due to the students not trained well on how to use virtual lab and lack of their motivation to participate

Conclusion

The total mean score for maternity students' perception of the virtual lab education environment using (DREEM) Questionnaire were 115.0 ± 23.02 and 110.3 ± 17.4 ; for female and male students respectively. Indicating a 'more positive than negative'

perception of the virtual lab educational environment, with statistical significant deference between male and female students regarding their' perception of the virtual Lab learning environments subscale where there was no statistically significant differences were detected in other subscales. Although the overall questionnaire score was showed to be “more positive than negative” there were slightly more than two thirds of the students mentioned that Virtual Lab learning isn't a nice place.

Recommendation

- Complementing and strengthening the attainments of virtual lab learning goals and outcomes.
- increase motivation of the students to use virtual lab by solving their problems and obstacles for their use

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الملخص العربي

تصور طلاب ترميز الأومومه عن بيئته تعليم المعمل الافتراضي بناء على استبيان DREEM

إن تحقيق أهداف التعليم عبر مختبر المهارات العملية يمكن أن يكون مفيداً بوقت المختبر ، والتكلفة ، والسلامة ، والكفاءة الذاتية الغير كافييه ، لذا فإن الإعداد المسبق للمتعلمين مهم جداً في مجال ترميز الأومومه. ومن ثم ، قد تكون محاكاة المختبر الافتراضي (virtual lab) أداة مناسبة للتعليم الإلكتروني للتغلب على هذه القيود وتحقيق الكفاءة. **هدف الدراسة:** تقييم تصورات طلاب الأومومه عن بيئة تعليم المعمل الافتراضية بناءً على استبيان DREEM. **التصميم:** هذه دراسة وصفية تحليلية. **عينة البحث:** تم استخدام تقنية العينة العشوائية البسيطة لأخذ 132 من طلاب ترميز صحة الأم وحديثي الولادة المسجلين في السنة الثالثة للعام الدراسي 2022-2023 ، كلية التمريض ، جامعة عين شمس. **امكان اجراء الدراسة:** أجريت هذه الدراسة في بيئة تعليم المعمل الافتراضي التي خصصت داخل منصة التعليم الإلكتروني لقسم ترميز صحة الأم وحديثي الولاده بكلية التمريض ، جامعة عين شمس. **الأدوات البحث:** تم استخدام أداتين في هذا البحث **الأولى** استبيان المقابلات الشخصية ، الأداة الثانية: استبيان النتائج. DREEM : بلغ متوسط الدرجة الإجمالية لتصور طلاب الأومومه لبيئة تعليم المختبر الافتراضي باستخدام استبيان (DREEM) 115.0 ± 23.02 و 110.3 ± 17.4 ؛ للطالبات و الطلاب على التوالي. مما يشير إلى تصور "أكثر إيجابية من السلبية" للبيئة التعليمية للمختبر الافتراضي ، كان هناك أيضاً إختلاف ذي دلالة إحصائية بين الطلاب والطالبات فيما يتعلق بتصورهم للمقياس الفرعي لبيئته التعلم في المختبر الافتراضي ($p = 0.02$) ، حيث لم تكن هناك فروق ذات دلالة إحصائية تم الكشف عنها في المقاييس الفرعية الأخرى. حيث رأى 45.5% و 38.9% من الطالبات والطلاب على التوالي أن التعليم المختبر الافتراضي أكثر إيجابية. علاوة على ذلك ، فيما يتعلق بتصور الطلاب للأعضاء المسؤولين عن المختبر الافتراضي ، رأى (44.7% و 44.4%) من الطالبات و الطلاب على التوالي أن الأعضاء يوفرون توجيهًا جيدًا للمختبر الافتراضي. بالنسبة إلى التصورات الذاتية الأكاديمية للطلاب بعد استخدام المختبر الافتراضي ، (43.8% و 43.5%) من الطالبات و الطلاب على التوالي يشعرون بالإيجابية بعد استخدام تجربة المعمل الافتراضي. فيما يتعلق بتصورات الطلاب عن جو المختبر الافتراضي ، فإن (44.6% و 44.4%) من الطالبات و الطلاب على التوالي يتمتعون بموقف إيجابي عن التعليم باستخدام المختبر الافتراضي. فيما يتعلق بالتصور الاجتماعي الذاتي للطلاب باستخدام المختبر الافتراضي وفقاً لمقياس DREEM ، (67% و 67.6%) من الطالبات و الطلاب على التوالي أن التعليم استخدام المختبر الافتراضي ليس لطيفاً. الخلاصة: إجمالي متوسط الدرجة لتصور طلاب الأومومه لبيئة تعليم المختبر الافتراضي باستخدام استبيان (DREEM) كان 115.0 ± 23.02 و 110.3 ± 17.4 ؛ للطالبات و الطلاب على التوالي. مما يشير إلى تصور "أكثر إيجابية من السلبية" للبيئة التعليمية باستخدام المختبر الافتراضي ، مع إختلاف إحصائي كبير بين الطلاب والطالبات فيما يتعلق بتصورهم للمقياس الفرعي لبيئته التعليم في المختبر الافتراضي حيث لم تكن هناك فروق ذات دلالة إحصائية تم اكتشافها في المقاييس الفرعية الأخرى للمقياس. وايضا على الرغم من أن النتيجة الإجمالية للاستبيان كانت "أكثر إيجابية من السلبية" ، إلا أن أكثر من ثلثي الطلاب ذكروا أن التعليم في المختبر الافتراضي ليس مكاناً جيداً. وأيضاً 46.9% و 47.2% من الطلاب الإناث والذكور على التوالي نظروا إلى أن المختبر الافتراضي لديه الكثير من المشاكل **توصيات البحث:** في ضوء النتائج السابقة أوصت هذه الدراسة بتكملة وتعزيز تحقيق أهداف ونتائج التعليم في المختبر الافتراضي و أيضاً زيادة تحفيز الطلاب على استخدام المختبر الافتراضي من خلال حل مشاكلهم والعقبات التي تحول دون استخدامهم