

Nursing Students' Willingness and Satisfaction of E- Management Learning System Usage during COVID-19 Pandemic

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Abstract

Background: The educational systems across the world have changed their teaching and learning methods due to the Covid19 pandemic. E- Management Learning Systems E.M.L.S is an effective use of digital learning tools in classrooms that can increase student willingness, satisfaction, and engagement, and facilitate personalized learning. **Aim of the study:** to assess nursing students' willingness and satisfaction of E.M.L.S usage during covid-19 pandemic. **Research design:** A descriptive, cross-sectional design was used. **Setting:** The study was conducted at the Faculty of Nursing- Badr University in Cairo. **Subjects:** The study type is a sample random sample technique. The study included 400 out of 1168 nursing students enrolled in the four academic years throughout the academic year (2022-2023). **Data collection tools:** 1st Tool undergraduate nursing students' willingness toward using EMLS questionnaire and 2nd Tool was Undergraduate Students' Academic Satisfaction Scale. **Results:** Slightly (54.6%) of nursing students had highly willingness toward using E.M.L.S. Furthermore, the majority (87.7%) of nursing students had a high satisfaction level regarding E.M.L.S. **Conclusion:** There was a highly significant negative correlation between age, school year, online hours, and secondary school GPA with willingness, satisfaction, and interaction. Also, there was a highly significant positive correlation between computer accessibility with willingness, and satisfaction. **Recommendation:** Periodically conducting a survey of nursing students' opinions and suggestions concerning E.M.L.S applications. Further research is needed to determine the impact of the transition on learning outcomes and practice.

Keywords: Nursing students' Willingness, Nursing students' Satisfaction, E- Management Learning System usage.

Introduction

Over the past decade, the developments and growth of information and communication technology (ICT), internet and web-based applications have had a profound influence on nursing education. With rapid advances in machine learning, artificial intelligence and big data, the potentials of educational technology changes in equal measure. A particular example of this is the new trend of 'adaptive learning technologies' (ALT), and 'technology-enhanced personalized learning'. Such educational technologies aim to use input data from students to present content to be learned in a way that best suits the learners' specific needs and conditions (Andersen et al, 2021).

In the context of health professions' education, ALT has also gained ground, particularly in medical education and in further

education. A recent meta-analysis here of concludes that the adaptive learning technologies seem to have a positive impact on the desired learning outcomes. Thus, there is reason to believe that adaptive learning technologies will become a more widespread kind of learning resource in nursing education in the future (Andersen et al, 2021).

E- Management learning system has grown enormously and has been integrated into education and training as it has created exceptional chances for conducting learning in recent years (Salloum & Shaalan, 2018).

The COVID-19 pandemic is quickly demonstrating why online education should be a vital part of teaching and learning. By integrating technology into existing curricula, as opposed to using it solely as a crisis-

management tool, teachers can harness online learning as a powerful educational tool. The effective use of digital learning tools in classrooms can increase student engagement, help teachers improve their lesson plans, and facilitate personalized learning. It also helps students build essential 21st-century skills (Wei & Chou, 2020).

However, educational technology has its challenges, particularly when it comes to implementation and use. For example, despite growing interest in the use artificial intelligence and other emerging technology, less than 10 percent of faculties report having these tools in their classrooms. Additional concerns include excessive screen time, the effectiveness of teachers using the technology, and worries about technology equity (Teo, 2018). Additionally, while some students thrive in online education settings; others lag for various factors, including support resources. For example, a student who already struggled in face-to-face environments may struggle even more in the current situation.

E-Management Learning System is one of online learning methods that had been used during Covide 19 pandemic. It is one method of delivering 'online' instruction and relates to web/computer based programs and virtual learning environments. These can be delivered using different media sources (CD-ROMs, DVDs) and can either be student or instructor led (Yangoz, et al., 2017). As a result of increasing the use of E.M.L.S, it is important to understand this kind of technology for learning and users' willingness level and satisfaction (Teo, 2018).

The nursing students' willingness to online learning also will give positive impacts to the academic performance and foster communication in learning environment of students. Even now, education leaders must grapple with seemingly impossible choices that balance health risks associated with in-person learning against the educational needs of students, which may be better served when students are in their physical faculties (Wei & Chou, 2020).

Significance of the study:

Online teaching and learning have received widespread acceptance in the recent years. Online learning has the potential to increase learners' ability to acquire new knowledge and educating through an easy, harmonized method of teaching, which allows students to learn at their convenient time and speed. These remarkable improvements have helped teachers and learners overcome the hurdles of time and space. Studies have shown that the online platform of interaction with students is capable of facilitating learning in nursing education and enhance nursing students' willingness and satisfaction toward using online learning (Sharma, 2019).

Globally, online learning has become the present-day paradigm shift in higher institutions of learning. These swift developments in education technology have not only altered the contemporary way of life but have deeply affected the manner of teaching and learning. Studies have revealed that students learn faster and retain about 25-60% when learning online compared with 8-10% in classroom teaching. In addition, it has been documented those learners learn at their own pace, being self-directed learners, and they were able to do personal revision on what has been taught.

The E-Management learning system framework has been increasingly used, because of multipurpose of platform for learning and teaching processes. Numerous faculties resort to the use of online classes (Shehzadi et al., 2020). The E-Management Learning system application has therefore been activated to integrate face-to-face learning with online learning at the faculty of nursing as well as Badr University in Cairo. The researcher seeks to investigate the nursing students' willingness and satisfaction of E.M.L.S usage during covid-19 pandemic.

Aim of the study:

This study aimed to assess nursing students' willingness and satisfaction of E-Management Learning System usage during covid-19 pandemic.

Research Question:

Are nursing students willing and satisfied with using E.M.L.S during COVID-19 pandemic?

Subjects and methods**Research Design:**

A descriptive, cross-sectional design was used to carry out this study. It's simply characterize the prevalence of a health outcome in a specified population. Prevalence can be assessed at either one point in time (point prevalence) or over a defined

Research Settings:

The study was conducted at Faculty of Nursing, Badr University in Cairo (BUC). It includes seven scientific departments namely, pediatric nursing department, medical surgical nursing department (I, II), critical nursing department, maternity and gynecology nursing department, community nursing department, psychiatric and mental health nursing department, administration department.

Subjects:

The study subjects included 400 out of 1168 nursing student throughout the academic year (2022-2023). The subjects were divided into four groups. The first group (138 out of 360) nursing students were selected from the students enrolled in the first academic year. The second group (85 out of 263) nursing students were selected from the students enrolled in the second academic year. The third group (80 out of 275) nursing students were selected from the students enrolled in the third academic year. The fourth group (79 out of 270) nursing students were selected from the students enrolled in the fourth academic year.

They selected using a simple random sample technique. Simple random sampling is a type of probability sampling in which the researcher randomly selects a subset of participants from a population. Each member of the population has an equal chance of being selected.

Data were collected using two tools namely:

- **1st Tool: Undergraduate nursing students' willingness toward using E.M.L.S questionnaire.**

Consists of three parts:

- **Part I:** This was for collection of data related to the personal and study characteristic information of respondents such as age, gender, nationality, type of study, funding of education, GPA and credit hours registered, online courses time, and the previous training courses as E-learning workshops, ICDL and Photoshop, etc.

- **Part II:** aimed to assess undergraduate nursing students' academic willingness toward using E.M.L.S questionnaire by **Sadik, (2007)** and it was adopted from **Al Seadawy, (2018)**. It has 42 items categorized into 6 dimensions namely; Access (9 items), Technological skills (11 items), and Perceived usefulness of E.M.L.S (10 items), Faculty support (6 items), and Learning preferences (8 items).

Scoring:

The responses from “strongly agree” to “strongly disagree” were scored from 5 to 1, respectively. Reverse scoring was used for negatively stated items, so that a higher score indicates higher level of agreement. Totals of each of the dimensions were calculated, and the sums of scores were converted into percentage scores. For the categorical analysis of each component as well as for the total score of willingness, a score of 60% or higher was considered high, while a lower score was considered low.

- **2nd Tool: Undergraduate Nursing students' Academic Satisfaction Scale:** to assess undergraduate nursing students' academic satisfaction and it was adopted from **Dzinban et al. (2017); Hamouda & Abdella (2018)**.

It consists of 50 items categorized into dimensions namely; Student overall satisfaction (5 items), Level course evaluation (8 dimensions & 18 items), and Improvement in Skills Awareness (6 items), Perceived Importance, Citizenship skills and knowledge (4

items), and Sense of belonging (3 items) Interaction (5 items), and Campus resources/ support services (15 items).

Scoring:

Satisfaction items were scored 5 to 1 for very satisfied, satisfied, uncertain, dissatisfied, and very dissatisfied responses, respectively. For each area, the scores of the items were summed-up and the total divided by the number of the items. Reverse scoring was used for negatively stated items, so that a higher score indicates higher level of satisfaction. These scores were converted into percentage scores. The subject's satisfaction was considered high if the percent score was 60% or more and low if less than 60%.

Preparatory Phase:

This phase involved reviewing past and current, national and international related literature using books, articles, journals, periodicals, and the internet to be acquainted with the subjects of the study and tool.

Pilot Study:

A pilot study was conducted in September 2022. Forty nursing students representing 10% of the total study subjects were selected randomly. The pilot study aimed to examine the clarity of language, and applicability of the tools, and to test the feasibility and suitability of the tools. It also served to estimate the time needed to complete the forms by each study subject and identify potential obstacles and problems that may be encountered during data collection. The time for filling out the questionnaires took around 30-45 minutes. Data obtained from the pilot study was analyzed and no modifications were done to the questionnaires. The study sample in the pilot was excluded in the main study sample.

Content Validity:

Forms were validated for both tools by translating to Arabic followed by reverse translation back to English to ensure matching of the original and Arabic versions of both tools. Then testing of the validity of both tools

including face and content validity was judged by a panel of experts (five experts in the field of nursing). The expert panel consisted of three Assistant professors of nursing administration at Ain Shams University, one Assistant professor from the nursing administration nursing department at Badr University, and one Assistant professor of nursing maternity and gynecology department. The panel asked to judge the validity of the tools of data collection.

Reliability:

Cronbach's alpha coefficient was used to assess the internal consistency of both tools.

Scale	No of Items	Cronbach's Alpha
Willingness	35	0.96
Satisfaction	37	0.98
Interaction	5	0.86
Use of resources	8	0.87

Fieldwork:

The field work started after getting the official approvals to conduct the study using authorized channels. The researcher visited the study setting, met with the head of each department to determine the suitable time to collect the data from students. Before beginning to collect data from the nursing students, the researcher introduced herself to them, explained the aim of the study, and informed them that their information will be treated as confidential and will be used only for the research. Each participant was notified about the right to accept or refuse to participate in the study. This was done after obtaining students' verbal consent to participate. At the end of the theoretical lectures, lectures schedules were obtained for every academic year. Depending on the lectures' schedule, the researcher was inviting the students in each academic year to participate in the study.

After an oral explanation, the students' questionnaire was administered individually to each student who was included in the study. Each nursing student was permitted to ask the researcher for further clarification if they

encountered difficulties in understanding the questionnaire items. Then, the questionnaire sheet was distributed to all students filled in the presence of the researcher to ensure that the questions were answered completely by the students. The time required to complete the questionnaire was about 30-45 minutes. The data collection process took three months from the beginning October 2022 to the end of December 2022.

Ethical Considerations:

Prior to the study conduction, the study protocol was approved by the Scientific Research Ethical Committee at the Faculty of Nursing at Ain Shams University. In addition the researcher met with the dean of Faculty of Nursing at Badr University in Cairo and the head of each department in the faculty to get their approval. Then the researcher met with nursing students to explain the purpose of the study and to obtain their agreement to participate. The anonymity of each participant was assured by allocation of a code number to the questionnaire sheets. They were reassured about the privacy of the information collected, and that it would be used only for the purpose of scientific research (informed consent).

In addition, nursing students' agreements to be included in the study were obtained formally after an explanation of the nature and purpose of the study. Each nursing student was free to either participate or not in this study and had the right to withdraw from the study at any time. The confidentiality and anonymity of each subject were also assured through coding of all data.

Administrative Design:

Official letters requesting permission to conduct the study were directed from the faculty Dean and nursing students' affairs at Faculty of Nursing at Badr University in Cairo (BUC). Approval from the ethical research committee was also obtained. These letters clarified the aim of the study. A photocopy of the data collection forms was attached to the request letter.

IV. Statistical Analysis:

Data entry and statistical analysis were done using SPSS 20.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for quantitative variables. Cronbach alpha coefficient was calculated to assess the reliability of the developed tools through their internal consistency. Qualitative categorical variables were compared using chi-square test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Fisher exact test was used instead. In larger than 2x2 cross-tables, no test could be applied whenever the expected value in 10% or more of the cells was less than 5. Spearman rank correlation was used for assessment of the inter-relationships among quantitative variables and ranked ones. In order to identify the independent predictors of the scores of willingness, attitude, and satisfaction, multiple linear regression analysis was used and analysis of variance for the full regression models was done. Statistical significance was considered at p-value <0.05.

Results:

Table (1): Shows that slightly, more than one-third (**35.6%**) of nursing students were 20-years old and the majority (**99.2%**) were single with Egyptian nationality. While more than half of them were female students and coming from urban area (**54.6%**). Also, more than two-thirds (**65.4%**) were first born and +3 siblings.

Figure (1): indicates that, slightly more than one-third (34.6%) of studied nursing students were enrolling at first academic year. While near to one-quarter (24.1%) were enrolling at fourth academic year. Also, one-fifth (21.3% - 20%) of them were enrolling at second and third academic year.

Table (2): Presents that that slightly, more than half (**57.9%**) of nursing students had high technological skills, and the majority of them (**84.9%**) were highly perceived usefulness and faculty support. While, more than half of

them (62.8%) had highly learning preferences and willingness.

Table (3): shows that the majority (87.7%) of students had a high satisfaction level regarding E-Management Learning System, and the majority (91.3%) of students had a high satisfaction level regarding course evaluation with content and sessions.

Table (4): reveals that there was a highly significant negative correlation between age, school year, online hours, and secondary school GPA with willingness, attitude, satisfaction, and interaction. Also, there was a highly significant positive correlation between computer accessibility with willingness, and satisfaction.

Table 1: Demographic characteristics of nursing students in the study sample (n=390)

	Frequency	Percent
Age:		
<20	130	33.3
20-	139	35.6
24+	121	31.0
Range	18.0-24.0	
Mean±SD	20.4±1.7	
Median	20.00	
Gender:		
Male	210	53.8
Female	180	46.2
Nationality:		
Egypt	387	99.2
Foreign	3	0.8
Marital status:		
Single	380	97.0
Married	10	2.6
Residence:		
Rural	177	45.4
Urban	213	54.6
Siblings:		
0-1	36	9.2
2	99	25.4
3+	255	65.4
Range	0-10	
Mean±SD	3.2±1.5	
Median	3.0	
Firstborn:		
No	244	62.6
Yes	146	37.4

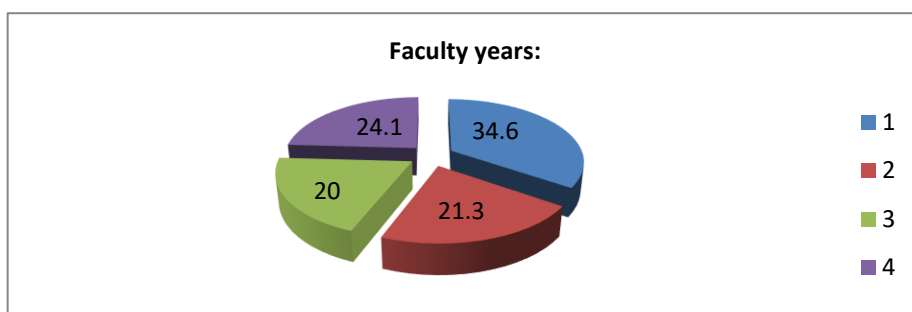


Figure 1: Distribution of nursing students according to faculty year (n=390)

Table 2: Willingness towards E-Management Learning System (E.M.L.S)among students in the study sample (n=390)

	Frequency	Percent
Technological skills:		
High	226	57.9
Low	164	42.1
Perceived usefulness:		
High	331	84.9
Low	59	15.1
Faculty support:		
High	311	79.7
Low	79	20.3
Learning preferences:		
High	145	37.2
Low	245	62.8
Total willingness:		
High	213	54.6
Low	177	45.4
Positive (60%+)	113	29.0
Negative (<60%)	277	71.0

Table 3: Satisfaction with E-Management Learning System (E.M.L.S) among nursing students in the study sample (n=390)

High (60%+) satisfaction with:	Frequency	Percent
Overall	327	83.8
course evaluation:		
Overall	336	86.2
Duration and timing	338	86.7
Content and sessions	356	91.3
Activities	342	87.7
Interaction with others	347	89.0
Motivation and academic performance	350	89.7
Skill improvement and awareness	342	87.7
Perceived importance	338	86.7
Total	349	89.5
Citizenship skills and knowledge	332	85.1
Sense of belonging	337	86.4
Total satisfaction:		
High	342	87.7
Low	48	12.3

Table 4: Correlation between nursing students' scores of willingness, attitude, satisfaction, interaction, and resource and their characteristics

	Spearman's rank correlation coefficient				
	Willingness	Attitude	Satisfaction	Interaction	Resource use
Age	-0.09	-0.13**	-0.12*	0.07	0.03
No. of siblings	0.01	0.01	0.07	0.04	-0.06
Birth order	0.01	-0.04	0.05	-0.02	0.03
School year	-0.06	-0.11*	-0.16**	0.10*	0.01
Online hours	-0.13	-0.19**	-0.20**	-0.01	-0.02
Secondary school GPA	-0.10*	-0.21**	-0.15**	0.05	0.10
Last term GPA	-0.01	-0.08	0.02	-0.07	-0.03
Computer accessibility	0.26**	0.04	0.14**	0.07	0.07

Discussion

The global COVID-19 epidemic is spreading around the world, affecting almost every country and territory. Nations all over the world have warned the public to take precautions. Public care strategies include hand washing, masking, social distancing, and prevention of gatherings. Containment and

home support strategies have been established to flatten the curve and control disease transmission. Online learning tools have played a pivotal role during this pandemic, helping schools and universities facilitate student learning when universities close (Sintema, 2020).

Concerning willingness towards E-Management Learning System (E.M.L.S) usage among nursing students, the present study findings revealed that more than half of nursing students had high technological skills, and the majority of them were highly perceived usefulness and faculty support. While more than half of them had high learning preferences and willingness. of technology among the new generations of is helping nursing students to be aware of dealing with online tools and searching regarding their subjects. Also, nursing students' effective preparation for using models and programs for the application of online learning is assigned by the Ministry of higher education.

A similar finding was consistent with a study conducted in Spain by **Ruiz-Grao, (2022)** who study "Nursing Student Satisfaction with the Teaching Methodology Followed during COVID-19 Pandemic", revealed that most of the studied students had a high perception of the support and answers obtained from their faculties for use the new learning method. Also, this finding is in disagreement with a study conducted in the United Kingdom by **Ali, et al., (2018)** who study "A conceptual framework highlighting e-learning implementation barriers", which revealed that the majority of the surveyed higher education students have reservations about online/digital learning, lack of access to computers, and internet facilities.

Concerning satisfaction with E-Management Learning System (E.M.L.S) among nursing students, the present study showed that the majority of nursing students had a high satisfaction level regarding E-Management Learning System, and the majority of them have a high satisfaction level regarding course evaluation with content and sessions. From the researcher point of view, these findings are due to E-Management Learning Systems helping the nursing student to learn faster and absorb as much information in a suitable time for them. This finding was the same as the study conducted in **Tacurong** by **Besa, (2020)** who study "Extent of Implementation of ELMS and the Participation of STI General Santos City Senior High School Students", which reported that The acceptance of the learning management system vital in deciding whether the system is usable and utilized by students and instructors.

As relations between nursing students' willingness and areas of satisfaction and total satisfaction towards e-learning, the present study showed that there was statistically significant relation between nursing students' willingness with satisfaction, and total satisfaction towards e-learning. As per researcher point of view, the awareness of the nursing students is leading them the ability to cope with the new learning method and being satisfied with using E.M.L.S.

A similar study finding was consistent with a study conducted at Bina Nusantara University by **Navarro et al., (2021)** who study "The perceived satisfaction in utilizing learning management systems among engineering students during the COVID-19 pandemic: Integrating task technology fit and extended technology acceptance model", which revealed that most students feeling satisfied when using E.L.M.S and there was significant relation between nursing students' willingness and areas of satisfaction .

A study finding was incongruent with a study conducted at Turkey by **Meşe & Sevilen,(2021)** who study" Factors influencing EFL nursing students' motivation in online learning: A qualitative case study", indicated that students had less satisfaction and willing to learning management system.

Conclusion

In the present study, results lead to the conclusion that online learning has become part of the new normal with the global experiences of learning recorded during the COVID-19 pandemic; as the majority of nursing students had highly significance regarding learning preferences, willingness and satisfaction, and interaction toward using E-Management Learning System. Also, more than half of nursing students had a high satisfaction level regarding course evaluation with content and sessions. Moreover, there was a highly significant negative correlation between age, school year, online hours, and secondary school GPA with willingness, attitude, satisfaction, and interaction. Also, there was a highly significant positive correlation between computer accessibility with willingness, and satisfaction.

This implies that the findings of this study can be generalized because nearly all institutions of higher learning have embraced online learning since the outbreak of COVID-19 pandemic in 2019/2020. These present findings answer the research question which stated that Are nursing students willing and satisfied with using E.M.L.S. during COVID-19 pandemic?

Recommendations

Based on the results of the present Study following recommendations was made:

On Education:-

- 1- Faculty members within universities need team of instructional designers and programmers to update their curriculum through clear and effective online, electronic materials and instructional programs.
- 2- Faculty members within universities need training programs and workshops regarding self- directed learning and e-Learning usage to update their knowledge about self-directed learning system.
- 3- Nursing programs need to be reviewed and updated to incorporate technology courses in it.
- 4- Providing more resources to enhance learning process and facilitate E.M.L.S. usage.
- 5- Periodically conducting a survey of nursing students' opinions and suggestions concerning E.M.L.S applications.
- 6- Enhance student engagement through conducting periodical online counseling sessions to help students verbalize their feelings about their college experience and respect students' opinions, concerns, and suggestions.
- 7- Periodically conducting a survey of nursing students' opinions and suggestions concerning.
- 8- The shared experiences of the nursing students and data findings implied that further research should include the psychological and physical impacts on both students and faculty caused by the rapid transition.
- 9- Further research is needed to determine the impact of the transition on learning outcomes and practice.
- 10- Further research is proposed to assess challenges facing E.M.L.S implementation among faculty staff and nursing students.

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