

THE EFFECT OF USING AN ELECTRONIC COURSE ON SATISFACTION AND ACADEMIC ACHIEVEMENT OF UNDERGRADUATE NURSING STUDENTS

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ABSTRACT

Electronic learning has become one of the fastest-moving trends in education and poses a promising alternative to traditional learning. The study aimed to design, implement and evaluate the effect of using an electronic course on undergraduate nursing students' satisfaction and academic achievement in course of ethical and legal issues in nursing. Quasi-experimental design was utilized to achieve the aim of the study. The study was conducted at Faculty of Nursing- Cairo University. Data were collected from January 2016 to July 2017. Four tools were designed to achieve the aim of the study; as follows: computer skills assessment; an electronic course in ethical and legal issues in nursing; student's satisfaction with electronic course questionnaire and the course's GPA auditing checklist. The study sample was a randomly selected (105) students be the experimental group who achieved the inclusion criteria and the control group that included (263) students. The results of the study revealed that, according to experimental group students' satisfaction with e- course; the mean percentage of total students' satisfaction with e-course was (98.5%). According to the difference between experimental and control groups students regarding pre-test, immediate post-test and final exam of the course, there is highly statistical significance difference between experimental and control groups regarding their pre-test ($t = -7.41, P = 0.00$) and immediate post- test ($t = 29.47, P = 0.00$) of the course. While, there is statistical significance difference ($t = 2.37, P = 0.02$) between experimental and control groups regarding final exam. The study recommended that, at the level of the electronic ethical and legal issues in nursing course; encourage its use at the postgraduate level and at the other faculties of nursing level. At the level of faculty, working on more production and application of other e-courses in different disciplines.

KEYWORDS: Electronic Course, Satisfaction and Academic Achievement.

INTRODUCTION

The World Wide Web was definitely became effective, worldwide and intelligent medium for sharing data. The advances of web innovations have supported improvement of new learning encounters for understudies [1]. One of the principal sorts of web application for conveying direction by means of the Internet is electronic guideline that is currently known as e-learning; it is a hypermedia-based instructional program that uses the properties and assets of the Web to make a significant learning condition [2].

E-learning as the use of the Internet by users to learn specific content [3]. Moreover, e-learning as the delivery of training and education via networked interactivity and distribution technologies or for that matter any other electronic sources [4]. In addition, other researchers define e-learning as using modern Information and Communications Technology (ICT) to deliver instruction, information, and learning content [5].

Nursing instructors look for powerful instructing technological techniques to upgrade nursing students` learning and elevate the capacity to critical thinking [6]. In later years; nursing field is quickly encourage the utilization of innovation, for example, electronic courses in both the clinical reproduction and hypothetical courses [7].

Introducing the e-learning in nursing curriculum is important, as it allows learners to learn in their own time and place. Moreover, e-learning allows learners to be self-directed; it also provides them with the ability to connect online to download resources that are essential for their educational requirements [8]. E-learning is an “innovative approach to education delivery via electronic forms of information that enhance the learner`s knowledge and skills [9].

Advantages of e-learning for learners include an increase accessibility to information, better content delivery, personalized instruction, content standardization, accountability, on-demand availability, self-pacing, interactivity, confidence, and increased convenience [10,11]. In addition, e-learning increased student`s satisfaction and reduced teachers` workload [12].

Welsh, Wanberg, Brown & Simmering, 2003 E-learning has enormous benefits and can reduce costs in comparison to a traditional classroom environment after primary course establishment [13]. E-learning reduces classroom and facilities cost, training cost, travel cost, printed materials cost, and labor cost [11]. Anywhere; e-learning initiatives necessitate significant funds in technology such as hardware costs, software licenses, development of learning material, equipment safeguarding, and staff`s training [14].

E-learning has a greater disadvantages such as learners need to have access to a computer and the Internet and learners must having computer skills with programs such as word handling, Internet browsers, and e-mail communication; plus that slow internet connections and speed or older computers may make gain access to the course materials hard and this may cause the learners to get upset and give up [15]. Another disadvantage of e-learning is that students may feel isolated from the instructor. Learners also need to have good writing, computer, and communication skills. When instructors and other learners are not meeting face to face, it is possible to misunderstand what was intended [16].

Student`s satisfaction who using e-course is one of the greatest significant issues in assessing the accomplishment of system application [17]. Moreover, students` satisfaction refers to students are successful in the learning experience and are pleased with their experience [18]. Also, students` satisfaction means the perception of enjoyment and accomplishment in the learning environment; in that both focus on accomplishment and success in learning, and pleasure and enjoyment with the experience [19].

The most direct impact of e-learning would be on the learning achievement of students [20]. Moreover, students who use computer in their studies have higher scores on tests compared to students who did not use computers [21]. In addition, e-learning having a positive effect on students` academic achievement in different subject matter areas [22].

Aim of the Study

The present study aimed to design, implement and evaluate the effect of using an electronic course on undergraduate nursing students` satisfaction and academic achievement in course of ethical and legal issues in nursing.

Research Hypotheses

To fulfill the aim of the study, the following research hypotheses were formulated:

- Undergraduate nursing students will have a higher satisfaction level after using the designed "electronic course in ethical and legal issues in nursing".
- Undergraduate nursing students will have a higher GPA level after using the designed "electronic course in ethical and legal issues in nursing" compared to control group students.

OPERATIONAL DEFINITION

Electronic Course (E-Course)

It refers to using a software program of "ethical and legal issues in nursing" course to undergraduate nursing students.

Student's Satisfaction

It refers to the percentage of student's enjoyment with the e - course through its instructor, set up, technology and outcomes.

Academic Achievement

It refers to the achievement of course in ethical and legal issues in nursing / student at the end of an academic semester by using grades of grade point average (GPA). GPA is ranged from 4 to 0 (A+ to F).

Ethical Consideration

A primary approval to conduct the study was obtained from the research and ethical committee, Vice Dean of Post Graduate Studies and Research, Vice Dean for education and Student Affairs and the head of nursing administration department at Faculty of nursing- Cairo University to carry out the study.

Participation in this study was entirely voluntary; each participant had the right to accept or refuse participation in the study. Informed consent will be obtained from the study's subjects. Anonymity and confidentiality were assured through coding the data; every participant had the right to withdraw from the study at any time. Subjects were assured that this data will not be reused in another research without taking permission of the participants. The ethical issues considerations include explaining the purpose and nature of the study and protecting the participants from any risk. Collected data was used in the purpose for the research only and the entire needed sample in the study was followed until been analyzed.

MATERIALS AND METHODS

Research Design

Quasi-experimental design was be used to achieve the aim of the present study.

Setting

At the introductory period, the study was conducted at computer labs that located in Faculty of Nursing – Cairo University which has two computer labs that are used in the educational process for undergraduate nursing students. The repeated sessions were be accessed in or outside the faculty labs according to the availability of Internet services for students of experimental group.

Sampling

According to Cairo University strategy of classification of large students` number/course into sub-groups, the total number of faculty students from different academic levels who registered in " ethical and legal issues in nursing course" was (368) students in second academic semester, 2016/2017; this number was classified by faculty into three groups (A,B and C) and achieved the following inclusion criteria:-

- Accept to participate in the study.
- Are regularly attending the classes within the accepted standards.

The study sample was A group that is an inclusive sample was randomly selected to be the experimental group that included (105) students and achieved the inclusion criteria. The others B and C groups that randomly selected to be the control group that included (263) students.

Tools of Data Collection

After reviewing the related literature, the following tools were designed to achieve the aim of the present study; as follows: I. Computer skills Assessment, II. An electronic course in ethical and legal issues in nursing; III. Student's satisfaction with electronic course questionnaire and IV. The Course`s GPA auditing checklist.

Computer Skills Assessment

This assessment sheet was developed by the researcher based on reviewing literature in order to figure out introductory features of experimental group students. It contains two parts as the following:

- The first part: It contained (8) questions in order to assess the demographic and academic data about the participant such as; student`s name, age, sex, previous university educational level, academic year, academic level and academic semester etc.
- The second part: The participant information about computer skills and experience with technological methods use in learning; it contained (6) questions in order to estimate students' previous experience in computer skills and assess student` experience with technological methods use in learning.

Only the first part of this assessment used to figure out introductory features of control group`s students.

An Electronic Course in Ethical and Legal Issues in Nursing

It was a designed electronic course (e-course) by the researcher and a group of experts in nursing administration specialty. This e-course that delivered to the experimental group students and that was produced through the following steps:

- The scientific content of "ethical and legal issues in nursing" course was prepared by the researcher and revised by a group of experts in nursing administration specialty from faculty of nursing- Cairo University an assistant professor and lecturer.
- Transforming the content of "ethical and legal issues in nursing" course to be an electronic self-learning course by the electronic learning Center (ELC) at Cairo University.

- Validating "the electronic ethical and legal issues in nursing" course by group experts in nursing administration specialty from different faculties of nursing at the Egyptian Arab Republic's level, that to test the applicability and feasibility of the designed electronic course. This process implemented through the National Center For Electronic Learning at Cairo University with confidentiality.

Student's Satisfaction with Electronic Course Questionnaire

This is a modified questionnaire was consists of (86) items. It was modified by the researcher based on using the related literature [23, 24, 25, and 26] and based on the comments and reviewing the panel of experts at Faculty of Nursing – Cairo University. The modified questionnaire was answered by experimental group students. This tool was used to measure students` satisfaction level after use "the electronic ethical and legal issues in nursing" course.

The modified questionnaire consisted of 5 dimensions as follow;

- Instructor /Facilitator; It Includes; (18 Items),
- Course Set Up ; It Includes (37 Items),
- Technology ; It Includes (8 Items),
- Outcomes; It Includes (6 Items) And
- Overall satisfaction; it includes (17 items).

The responses of modified questionnaire were checked against 3-points Likert scale ranged from 1- dissatisfied to 3- satisfied and used **the scoring system** as follow; for dissatisfied (Score 1), for undecided (Score 2) and for satisfied (Score 3).

The Course`s GPA Auditing Checklist

This form was developed by the researcher to check the grade of grade point average (GPA) of "e-course in ethical and legal issues in nursing" to assess both experimental and control groups student's course achievement.

Each grade of (GPA) had a different point as the following

Table: 1

Grades Of GPA	Point Number	Equivalent Degree	Percentage
A+	4	Excellent	95-100
A	3.7	Excellent	90- <95
A-	3.4	Excellent	85- <90
B+	3	Very good	80- <85
B	2.7	Very good	75- <80
C+	2.3	Good	70- <75
C	2	Good	65- <70
D+	1.6	Pass	60- <65
D	1.3	Pass	55- <60
D-	1	Pass	50- <55
F	0	Fail	<50

The scoring system used for each grade of GPA as the following:-

Table: 2

Grades Of GPA	Score
A+	11
A	10
A-	9
B+	8
B	7
C+	6
C	5
D+	4
D	3
D-	2
F	1

Validity of the Tool

Content validity is defined as the degree to which the instrument measures what it's hypothetical to measure.. A panel of experts is typically consulted to identify a broad variety of content [27].

The content validity of the study tools was done by revision of five academic experts at Faculty of Nursing- Cairo University (Professor in nursing administration department, two assistant- professors in nursing administration department, two professor in medical – surgical nursing department).They were asked to examine the data collection tools for their content coverage, clarity, wording, length, format, and overall appearance. Based on experts` comments and recommendations, some items had been added, modified and cancelled in the data collection tools.

Pilot Study

Pilot studies are pretesting procedures that utilize all the procedures and materials concerned in data collection before the actual data collection begins and have a specific goal of estimating response rates under a particular recruitment protocol for identifying an optimal design characteristic to improve the success and effectiveness of the study [28].

Pilot study was carried out on (10 %) of the total sample of students who participated in the study in that includes (37) faculty nursing students divided in the two groups (experimental group included (10) students and control group included (27) students), to ensure accessibility of the sample, the clarity of content of tool that used by the study sample and the time needed to fill in the course pre-test by experimental and control groups students. There were no modifications in the data collection tool after pilot study. So, this pilot sample was included in the total sample.

Reliability of the Tool

Tool reliability determines how consistently a measure of skill or knowledge yields similar results under varying conditions [27]. Internal consistency and reliability were determined using Cronbach's alpha test for independent variables was run for the satisfaction and the academic achievement of experimental group students who studied the electronic ethical and legal issues in nursing course. Hair et al, 2006, stated that the interpretation for each reliability coefficient value as the following; below 0.70 (may have limited applicability), 0.70-0.79 (adequate), 0.80-0.86 (good) and 0.90 and up (excellent). Internal consistency using Cronbach's alpha was 0.83 for computer skills assessment; and 0.94 for student's satisfaction with electronic course questionnaire.

PROCEDURES

The initial approvals to conduct the study was obtained from the research and ethical committee then obtain the official permission from the Dean, Vice Dean of Post Graduate Studies and Research and Vice Dean for education and Student Affairs at the Faculty of Nursing - Cairo University. In addition, the permission from the electronic learning Center (ELC) at Cairo University was obtained to produce the e-course.

The study was conducted on the following steps:

Step 1: firstly; made a revision of "ethical and legal issues in nursing" course specification format by researcher and group of experts in nursing administration specialty from faculty of nursing- Cairo University who assistant professor and lecturer. Modifications were performed in all parts of the format; then two models of course specification were issued. One of them for experimental group students in which methods of teaching and methods of evaluation were described according to the requirement of using e-course. The other models describe the traditional (previous) methods of teaching and methods of evaluation that for control group students. Both experimental and control groups had the same content and evaluated finally by the same exam its score was (100) and success level 50% (D-).

Then take the approval about the modified course specification for changes in course`s contents from Education and Students Affairs Committee and Curriculum Development Committee at the faculty. This step lasted from January 2016 to April 2016.

Step 2: at May 2016; the researcher was communicated with (ELC) at Cairo University and provided the center with the administrative approvals from the faculty of nursing - Cairo University to start to produce the e-course in ethical and legal issues in nursing and transformed the content of the course to be an electronic self-learning course. Then the National Center For Electronic Learning validated with confidentiality "the electronic ethical and legal issues in nursing" course by group experts in nursing administration specialty from different faculties of nursing at the Egyptian Arabic Republic`s level, that to test the applicability and feasibility of the designed electronic course.

Step 3: the researcher started the work sessions with the team of ELC at Cairo University which includes (8) persons (two instructional designers (ID), three graphic designers (GD), one developer, one network designer and programmer and one training and marketing officer). The work sessions started at June 2016 and finished at December 2016 after revised course content by a group of experts in nursing administration specialty from faculty of nursing- Cairo University who assistant professor and lecturer.

The Researcher Had Role with ELC Team Members during Work Sessions that Included the Following Activities

- Make sure the images and videos used in e-course were compatible with scientific content by communicated with ID.
- Make sure that the speed of pronunciation of the English language was compatible with the emergence of scientific content by communicated with GD.
- The suitability of colors used by communicated with GD.
- Ensure that the scientific content of the course is properly transmitted and posted on the university's website by

communicated with ID and GD and developer.

- Ensure the readiness of the course on the university's website and its ease of operation for students by communicated with the network designer and programmer.

Step 4: the researcher was approach the head of nursing administration department to explain the aim of the study and obtain the permission to approach the faculty nursing students who registered "ethical and legal issues in nursing" course at all academic levels at faculty. During students' attendance at the first theoretical lecture of the course in the second semester, 2016/2017 that started in February 2017; students were invited to participate in the study and after oral explanation and clarification of the aim of the study; the developed computer skills assessment sheet was distributed for students to know who met the inclusion criteria and accept to participate in the study. Depending on the findings, a written consent was obtained from the participants who agree to share in the study.

Step 5: the researcher divided randomly all faculty nursing students who registered ethical and legal issues in nursing course and accepted to share in the study into two group (**the experimental group** who exposed to the new teaching method that the electronic ethical and legal issues in nursing course and **the control group** who exposed to traditional teaching method through the assigned lecturers).

Step 6: the researcher started to introduce and administer the designed "electronic course in ethical and legal issues in nursing" to students who selected in experimental group at 28 February 2017. The researcher administered the course pre-test for all students who shared into experimental group and catch their scores from the electronic course site and catch the scores of the course pre-test from the students who shared into control group through papers format.

Step 7: the researcher administered student's satisfaction questionnaire to measure faculty students' satisfaction level who share in the experimental group about "e-course in ethical and legal issues in nursing" as a new teaching method from that immediately after finish the second academic semester 2016/2017.

Step 8: At the end of the academic semester and before the final exam of the course ; the researcher administered the immediate course post-test for all students in two groups (experimental group through the electronic course site and control group through test paper format).

Step 9: At the end of the academic semester and after advertising the students' results, a copy from students' results of "ethical and legal issues in nursing" course was audited through control department at the faculty to measure undergraduate nursing students' course achievement. This step continued for 2 weeks at July 2017.

STATISTICAL DESIGN

Upon completion of data collection, the data were scored, tabulated, and analyzed by computer using the "statistical package for the social science" (SPSS), version 20 for analysis. Negative items scores were reversed during the statistical analysis. Descriptive statistics such as frequency mean and standard deviation was utilized in analyzing data pretended in this study. Relative statistical tests of significance such as (Chi-square, Friedman's ANOVA, and independent t-test) were used to identify the relations among the study variables. The p value is the degree of significance and the significance level of all statistical analysis was at ≤ 0.05 (P-value) while, the p value > 0.05 indicates non significant result.

RESULTS AND DATA ANALYSIS

Table 1: Percentage Distributions of Experimental and Control Groups Students According to Their Demographic and Academic Data (Total N=368)

Demographic and academic data	Experimental group (n=105)		Control group (n=263)	
	No.	%	No.	%
Gender				
Male	23	21.9	106	40.3
Female	82	78.1	157	59.7
Age				
18< 21	63	60	254	98.9
21-23	42	40	9	1.1
Mean \pm SD	20.36 \pm 0.932		19.38 \pm 0.752	
Previous university educational level				
Diploma in nursing	5	4.8	0	0
Associate degree in nursing	11	10.5	5	1.9
General secondary degree	89	84.8	258	98.1
Academic level				
First Level	0	0	34	12.9
Second Level	66	62.9	111	42.2
Third Level	39	37.1	118	44.9
Did you study ethical and legal issues in nursing course before?				
Yes	2	1.9	4	1.5
No	103	98.1	259	98.5

Table 2: Percentage Distributions of Experimental group Students According to their Computer Skills and Experience with Technological Methods used in Learning (N=105).

Computer Skills and Experience With Technological Methods Use In Learning	Experimental group (n=105)	
	No.	%
Did you have a previous experience in computer skills?		
Yes	73	69.5
No	32	30.5
Estimate your level of skill with ICDL		
None	17	16.2
Low	36	34.3
Average	47	44.8
High	5	4.8
Do you have an e-mail address		
Yes	55	52.4
No	50	47.6
Did you ever use an e-course before?		
Yes	0	0
No	105	100
Do you have a personal computer (PC) at home?		
Yes	78	74.3
No	27	25.7
Do you have an internet connection at home?		
Yes	69	65.7
No	36	34.3

Table 3: Mean, Std. Deviation And Mean Percentage about Dimensions of Experimental Group Students` Satisfaction with E- Course (N=105).

Dimensions of Student's Satisfaction	Maximum	Mean±SD	Mean %
Instructor	54.00	53.28±1.91	98.7%
Course setup	111.00	109.30 ± 3.98	98.5%
Technology	24.00	23.20± 1.87	96.7%
Outcomes	18.00	17.65± 1.08	98.1%
Overall satisfaction	49.00	48.76± 1.28	99.5%
Total students` satisfaction with e-course	256	252.19±8.67	98.5%

Adequate satisfaction mean % (>60 %)

Table 4: Percentage Distributions of Experimental and Control Groups Students According to their Achieved Grades of (GPA) of Pre-test, Immediate Post Test and final Exam of Ethical and Legal Issues in Nursing Course (Total N=368)

Grades of GPA	Point Number of GPA	Experimental Group (N=105)						Control Group (N=263)					
		Pre-Test		Immediate Post Test		Final Exam		Pre-Test		Immediate Post Test		Final Exam	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
A+	4	0	0	78	74.3	3	2.9	0	0	0	0	4	1.5
A	3.7	0	0	9	8.6	12	11.4	0	0	0	0	21	8
A-	3.4	0	0	0	0	26	24.8	0	0	0	0	32	12.2
B+	3	0	0	3	2.9	24	22.9	0	0	0	0	36	13.7
B	2.7	0	0	2	1.9	13	12.4	1	0.4	2	0.8	38	14.4
C+	2.3	0	0	4	3.8	12	11.4	3	1.1	4	1.5	27	10.3
C	2	1	1	4	3.8	3	2.9	19	7.2	17	6.5	31	11.8
D+	1.6	8	7.6	4	3.8	10	9.5	27	10.3	39	14.8	37	14.1
D	1.3	4	3.8	1	1	0	0	38	14.4	47	17.9	0	0
D-	1	21	20	0	0	0	0	24	9.1	33	12.5	0	0
F	0	71	67.6	0	0	2	1.9	15	57.4	121	46	37	14.1

Table 5: Difference between Experimental and Control Groups Students Regarding Pre-Test, Immediate Post-test and Final Exam of Ethical and Legal Issues in Nursing Course (Total N=368).

Type of tests	Experimental group (n=105)	Control group (n=263)	t-value	p-value
	Mean±SD	Mean±SD		
Pre-test	1.55±0.99	2.79±1.47	- 7.41	0.00*
Immediate post- test	9.99±2.11	2.70±1.56	29.47	0.00*
Final exam	7.61±2.04	6.80±2.86	2.37	0.02*

* P value is statistically significant at the level of ≤ 0.05

Table 6: Difference between Pre-Test, Immediate post-test and final Exam of E- Course of Experimental group Students and their Gender (n=105).

Type of tests	Gender		t-value	p-value
	Male	Female		
	Mean±SD	Mean±SD		
Pre-test	1.61±1.23	1.54±0.92	0.31	0.76
Immediate post- test	9.35±2.53	10.17±1.96	1.66	0.09
Final exam	6.78±2.33	7.84±1.89	2.25	0.03*

* P value is statistically significant at the level of ≤ 0.05

Table 7: Mean Difference between Pre-Test, Immediate Post-Test and Final Exam of E- Course of Experimental group Students and their Previous University Educational Level (n=105).

Type of tests	Previous University educational level			ANOVA test	
	Diploma in nursing	Associate degree in nursing	General secondary degree	F	P*
	Mean±SD	Mean±SD	Mean±SD		
Pre-test	1.00±0.00	1.36±0.92	1.61±1.02	1.11	0.33
Immediate post test	11.00±0.00	8.82±2.96	10.08±2.01	2.40	0.09
Final exam	6.2±1.48	6.45±1.81	7.83±2.02	3.68	0.03*

* P value is statistically significant at the level of ≤ 0.05

Table 8: Mean Difference between Pre-Test, Immediate Post-Test and Final Exam of E-Course of Experimental Group Students and their Academic Level (n=105).

Type of tests	Academic level		ANOVA test	
	Second level	Third level	F	P*
	Mean±SD	Mean±SD		
Pre-test	1.36±0.74	1.87±1.26	6.33	0.01*
Immediate post- test	9.61±2.47	10.64±1.04	6.17	0.02*
Final exam	7.12±2.09	8.44±1.67	11.23	0.00*

* P value is statistically significant at the level of ≤ 0.05

Table 9: Difference between Pre-Test, Immediate Post-Test and Final Exam of E- Course of Experimental Group Students and Their Previous Experience in Computer Skills (n=105).

Type of tests	Student`s previous experience in computer skills		t-value	p-value
	Yes	No		
	Mean±SD	Mean±SD		
Pre-test	1.63±1.05	1.38±0.833	1.22	0.23
Immediate post-test	10.11±2.05	9.72±2.26	0.87	0.39
Final exam	7.78±1.99	7.22±2.12	1.31	0.19

* P value is statistically significant at the level of ≤ 0.05

Table 10: Mean Difference between Pre-Test, Immediate Post-Test and Final Exam of E- Course of Experimental Group Students and Their Level of Skills with ICDL (N=105).

Type of tests	Student`s level of skills with ICDL				ANOVA test	
	None	Low	Average	High	F	P*
	Mean±SD	Mean±SD	Mean±SD	Mean±SD		
Pre-test	1.82±1.29	1.39±0.73	1.43±0.74	3.00±2.12	5.11	0.00*
Immediate post-test	10.76±0.44	9.83±2.32	9.79±2.34	10.40±1.34	1.03	0.38
Final exam	8.41±1.84	7.11±1.88	7.72±2.05	7.40±3.13	1.70	0.17

* P value is statistically significant at the level of ≤ 0.05

DISCUSSIONS

The quality of modern teaching and learning processes has been increased by using computers and digital technologies. There has been an educational shift towards e-learning which enables the use of information and communications technology and the inclusion of the internet in teaching and learning. E-learning enhances the learning processes by offering a different way of delivering education that flexible and easy to use. So, students of all ages and abilities have the chance to learn anywhere, at any time and at their own pace [29].

The findings of the current study revealed that, the majority of experimental and more than half of control groups students were females. Also, more than half of experimental and the majority of control groups students` age in 18< 21 age group. In addition, majority of both experimental and control groups students had general secondary degree. Furthermore, more than half of experimental and less than half of control groups students enrolled in the 2nd academic level. While, less than half of both experimental and control groups students enrolled in the 3rd academic level. In addition, majority of both experimental and control groups students did not study ethical and legal issues in nursing course before.

Regarding computer skills and experience with technological methods used in learning of experimental group students, the current study found that, more than half of experimental group had a previous experience in computer skills and less than half of them were estimated their level of skill with ICDL as none, low, average and high levels. In addition, more than half of experimental group had an e-mail address. Moreover, all of experimental group students ever use an e-course before and the most of them had a personal computer (PC) at home and more than half of them had an internet connection at home.

According to Mean, Std. Deviation and Mean percentage about dimensions of experimental group students` satisfaction with e- course; the study findings clarified that the highest mean percentage of experimental group students` satisfaction with e- course was related to overall satisfaction dimension; this might be related to that this considered the first trail to experiment the e-course at the level of faculty of nursing-Cairo University and the administrative members at faculty give great attention to made this trail very successful to students. While, the lowest mean percentage of experimental group students` satisfaction with e- course was related to technology dimension. This finding might be related to the presence of some deficiencies in the infrastructure of the Internet and the Wi-Fi in the college and also the presence of some shortcomings in the operation of e-course on the electronic website of the University.

Concerning the difference between experimental and control groups students regarding pre-test, immediate post-test and final exam of ethical and legal issues in nursing course, the finding of the study revealed that, the results of the pre-test of ethical and legal issues in nursing course for both experimental and control groups, the highest mean score (2.79 ± 1.47) was for control group. While, regarding the results of the immediate post-test of course for both experimental and control groups, the highest mean score (9.99 ± 2.11) was for experimental group. In addition, regarding the results of final exam of course for both experimental and control groups, the highest mean score (7.61 ± 2.04) was for experimental group.

Furthermore, there is highly statistical significance difference between experimental and control groups regarding their pre-test ($t = -7.41, P = 0.00$) and immediate post- test ($t = 29.47, P = 0.00$) of ethical and legal issues in nursing course. While, there is statistical significance difference ($t = 2.37, P = 0.02$) between experimental and control

groups regarding final exam of ethical and legal issues in nursing course.

The previous results on the same line with a meta-analysis on the effectiveness of computer-assisted instruction (CAL) in science subject by [30] revealed that college science students' achievement improved significantly after using (CAI). Moreover, investigated the effects of computer-based instruction on the achievement among Turkish science and technology students and the result of the study revealed that there was a statistically significant increase in the achievement and problem solving skills among the experimental group students that received the computer-based science and technology instruction [31].

Moreover, there was a significant difference in achievement between students who used e-learning and those who used a conventional method in learning music theory and music appreciation [32]. Also, The previous study results corroborated with [33] who found that there was a statistically significant difference between e-learners and those who had face-to-face classroom instruction.

Also, the results from the study also in agreement with findings from a study by [34] who concluded that students' achievement was higher when using computer-aided instruction (e-learning) compared to the traditional (conventional method). A meta-analysis study conducted on effectiveness of e-learning in post-secondary education concluded that e-learning was more effective than classroom instruction and supports the finding of the current study [35].

Furthermore, results of the current study did not confirmed with the study done by [36] that confirmed that there was no significant difference between e-learning and conventional groups. Moreover, there was no difference in scores between e-learners and the conventional group[37]. In addition, the result of the study did not supported with the findings of [38] which revealed that redundancy of text affects e-learners' concentration in processing information in learning thus affecting the achievement.

Regarding difference between pre-test, immediate post-test and final exam of e- course of experimental group students and their gender. The study findings revealed that, the highest mean score (10.17 ± 1.96) for females students compared to the highest mean score (9.35 ± 2.53) for male students is related to immediate post-test of e-course. Moreover, there is a statistical significance difference between male and female gender of experimental group students regarding final exam of e- course.

The previous results in agreement with findings of study by [39] who indicated that there is a difference in usage of Internet and digital learning technology by faculty students in diverse demographic groups as distinguished by gender and. In addition, while the demise of the gender gap may have been true for undergraduates, there was still a significant difference in the purposes for which students visit Internet sites [40].

Also, the study results in agreement with; the study done by [41] demonstrated that, females were slightly more positive about online learning satisfaction and appeared to perform somewhat better on computer-related tasks. Also, the study done by [42] concluded that the female online learners were more successful in online settings compared to face-to-face settings, but male students' performances in online settings differed little when compared to their performance in face-to-face courses.

Moreover, female learners seemed to express themselves more freely in online settings compared to face to- face settings, which may explain their increased learning in online settings. The researchers also found a gender difference in

the level of the professor's support, because female students received more support from their professor online than they did in face-to-face settings. Male learners did not express a significant difference in the amount of support they received from the professor [43].

Furthermore, the study finding about difference between pre-test, immediate post-test and final exam of e- course of experimental group students and their gender were contradicted with the study done by [44] who found male undergraduates possessed greater Internet skills and spent more time online than their female classmates. In addition, the gender of a student impacted student satisfaction of web-based courses, it did not affect student grade outcomes [45].

Moreover results of the current study did not confirmed the findings of the study done by [46] who found male students to be significantly more comfortable than females with computers and that males had higher Internet usage. Also, In an early study by [47] indicated that males students used computers more frequently and had more positive attitudes toward computer use. Subsequently, male's students who using digital tools have more positive experience than females [48].

Also, the previous results contradicted with the study done by [49] analyzed that, male and female students' performances in a course that was offered both online and in traditional instruction. The study concluded that there were no significant differences between male and female students' performances in online courses when compared to traditional instruction courses.

Concerning Mean difference between pre-test, immediate post-test and final exam of e- course of experimental group students and their previous University educational level. The study results indicated that, there was statistically significant difference between final exam of e-course of experimental group students and their previous University educational level. Where, the highest mean score of experimental group is related to immediate post- test of e-course and their previous University educational level was diploma in nursing. While, the lowest mean score of experimental group related to pre-test of e-course and their previous University educational level was diploma in nursing. This results may be due to the nursing students during their study years in diploma take courses about ethics of nursing filed and that may be help these students to had more scores in immediate post- test of e-course but the language that used in diploma during study years was Arabic but in the language used in faculty and e- course was English so that may lead to students had low scores in pre-test.

Regarding Mean difference between pre-test, immediate post-test and final exam of e-course of experimental group students and their academic level. The study findings indicated, there was statistically significant difference between experimental group students and their academic level related to pre-test and immediate post- test of e-course. While, there was highly statistically significant difference between experimental group students and their academic level related to final exam of e-course. Where, the highest mean score of experimental group related to immediate post- test of e- course and their academic level was enrolled in 3rd level. While, the lowest mean score of experimental group related to final exam of e-course and their academic level was enrolled in 2nd level.

The previous results contradicted with [50] who indicating that there was no educational level differences in predicting the achievement among online learning students.

Concerning difference between pre-test, immediate post-test and final exam of e- course of experimental group

students and their previous experience in computer skills. The study findings illustrated that, the highest mean score of experimental group regarding their previous experience in computer skills is related to immediate post-test of e-course. While, the lowest mean score of experimental group regarding their previous experience in computer skills is related to pre-test of e- course. Moreover, there is no statistical significance difference between pre-test, immediate post-test and final exam of e- course and experimental group regarding their previous experience in computer skills.

The previous results were in agreement with the findings of the study done by [51] who reported that, computer competencies of learners are not correlated with their GPA of online course. But, the previous results were contradicted with the study done by [52] who indicated that, computer confidence of students was one of the primary variables responsible for distinguishing between students who had high level of online course`s GPA and those who had not.

Regarding Mean difference between pre-test, immediate post-test and final exam of e- course of experimental group students and their level of skills with ICDL. The study results indicated that, the highest mean score of experimental group related to immediate post- test of e- course regarding their level of skills with ICDL had none level of skills. While, the lowest mean score of experimental group related to pre-test of e- course regarding their level of skills with ICDL had low level of skills. In addition, there is highly statistical significance difference between pre-test of e- course and experimental group regarding their level of skills with ICDL, while there is no statistical significance difference between immediate post-test and final exam of e-course of experimental group regarding their level of skills with ICDL.

The previous results were contradicted with the study done by [53] who reported that, there was no significant relationship between any of the independent variables examined and student success, failure, or course drop out in online course, including computer skills, previous academic education, and academic level, age, marital status, gender, computer availability and educational background.

Finally, the study results contradicted with the following studies; [54] who performed a study on two equal sized groups, consisting of “traditional” learners and on-line learners. The study indicated that, there were no statistically significant differences between the two groups on any of their entering characteristics like; gender, ethnicity, first language, age and their course`s GPA. In addition, [55] found in a case study with some universities offering on-line courses that, “One administrator mentioned that there seems to be an inordinately high number of the following grades: “A,” “F,” and/or “W” (withdraw) for on-line students”. Thus, students are “either quite successful or dropping out”.

Moreover, the study results were contradicted with the study done by [45] who comparing student achievement on-line and face-to-face courses. The study by Wilson & Carol reported that, there were no statistically significant differences in achievement or satisfaction between the two groups. In addition, the Internet-based course and the classroom-based course. The findings about students` outcomes were that, “the two class sections showed no significant difference in their posttest scores [44].

Furthermore, the study findings in agreement with the study done by [50] who compare groups of on-line and in-class courses. The study found that, the group of students who self- selected into the on -line courses scored higher on the pretests than did the in-class students. This result is an indication that the students who select on-line courses may be better prepared for the course material than the students who select in-class courses.

CONCLUSIONS AND RECOMMENDATIONS

The findings of the current study revealed that, the majority of experimental and more than half of control groups students were females. Also, more than half of experimental group and the majority of control group students` age in 18< 21 age group. In addition, majority of both experimental and control groups students had general secondary degree.

Furthermore, more than half of experimental and less than half of control groups students enrolled in the 2nd academic level. While, less than half of both experimental and control groups students enrolled in the 3rd academic level. In addition, majority of both experimental and control groups students did not study ethical and legal issues in nursing course before.

Moreover, regarding computer skills and experience with technological methods used in learning of experimental group students, the current study found that, more than half of experimental group had a previous experience in computer skills and less than half of them were estimated their level of skill with ICDL as none, low, average and high levels. In addition, more than half of experimental group had an e-mail address. Moreover, all of experimental group students ever use an e-course before and the most of them had a personal computer (PC) at home and more than half of them had an internet connection at home.

Furthermore, regarding Mean,Std. Deviation and Mean percentage about dimensions of experimental group students` satisfaction with e- course; the study findings clarified that the highest mean percentage of experimental group students` satisfaction with e- course was related to overall satisfaction dimension; this might be related to that this considered the first trail to experiment the e-course at the level of faculty of nursing-Cairo University and the administrative members at faculty give great attention to made this trail very successful to students. While, the lowest mean percentage of experimental group students` satisfaction with e- course was related to technology dimension. This finding might be related to the presence of some deficiencies in the infrastructure of the Internet and the Wi-Fi in the college and also the presence of some shortcomings in the operation of e-course on the electronic website of the University.

According to the difference between experimental and control groups students regarding pre-test, immediate post-test and final exam of ethical and legal issues in nursing course, the finding of the study revealed that, the results of the pre-test of ethical and legal issues in nursing course for both experimental and control groups, the highest mean score (2.79±1.47) was for control group. While, regarding the results of the immediate post-test of course for both experimental and control groups, the highest mean score (9.99±2.11) was for experimental group. In addition, regarding the results of final exam of course for both experimental and control groups, the highest mean score (7.61±2.04) was for experimental group.

Furthermore, there is highly statistical significance difference between experimental and control groups regarding their pre-test ($t = -7.41, P = 0.00$) and immediate post- test ($t = 29.47, P = 0.00$) of ethical and legal issues in nursing course. While, there is statistical significance difference ($t = 2.37, P = 0.02$) between experimental and control groups regarding final exam of ethical and legal issues in nursing course.

The study recommended that, at the level of the electronic ethical and legal issues in nursing course; encourage its use at the postgraduate level and at the other faculties of nursing level. At the level of faculty, working on more production

and application of other e-courses in different disciplines.

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