Faculty Members' Attitude, Perceived Barriers, and Motivators toward Using E-Learning in University Education

Wessam A. Elsayed[1], Shaimaa M. Nageeb[2], Walaa N. Othman[3]

[1]Nursing Administration Department, Faculty of Nursing, Mansoura University, Egypt.
e-mail: dr_wessamalmorsy@yahoo.com
[2]Mental Health Nursing, Faculty of Nursing, Zagazig University, Egypt.
e-mail: dr_shaimaa_2007@yahoo.com
[3]Medical Surgical Nursing, Faculty of Nursing, Mansoura University, Egypt.
e-mail: dr.walaanasr@yahoo.com

Received June 27, 2020, accepted July 30, 2020.
doi: 10.47104/ebnrojs3.v2i4.174

ABSTRACT

Context: E-learning is an important trend for faculty members and students teaching and learning, which needs overcoming barriers and enhancing motivators for the successful implementation of educational programs.

Aim: To explore the faculty members' attitudes, perceived barriers, and motivators toward using e-learning in university education.

***Methods*:** Descriptive correlational design was used to achieve the study's aim on 110 faculty members in Nursing Faculties at Mansoura, and Zagazig Universities, Egypt. They were chosen through a convenience sampling to participate in the study. One questionnaire was used to undertake the study and had four parts: Personal data, faculty attitude towards e-learning scale, possible barriers, and motivators.

***Results*:** 54.5% of the studied sample was from Mansoura University, 92.7% of them were females, 38.2% were lecturers, 31.8% of them aged from 31-35 years old, and 30% of them had 5-10 years of experience. More than 75% of studied faculty members have a positive attitude toward using e-learning in university education. Access to students was the top-most barrier as perceived by the faculty members (42.7%). Better internet bandwidth at the workplace is the top-most motivating factor and professional incentives to use e-learning. Both were mentioned by 30% of the studied faculty members.

***Conclusion*:** There is a highly significant positive correlation between faculty attitude and motivators and a significant negative correlation between perceived barriers and motivators. At the same time, there is no significant correlation between faculty attitude and perceived barriers. No significant correlation between personal characteristics of the studied sample and faculty members' attitudes, perceived barriers, and motivators toward using E-learning in Mansoura and Zagazig Universities except for gender and faculty barriers only in Mansura University. The study recommended enhancing the basics of e-learning within the plan for dealing with crises, improving infrastructure, and providing a training environment for faculty staff to enhance e-learning, activating interactive education by setting up discussion sessions on the course topics' sidelines—full activation of the e-learning system through assignments and short tests. Paying attention to student feedback and taking the necessary corrective measures are also recommended.

***Keywords*:** Faculty members' attitude, perceived barriers, motivators, e-learning, university education

1. Introduction

The explosion of information and communication technology in the 21st century raises digital devices' usages for numerous purposes in many work areas, especially education, which resulting in a substantial variety in education and teaching approach to achieve the overall purpose of education in preparing a learner to perform effectively in society and contribute as a self-reliant member *(Basak et al., 2018).*

Throughout the present COVID-19 pandemic, most faculty members and learners unpredictably becoming accountable for curriculums that have not been intended previously for online delivery. Therefore, university teachers and learners are willingly starting and steering into academic virtual reality, which permits them to cooperate with directions in computer-generated situations *(Muflih et al., 2020).* E-learning is speedily developing and becoming an alternate way of usual education and become an umbrella term that entails a spread of electronic, digital, or mobile devices wont to support learning *(Rouleau et al., 2019).*

The traditional teaching-learning approach focuses on teaching through face-to-face interaction and total organizational control over the educational process, unlike the e-learning approach, which is learner-based and involves an alternative way to provide education. Emergent technologies have made education more dynamic, more personalized, giving education a powerful scientific basis *(Khan & Jumani, 2012).*

Greater focus on student-centered teaching and learning practices in higher education were increased and continues to grow with developing technologies and conveying additional chances for learners and staff members. Nevertheless, e-learning needs substantial support from academic and content perspectives, not only from infrastructural and logistic perceptions, where technology is anticipated to be successfully assimilated within higher

[1]*Corresponding author: Wessam Ahmed Elsayed*

education institutes through a holistic and well-planned methodology *(Al Gamdi & Samarji, 2016).*

E-learning has many definitions. The best definition is the science of learning without using paper printed instructional material. So, telecommunication technology is used in e-learning to transport data to learners for education and training *(Goyal, 2012)*. It is frequently denoted to the purposeful use of networked data and communications technology in students' education. Other terms that are similarly used to pronounce this method are online learning, virtual learning, distributed learning, network, and web-based learning. E-learning term covers abroad meaning other than online learning. It would include all educational activities that are carried out by all those working online or offline *(Sener, 2015).*

There are about ten different types of e-learning. E-learning is classified by educational scientists more simply into two main types: Computer-based e-learning and internet-based e-learning. This classification could be seen as an exact method since it discriminates e-learning from online learning. Those are frequently wrongly used interchangeably. Some methods of e-learning as Computer Managed Learning (CML) and Computer-Assisted Instruction (CAI) are considered types of e-learning, but they are not required to take place online *(Tamm, 2019).*

Semerci and Aydin (2018) defined attitude as a component that directs a person's behavior in consistency with their feelings and thoughts. However, the attitude has been deliberated as the positive or negative effect of a specific object or belief. The significant issues within the successful application and persistence of e-learning are the acceptance of e-learning by faculty associates and their positive attitude toward changing the educational method *(Akbarilakeh et al., 2019).*

The effective incorporation of e-learning in the educational process needs that university instructors have an accurate attitude concerning e-learning; subsequently, this attitude could improve the teaching and learning process. On the contrary, if instructors' confidence is low or negative regarding online education's usefulness, it makes its incorporation into the classroom hardly ideal. On the opposite hand, educators with a positive attitude are more expected to use technology professionally in their teaching process *(Guillén-Gámez & Mayorga-Fernández, 2020).*

Motivation is defined as the level to which persistent struggle focuses on learning and teaching. The motivation of teachers for utilizing technology is affected by numerous issues. These issues comprise their entrance to and chance to use technology, be informed about technology through training within the virtual learning environment, and technology use in their teaching process, sharing characteristics with others like self-confidence, positive attitudes concerning technology, their enthusiasm to do novel thoughts, eventually, the ability to motivate learners to interact in the virtual learning environment and become life-long learners *(Al Harbi, 2016).*

The transmission from conventional to e-learning is faced with many challenges. Time restrictions and requirements are frequently employed on learners and instructors, similarly motivating sectors to seek novel means of providing additional personalized, self-directed learning practice reference *O'Doherty et al. (2018)* reported that numerous issues could affect an internet learning program's success.

Besides, *Al Gamdi and Samarji, (2016)* stated that there are obstacles concerning effective and proficient agreement with technology that include internal and external sources. Internal sources are associated with the school members' attitudes toward technology and their fundamental proficiency level related to the evolving technologies. On the opposite hand, external sources comprise the inaccessibility and unavailability of the desired software and hardware, the deficiency of additional technical and institutional support, and the shortage of time and finance.

E-learning has numerous benefits. In addition to a well-organized e-learning system and a greatly encouraged learner, one can instantly accomplish pronounced accomplishments. Significant e-learning gains are: Suitable for learners and can be accessed any time he wants, cost-effective for the maximum number of students, the learning resources in e-learning process can be reorganized regularly than in the classroom-based education. It is deliberated a flexible way of learning for the countless number of students, producing a worldwide learning society as everyone can contact the study resources irrespective of the geographical place and learn similar material frequently until they are satisfied. Consequently, the repetition creates retention easier *(Guragain, 2016).*

While e-learning is achieving popularity, it is criticized by traditional faculties that using traditional learning. Numerous instructors and learners did not prefer e-learning since they did not believe it essentially resolves teaching and learning difficulties. At the same time, others are worried about barriers that hamper effective online teaching and learning. These worries comprise the changing nature of technology, the difficulty of networked systems, the absence of steadiness in the online learning environment, and the inadequate understanding of how much learners and lecturers need to effectively use communication and information technology. Furthermore, e-learning threatens to commercialize education, separate learners and faculty, and decrease criteria or even devaluate university degrees *(Hakimi et al., 2016).*

2. Significance of the study

E-learning nowadays is a vital teaching and learning way for both lecturers and learners in a digitally connected 21st Century. Although the efforts and the assertions that numerous facilities made regarding e-learning, numerous barriers impede several faculty members to progress from the state of appreciating and acknowledging e-learning to the state of essentially approving and applying it. In institutions where e-learning initiatives are proceeding, and administrators deal with sufficient approval and placement of electronic education, faculty attitude and motivation assume extensive importance. Attitudinal pre-dispositions, institutional and allied barriers are expected to play a critical

part in creating a real change from usual education delivery to web-enabled education and training. In Egypt, the initiatory of e-learning was first starting in 2005 after the Davos Forum. Since then, there has been an increasing interest in using up-to-date technologies to provide education and enhance the teaching and learning process. Now, several universities have approved e-learning in their learning scheme *(Mahmoud et al., 2015*). This study aimed to assess faculty members' attitudes, perceived barriers, and motivators toward using e-learning in university education.

3. Aim of the study

The aims of the study were mentioned as follows:

- Explore the faculty members' attitudes toward using e-learning in university education in the studied universities.
- Identify perceived barriers of using e-learning in university education in studied universities.
- Identify motivators for using e-learning in university education in studied universities.
- Analyze the relationship between the faculty members' attitude, perceived barriers and motivators, and demographic characteristics (age, gender, level of experience, and professional rank).

3.1. Research questions

- What is the attitude of faculty members toward using e-learning in university education?
- What are the perceived barriers to using e-learning in university education?
- What are the motivators of using e-learning in university education?
- Are there relationships between faculty members' attitude, perceived barriers, and motivators toward using e-learning and their demographic characteristics?

4.Subjects & Methods

4.1. Research design

A descriptive correlational design was used to achieve the objectives of the study. Descriptive studies are used when little is known about a particular phenomenon. The researcher observes, describes, and documents various aspects of a phenomenon. Correlational designs involve the systematic investigation of relationships' nature or associations between and among variables, rather than direct cause-effect relationships. Descriptive correlational studies describe the variables and the relationships that occur naturally between and among them *(Driessnack et al., 2007).*

4.2. Research Setting

The study was conducted in the Faculties of Nursing at Mansoura and Zagazig Universities. Faculty of Nursing, Mansoura University was established in 1994 by Presidential Decree No. 287 of 1994 and aims to graduate qualified nursing specialists for the labor market in various health institutions. The faculty welcomed students of both genders in 2008/2009. Registration for postgraduate studies for master's and doctoral degrees was opened in 2009 in most scientific faculty departments.

The Faculty of Nursing at Zagazig University, after establishing the Higher Institute of Nursing at Zagazig University based on Ministerial Resolution No. 937 in 1984, and its bylaws were issued, and female students were accepted to study in the academic year 1985/1986. Based on the Republic President's decision in 2000 AD, the Higher Institute's name was modified to the College of Nursing.

4.3. Subjects

A convenient sample was used included all available faculty members in studied settings. They were (110 who responded to the questionnaire out of 150 tested) from all academic grade form Faculties of Nursing, Mansoura and Zagazig universities.

4.4. Tools of the study

4.4.1. A Self-Administered Online Questionnaire

The instrument was adopted from Panda and Mishra (2007) to measure faculty attitude, perceived barriers, and motivators toward e-learning. It was used to collect data for this study. The instrument was online distributed to the studied sample after explaining the aim of the study. The instrument had four parts: Personal characteristics, faculty attitude towards e-learning scale, possible barriers, and motivators.

1st part assessed the studied sample's socio-demographic characteristics as the university, age, gender, academic rank, and years of experiences.

2nd part adopted from *Panda and Mishra (2007)* contains 22 statements. Fifteen positive statements such as e-learning will never replace other forms of teaching and learning, e-learning can solve many of our educational problems, e-learning saves time and effort of both teachers and students, and e-learning increases access to education and training. In addition to seven negatively worded statements, as "E-learning makes me uncomfortable because I do not understand it, e-learning is a de-humanizing process of learning, and I feel intimidated by e-learning." This instrument aims to measure faculty attitude towards e-learning through a five-point Likert scale ranged from '5' (strongly agree) to '1' (strongly disagree), with '3' as 'moderately'.

Scoring system

The faculty attitude level is determined as a negative attitude <66 marks (<60%), and positive attitude ≥ 66 marks (≥66%).

3rd part contained 16 items to assess the perceived barriers toward using e-learning, such as concerns about access to students, lack of training on e-learning, poor internet access and networking in the university, and lack of technical support in the university. They are measured through a five-point Likert scale (where a score of '5' was 'very strong' and '1' 'very weak').

Scoring system

The level of barriers is determined as weak barriers <48 marks (<60%), strong barriers ≥48 marks (≥60%).

4th part contained 12 statements to assess the motivators toward using e-learning through a five-point Likert scale (where a score of '5' was 'very strong' and '1' 'very weak'). It included statements such as personal interest in using technology, intellectual challenge, improved infrastructure (hardware and software) deployment, and training on e-learning.

Scoring system

The level of motivators is determined as weak motivators <36 marks (<60%), strong barriers ≥36 (≥60%).

4.5. Procedures

The validity of the tool: A group of five experts from academic nursing staff (Nursing administration, Medical-Surgical, and Mental Health nursing departments, Faculty of Nursing, Mansoura, and Zagazig Universities) revised the instruments' content validity. Based on their feedback, a five-point Likert scale was prepared with necessary modifications.

Before starting data collection, a pilot study was carried out on (10% of the total study sample) selected conveniently to ensure the feasibility of the research process and the clarity, applicability of the tool, and the duration required to fill in the tool's items as reported by each participant. The necessary modification was made before starting data collection. Data obtained from the pilot study were excluded from the study results.

The data collection started in the first week of May to the last week of June 2020. Due to the global Corona epidemic and the Ministry of higher education's instructions, the classrooms were transformed into online sessions to protect students and faculty members from the risk of infection with the Coronavirus. The researchers were forced to collect data via Google Form. The aim of the study and filling instructions were mentioned on the first page of the questionnaire. The questionnaire's link was sent to the faculty members through yahoo mail, WhatsApp groups, and telephone messages (SMS). The questionnaire was constructed by the researchers on this link (https://docs.google.com/forms/d/e/1FAIpQLScak8upSMlF2DxSurs5dr3-gF24dHTyGHUV1mtbNLdlTWaFYw/viewform)

Administrative and ethical considerations: Agreements to conduct the study were obtained from the Scientific Research Ethics Committee at Faculties of Nursing, Mansoura, and Zagazig Universities. The participants were informed that their involvement in the study is voluntary, and there is no harm if they decide not to participate, and individual information was not shared outside. The anonymity and confidentiality of the data were assured. Consent was established with the completion of the questionnaires.

4.6. Data analysis

Statistical analysis was done using IBM SPSS 22 statistical software package. Cleaning of data was done to ensure no missing or abnormal data by running frequencies and descriptive statistics. Data were presented using descriptive statistics in the form of numbers and percentages, Z test was used in correlation coefficient; Chi-square is used to test the significant level of demographic characteristics and variables. The significant level of all statistical analysis was at ≤ 0.05 (p-value), and the highly significant level was at ≤ 0.01(p-value).

5. Results

Table 1 shows that 54.5% of the studied sample were from Mansoura University, 31.8% were aged from 31-35 years old, 92.7% were females, 38.2% were lecturers, and 30% had between 5-10 years of experience.

Table 2 illustrated that 42.7% of the teaching staff strongly agree that universities should adopt more and more e-learning; 38.2% strongly agree that it is essential that e-learning material is of high quality. While 34.5% strongly agreed that e-learning saves both teachers' and students' time and effort. Besides, e-learning increases the quality of teaching and learning because it integrates all media forms: print, audio, video, animation 34.5%. Also, 46.4% of faculty members agreed in e-learning will bring new opportunities for organizing teaching and learning. Besides, 44.5% agreed that e-learning could solve a lot of our educational problems, and 40.9% agreed that e-learning would increase their efficiency in teaching.

Table 3 shows that concern about students' access was the top-most barrier as perceived by the faculty members; 42.7% strongly agreed. In comparison, 25.5% of faculty members mentioned that a lack of professional prestige was the lowest perceived barriers.

Table 4 reveals that 'Better internet bandwidth at the workplace" as the top-most motivating factor; and 'Professional incentives to use e-learning" 30% strongly agree. 29.1% of faculty members also indicated that peer recognition, prestige, and status could be another strong motivator (second rank) at the workplace.

Table 5 shows a highly significant positive correlation between total faculty attitude and motivators and a significant negative correlation between total barriers and total motivators. In contrast, there is no significant correlation between total faculty attitude and total barriers.

Figure 1 illustrates that 88% of faculty members had a positive attitude toward using e-learning in university education at Zagazig University versus 75% in Mansoura University. In comparison, 25% of faculty members had a negative attitude in Mansoura university versus 12% in Zagazig University.

Figure 2 demonstrates that 82% of faculty members had weak barriers toward e-learning at Zagazig University versus 55% in Mansoura University. Simultaneously, 45% of Mansoura University faculty members had strong barriers versus 18% at Zagazig University.

Figure 3 illustrates that 86% of the faculty members perceive motivators using e-learning as strong at Zagazig University versus 66.7% at Mansoura University. In comparison, 14% of the faculty members perceive motivators as weak in Zagazig University versus 33.3% in Mansoura University.

Table 6 shows no significant correlation between all personal characteristics of the studied sample (except gender and faculty barriers, p=0.018) and faculty members' attitudes, barriers, and motivators toward using e-learning at Mansoura University.

Table 7 shows no significant correlation between the studied sample's characteristics and faculty members' attitudes, barriers, and motivators toward using e-learning at Zagazig University.

Table (1): Frequency and percentage distribution of studied sample characteristics (no=110).

Personal characteristics	No	%
University		
Mansoura	60	54.5
Zagazig	50	45.5
Age		
20-25	15	16.3
26-30	26	23.6
31-35	35	31.8
36-40	19	17.3
≤ 41	15	13.6
Gender		
Male	8	7.3
Female	102	92.7
Academic rank		
Professor	5	4.5
Assistant professor	14	12.7
Lecturer	42	38.2
Assistant Lecturer	28	25.5
Demonstrator	21	19.1
Years of experience		
Less than 5 years	27	24.5
5-10 years	33	30.0
11-15 years	31	28.2
16-20	9	8.2
More than 20	10	9.1

6. Discussion

The introduction of knowledge and communication technology in nursing education could be challenging both for teachers and students. The challenges confronted by teachers are shaping their motivation and attitudes. They are vast and sophisticated and affect teachers privately when applying an e-learning tool or system *(Ismail et al., 2020).* Electronic learning (E-learning) is rapidly approved as a necessary way that's broadly applied by educational organizations and universities across the world *(Yeh & Chu 2018).*

Attitude concerning technology may be shaping educators' willingness for online learning; through this too advanced technology era, it is common for educators to be adaptive and amenable to current technologies. Thus, their qualified attitude encourages them to use these variations to emphasize the standard of teaching and learning *(Alanazy, 2018).* Accordingly, this study attempted to assess faculty members' attitudes, perceived barriers, and motivators toward using e-learning in university education.

Regarding the faculty members' attitude toward e-learning, the present study reveals that more than two-fifths of faculty members strongly agreed about universities' adoption of e-learning. More than forty-six percent agreed that e-learning would bring new opportunities for organizing teaching and learning. This result may be related to the COVID 19 pandemic crisis, which forces all universities to close their doors to students and to resort to e-learning as an alternative education method to finish the educational curricula on time according to their study plan. This result is going in line with *Consortium for School Networking* (CoSN), *(2020)* in a study titled COVID-19 Response: Preparing to take school online, mentioned that the COVID-19 pandemic was closing universities and taking students and lecturers out of the classroom. This finding is an educational change that needs quick utilization through all university associates, capitals, and faculty members' agreement that universities should approve additional e-learning.

Table (2): Frequency and percentage distribution of faculty members' attitude toward using e-learning in university education (n=110).

Statements	Strongly disagree		Disagree		Moderately		Agree		Strongly agree	
	No	%	No	%	No	%	No	%	No	%
E-Learning will never replace other forms of teaching and learning	12	10.9	24	21.8	21	19.1	24	21.8	29	26.4
E-Learning makes me uncomfortable because I do not understand it. *	36	32.7	42	38.2	15	13.6	16	14.5	1	0.9
E-Learning is a de-humanizing process of learning. *	35	31.8	39	35.5	11	10.0	20	18.2	5	4.5
E-Learning can solve a lot of our educational problems	4	3.6	10	9.1	14	12.7	49	44.5	33	30.0
I feel intimidated by e-learning. *	35	31.8	21	19.1	25	22.7	26	23.6	3	2.7
E-Learning will bring new opportunities for organizing teaching and learning	5	4.5	5	4.5	15	13.6	51	46.4	34	30.9
E-Learning is difficult to handle and therefore frustrating to use. *	40	36.4	36	32.7	18	16.4	12	10.9	4	3.6
There are unlimited possibilities of e-learning that have not yet been thought about it.	8	7.3	11	10.0	27	24.5	36	32.7	28	25.5
E-Learning saves time and effort of both teachers and students	6	5.5	11	10.0	15	13.6	40	36.4	38	34.5
E-Learning increases access to education and training	8	7.3	10	9.1	16	14.5	42	38.2	34	30.9
E-Learning will increase my efficiency in teaching	4	3.6	15	13.6	18	16.4	45	40.9	28	25.5
E-Learning enables collaborative learning	9	8.2	15	13.6	19	17.3	40	36.4	27	24.5
E-Learning can engage learners more than other forms of learning	9	8.2	18	16.4	19	17.3	40	36.4	24	21.8
E-Learning increases teaching and learning quality because it integrates all media forms: print, audio, video, and animation.	8	7.3	12	10.9	19	17.3	33	30.0	38	34.5
E-Learning increases the flexibility of teaching and learning	6	5.5	13	11.8	16	14.5	40	36.4	35	31.8
E-Learning improves communication between students and teachers	11	10.0	17	15.5	27	24.5	22	20.0	33	30.0
E-Learning enhances the pedagogic value of a course	5	4.5	16	14.5	26	23.6	35	31.8	28	25.5
I get a sinking feeling when I think of trying to use e-learning for my courses. *	34	30.9	28	25.5	29	26.4	15	13.6	4	3.6
E-Learning is not effective for student learning. *	41	37.3	30	27.3	22	20.0	14	12.7	3	2.7
E-Learning experiences cannot be equated with face-to-face teaching or even distance education. *	34	30.9	19	17.3	27	24.5	20	18.2	10	9.1
E-learning material must be of high quality	5	4.5	9	8.2	14	12.7	40	36.4	42	38.2
Universities should adopt more and more e-learning	4	3.6	10	9.1	11	10.0	38	34.5	47	42.7

** Reverse scoring for these statements*

Table (3): Frequency and percentage distribution of barriers toward using e-learning in university education (n=110).

Statements	Very weak		Weak		Moderately		Strong		Very strong	
	No	%	No	%	No	%	No	%	No	%
Concern about access to students	4	3.6	10	9.1	11	10.0	38	34.5	47	42.7
Lack of training on e-learning	18	16.4	31	28.2	33	30.	18	16.4	10	9.1
Poor Internet access and networking in the university	27	24.5	31	28.2	27	24.5	11	10.0	14	12.7
Lack of technical support in the university	23	20.9	33	30.0	28	25.5	17	15.5	9	8.2
Lack of instructional design support for e-learning	23	20.9	36	32.7	26	23.6	10	9.1	15	13.6
Lack of institutional policy for e-learning	22	20.0	43	39.1	21	19.1	13	11.8	11	10.0
Inadequate availability of hardware and software	25	22.7	39	35.5	28	25.5	10	9.1	8	7.3
Concern about faculty workload	28	25.5	30	27.3	25	22.7	16	14.5	11	10.0
Lack of time to develop e-courses	19	17.3	34	30.9	29	26.4	20	18.2	8	7.3
Concern about the quality of e-courses	19	17.3	30	27.3	32	29.1	22	20.0	7	6.4
Lack of incentives to use e-learning	26	23.6	41	37.3	24	21.8	14	12.7	5	4.5
Concern about security issues on the Internet	20	18.2	35	31.8	29	26.4	15	13.6	11	10.0
Lack of credit towards promotion	27	24.5	33	30.0	26	23.6	15	13.6	9	8.2
Self-intimidated by technology	24	21.8	32	29.1	27	24.5	16	14.5	11	10.0
No role models to follow	26	23.6	31	28.2	30	27.3	14	12.7	9	8.2
Lack of professional prestige	28	25.5	39	35.5	23	20.9	12	10.9	8	7.3

Table (4): Frequency and percentage distribution of motivators toward using e-learning in university education (n=110).

Statements	Very weak		Weak		Moderately		Strong		Very strong	
	No	%	No	%	No	%	No	%	No	%
Personal interest to use technology	10	9.1	8	7.3	14	12.7	47	42.7	31	28.2
Intellectual challenge	6	5.5	15	13.6	17	15.5	43	39.1	29	26.4
Improved infrastructure (hardware and software) deployment	9	8.2	13	11.8	27	24.5	36	32.7	25	22.7
Training on e-learning	7	6.4	15	13.6	20	18.2	40	36.4	28	25.5
Self-gratification	3	2.7	18	16.4	27	24.5	33	30.0	29	26.4
Better Internet bandwidth at the workplace	6	5.5	12	10.9	25	22.7	34	30.9	33	30.0
Technical support	5	4.5	14	12.7	23	20.9	37	33.6	31	28.2
To be a trendsetter by early adoption	5	4.5	12	10.9	25	22.7	39	35.5	29	26.4
Release time/Reduction in existing workload	8	7.3	9	8.2	25	22.7	37	33.6	31	28.2
Professional incentives to use e-learning	8	7.3	11	10.0	25	22.7	33	30.0	33	30.0
Credit towards promotion	7	6.4	15	13.6	17	15.5	42	38.2	29	26.4
Peer recognition, prestige, and status	8	7.3	9	8.2	22	20.0	39	35.5	32	29.1

Table (5): Correlation between total faculty attitude, total barriers, and total motivators toward using e-learning in University Education.

Variables	Attitude		Barriers		Motivators	
	Z	P	Z	P	Z	P
Attitude	-	-	-0.159	0.097	0.295	0.002
Barriers	-0.159	0.097	-	-	-0.234	0.014
Motivators	0.295	0.002	-0.234	0.014	-	-

**Correlation is significant at the 0.05 level (2- tailed). **Correlation is significant at the 0.01 level (2-tailed).*

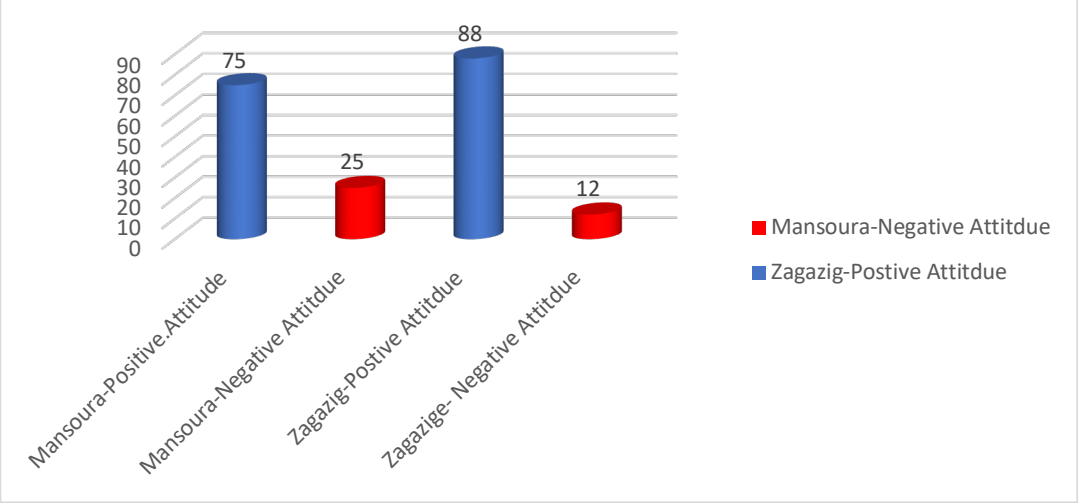

Figure (1): Percentage distribution of faculty members' attitude toward using e-learning in studied universities.

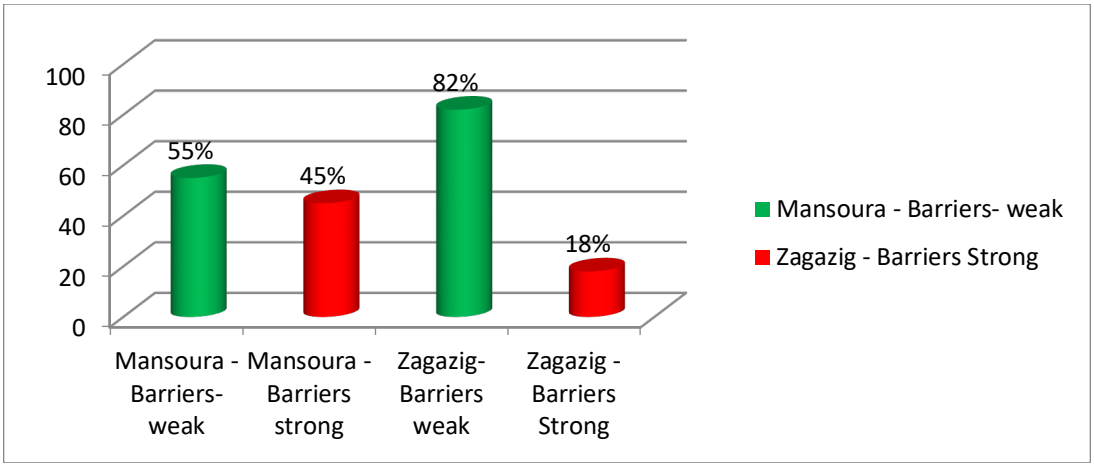

Figure (2): Percentage distribution of barriers toward using e-learning in studied Universities.

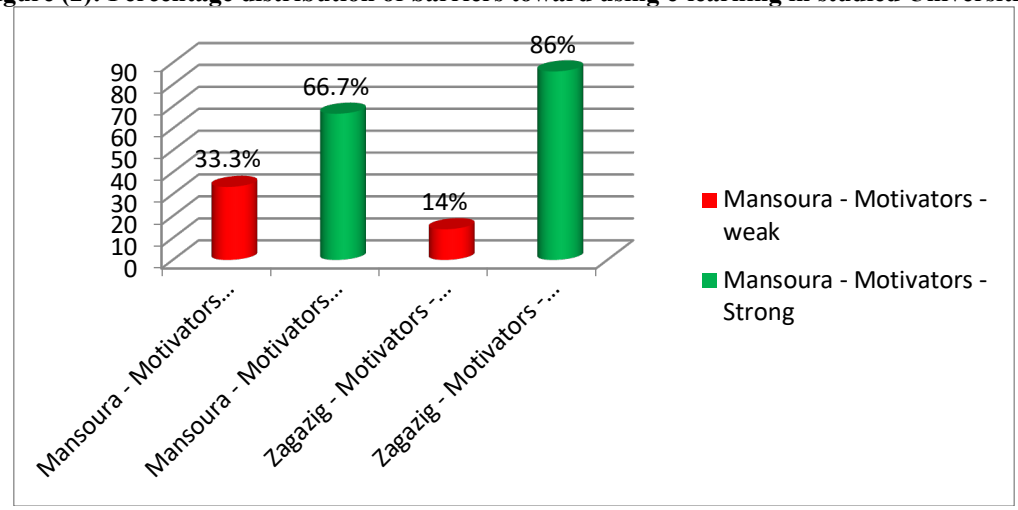

Figure (3): Percentage distribution of motivators toward using e-learning in studied university.

Table (6): Correlation between personal characteristics of studied sample and faculty members' attitude, barriers, and motivators toward using e-learning in Mansoura University (no=60).

Personal characteristics	Faculty Attitude Median (Mini-Maxi)	Test of Sig.	p-value	Faculty Barriers Median (Mini-Maxi)	Test of Sig.	p-value	Faculty Motivators Median (Mini-Maxi)	Test of Sig.	p-value
Gender									
Male	69.5 (66-103)	Z=0.16	0.87	59.5 (53-70)	Z=2.35	0.018	48 (26-50)	Z=0.90	0.365
Female	76.0 (25-105)			47.5 (16-71)			41.5 (12-60)		
Age									
20-25	82(68-105)			43 (24-71)			47.5 (20-52)		
26-30	70 (53-89)	χ^2 =	0.16	45 (31-65)	χ^2 =	0.832	41.5 (26-60)	χ^2 =	0.313
31-35	72.5 (25-103)	6.56		48 (16-70)	1.46		38 (12-54)	4.76	
36-40	80 (41-89)			53 (35-38)			44 (17-47)		
>41	73 (57-91)			50 (38-67)			47 (29-60)		
Academic Rank									
Professor	76 (76-76)			43 (43-43)			29 (29-29)		
Assistant professor	72 (41-91)	χ^2 =	0.11	51.5 (41-67)	χ^2 =	0.597	40.5 (28-48)	χ^2 =	0.660
Lecturer	68 (31-103)	7.38		48 (16-70)	2.76		42 (12-60)	2.41	
Assistant lecturer	78.5 (25-91)			47 (24-58)			40 (17-54)		
Demonstrator	81 (64-105)			46 (24-71)			47.5 (25-52)		
Experience									
Less than 5 years	81 (62-105)			46 (24-71)			39 (20-52)		
5 – 10 years	72.5 (25-92)	χ^2 =	0.50	42.5 (24-56)	χ^2 =	0.067	40.5 (12-60)	χ^2 =	0.844
11- 15 years	75 (31-89)	3.35		47 (16-58)	8.76		42 (12-53)	1.40	
16 -20 years	76.5 (57-89)			51.5 (48-54)			39.5 (17-60)		
More than 20	73 (64-91)			54 (43-67)			47 (29-56)		

This finding is also agreed with *Idris and Osman (2017),* who conducted a study about the "application of e-learning in the University of Gezira: Barriers and opportunities," and reported that more than four-fifths of participants approved that e-learning will decrease the cost of learning and about two-thirds of them approved that e-learning offers chances for additional learners to be included.

Regarding the levels of faculty members' attitude concerning using e-learning in university education, the current study reveals that more than three-quarters of faculty members in both studied universities had a positive attitude regarding e-learning. In comparison, one-quarter of them had a negative attitude toward e-learning in Mansura University. This result may be related to the current situation for COVID 19 pandemic, making e-learning an effective strategy for faculty members to teach academic courses. On the other hand, universities have paid great attention to providing a suitable environment, internet connections, and updated technology programs to motivate faculty members to effectively use this strategy, contributing to faculty members' positive attitude towards e-learning.

Table (7): Correlation between personal characteristics and faculty attitude, barriers, and motivators toward using e-learning in Zagazig University (no=50).

Personal characteristics	Faculty Attitude Median (Mini-Maxi)	Test of Sig.	p-value	Faculty Barriers Median (Mini-Maxi)	Test of Sig.	p-value	Faculty Motivators Median (Mini-Maxi)	Test of Sig.	p-value
Gender									
Male	81 (70-87)	Z=0.108	0.914	27.5 (16-32)	Z=0.950	0.432	54 (48-60)	Z=0.901	0.368
Female	82 (23-92)			32 (16-80)			52(16-60)		
Age									
20-25	86(51-87)			26 (16-53)			52 (44-60)		
26-30	80.5 (74-87)	χ^2 =	0.509	28 (16-80)	χ^2 =	0.643	49.5 (16-60)	χ^2 =	0.609
31-35	79 (23-92)	3.302		32 (16-71)	4.321		56 (27-60)	2.702	
36-40	82.5 (29-88)			35.5 (16-63)			47.5 (17-60)		
>41	84 (72-88)			23.5 (16-44)			54.5 (48-60)		
Academic Rank									
Professor	83 (72-88)			29.5 (22-44)			51.5 (48-60)		
Assistant professor	84 (57-87)	χ^2 =	0.913	26 (16-58)	χ^2 =	0.629	50.5 (27-60)	χ^2 =	0.395
Lecturer	82 (23-88)	0.980		32 (16-71)	2.588		49 (17-60)	4.083	
Assistant lecturer	79 (70-92)			29.5 (16-80)			56.5 (48-60)		
Demonstrator	85 (51-87)			26 (16-69)			48 (16-60)		
Experience									
Less than 5 years	85 (51-87)			26 (16-69)			48 (16-60)		
5 – 10 years	79 (57-92)	χ^2 =	0.623	29 (16-80)	χ^2 =	0.508	56 (27-60)	χ^2 =	0.127
11- 15 years	80.5 (23-88)	2.622		36 (16-71)	3.305		46.5 (17-60)	7.168	
16 -20 years	84 (73-87)			31 (16-35)			56 (53-60)		
More than 20	83 (72-88)			25 (16-44)			54 (48-60)		

This result is consistent with the results of many studies as *Akbarilakeh et al. (2019), Alabdullaziz et al. (2019), Alanazy (2018), Alsulimani, and Kaabi (2018), Idris and Osman (2017), Mekheimer (2017), AL-Fayyadh and Mohammad (2016), Al Harbi, M. (2016) and Maleki et al. (2015*) all of them were reported that the attitude of faculty associates is positive concerning using suitable e-learning.

On the other hand, this result is not consistent with *Ghanbari et al. (2009)*. They conducted a study to examine the knowledge, skills, and attitudes of faculty members and students about e-learning and revealed that faculty associates showing unacceptable attitudes concerning e-learning in some universities.

Regarding the distribution of barriers, the main obstacle, as supposed by the faculty associates, was concern about students' access. This finding might be due to practical problems, including improper internet connectivity and faculty members had to participate in all teaching and learning time to confirm the effective use of such a teaching tool. These findings were supported by *Dube and Scott (2018)* in their study "The organizational restrictions of mixing e-learning tools in education: Lecturers," in sighted and confirmed that the absence of simple access, low internet bandwidth, the absence of technical equipment, the absence of essential software and additional computer facilities were obstacles as supposed by the faculty members. In the same line, the study conducted by *Kisanjara et al. (2019)* and entitled "E-learning acceptance among academicians and students in Tanzanian universities." They reported that the absence of hardware obtainability, software, internet connection, and technical qualification could result in the unsuccessful application of e-learning, accordingly, adding to the educational challenges of individual teachers.

On the other hand, this study comes in disagree with *O'Doherty et al. (2018),* who conducted a study about "Barriers and solutions to online learning in medical education," and illustrated time restraints, improper technical skills, insufficient infrastructure, lack of organizational plans and support and negative attitudes of all involved students as the main barrier which disturb the progress and application of online learning in teaching. Also, *Alenezi (2018),* who conducted a study entitled "Barriers to participation in learning management systems in Saudi Arabian Universities," illustrated that lacked time, lack of training, resources, hardware and software, and that there were not enough computers in classes to implement learning management systems.

Regarding the levels of barriers to using e-learning in university education, the current study reveals that more than four-fifths of faculty members perceived the barriers as weak in Zagazig University, while more than half of teachers in Mansoura University augment the barriers as weak barriers. These results may be related to the current situation (COVID 19) that forces the universities to suddenly transition from traditional teaching to e-learning in all learning process aspects. This transition needs the readiness to deal with the barriers forcing e-learning, which were not available in some universities. This study agreed with *Ismail et al. (2020),* who revealed that more than half of the studied sample had low barriers. In addition to one-fifth of them had a moderate level of barriers. In contrast, about one-third of them had a high level of barriers.

Regarding the distribution of faculty members' motivators toward using e-learning, the present study reveals the better internet bandwidth at the workplace and professional incentive to use e-learning as the highest motivating factors, followed by professional incentives to use e-learning. The participants also indicate that peer recognition, prestige, and status could be additional strong motivator (second rank) at educational institutions. This result may be related to universities' keenness in the current period to strengthen the technology infrastructure and internet networks to enhance the optimal use of e-learning. Besides that, universities are keen to support and motivate faculty members to use e-learning, especially at the current crisis, by training them to activate e-learning, enhancing the faculty status through self-update, and keeping up with what is new.

Regarding the levels of faculty members' motivators toward using e-learning, the current study illustrates that more than two-thirds of faculty members perceive the motivators as strong in studied universities. At the same time, less than one third was weak in studied universities. This finding might be due to the faculty members identifying the chances and challenges needed to encounter the needs of the 21st-century learner. However, innovative practices, recent technologies, and e-learning increased in higher education, and the universities realized the effective application of recent technologies in higher education surroundings.

This study agrees with *Mekheimer (2017),* who conducted a study to investigate instructors' attitudes towards and motivation for e-learning and reported that they were highly motivated and instrumentally towards using e-learning tools in their teaching. The result is also in the same line with *Al Harbi (2016)*, who indicated that faculty members are generally highly motivated concerning using e-learning in their teaching.

This study reveals a highly significant positive correlation between total faculty attitude and total motivators and a significant negative correlation between total faculty barriers and total motivators. A non-significant negative correlation between total faculty attitude and total barriers toward using e-learning in university education. This finding might be because faculty members with positive attitudes concerning e-learning environments and online education tend to display intentions to use such tools as a vital part of their teaching plan. This result agrees with *Elias et al. (2012),* who mentioned an association between attitudes toward technology and motivation.

Regarding the relationship between personal data and faculty attitude, perceived barriers, and motivators toward using e-learning, this study reveals that there is no significant relationship between personal characteristics of the studied sample and faculty members' attitudes, barriers, and motivators toward using e-learning in Zagazig and Mansoura Universities except for gender and faculty barriers only in Mansura University. This result may be related to nursing faculty in Mansoura university having male members of all ranks from demonstrators to lecturers and all academic departments. Male members in all departments have enough time and skills in using computer programs and employ these skills in applying e-learning. All these factors affect the attitude of male faculty members toward e-learning. This result matches with *Al Gamdi and Samarji (2016)*. They conducted a study entitled "Perceived barriers towards e-learning by faculty members at a recently established university in Saudi Arabia," and concluded that female faculty learners perceived fewer e-learning obstacles than their male and the internal barriers toward using e-learning were weak.

This result is similar to *AL-Fayyadh and Mohammad (2016),* who reported no relationship between the faculty members' attitudes and their demographic data. Also, *Marzilli et al. (2014)* conducted a study entitled "Faculty attitudes towards integrating technology and innovation" and revealed no significant relationship between faculty attitude toward e-learning and their socio-demographic data.

On the other hand, this contrasts with the findings of *Mekheimer (2017); Maleki et al. (2015),* who revealed a relationship between academic degree and faculty members' attitude. The studies also reported that the lower the academic degree is, the more positive the attitudes are towards perceived system satisfaction. Besides, they showed no statistically significant differences between males and females in their perceptions of attitudes towards e-learning technologies.

7.Conclusion

Based on the current study findings:

More than three-quarters of faculty members in both universities had a positive attitude toward e-learning. The perceived barriers among the faculty members were weak among faculty members in Zagazig university versus Mansoura University. The motivators among the faculty members were strong among faculty members in Zagazig university versus Mansoura University.

There is a significant correlation between total faculty attitude and total motivators and a significant negative correlation between total barriers and total motivators. In comparison, there is no significant correlation between total faculty attitude and total barriers. Also, there is no significant correlation between the studied sample's characteristics and faculty members' attitudes, barriers, and motivators toward using e-learning in Mansoura and Zagazig Universities (except for gender and faculty barriers only in Mansura University).

8. Conflict of interest and funding

The authors declare that they have no conflict of interest. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

9. Acknowledgment

The researchers wish to thank all faculty members who participated in the study and shared their experience and precious time to achieve the study aim.

9. References

Akbarilakeh, M., Razzaghi, A., & Moghaddam, H. D. P. (2019). Attitudes of faculty members towards using e-learning. *Research & Devlopment in Medical Education, 8*(1), 12-19. https://doi.org/10.15171/rdme.2019.003

Al Gamdi, M. A., & Samarji, A. (2016). Perceived barriers towards e-learning by faculty members at a recently established university in Saudi Arabia, *International Journal of Information and Education Technology, 6*(1), 23-28. https://doi.org/10.7763/IJIET.2016.V6.652

Alanazy, S. M. (2018). Factors affecting faculty attitude for adopting online learning at Aljouf University, Saudi Arabia, *Journal of Education and Learning, 7*(1), 155-162. http://doi.org/10.5539/jel.v7n1p154

Al-Fayyadh, S., & Mohammad, Q. Q. (2016). Iraqi nursing faculty attitudes toward e-learning: A national survey. *IOSR Journal of Nursing and Health Science (IOSR-JNHS), 5*(3), 57-63.
https://doi.org/.9790/1959-0503035763.

Al Harbi, M. (2016). Faculty attitudes toward and motivation for virtual learning environments (VLE) for language studies: A cross-national study in Saudi Arabian Universities. *Journal of Psychology and Behavioral Science, 4*(2), 100-114. https://doi.org/10.15640/jpbs.v4n2a9

Alsulimani, T., & Kaabi, H. (2018). The effect of e-learning on teachers' motivation: A case study in Jeddah University. *International Journal of Management and Information Technology, 14,* 3316-3327. https://doi.org/10.24297/ijmit.v14i0.7896

Alyahya, S., Alanazy, M. M., Alabdullaziz, F., & Gall, J. (2011). F080-DDL instructors' and learners' attitudes toward e-learning within a college of education. https://www.semanticscholar.org/paper/F080-DDL-Instructors%E2%80%99-and Learners%E2%80%99-Attitudes-a-of-Alyahya-Alanazy/9be229d0e81afdb3577303b004694bd7d47f74a3

Basak, S. K., Wotto, M., & Belanger, P. (2018). E-learning, M-learning, and D-learning: Conceptual definition and comparative analysis, *SAGE Journals, 15*(4), 191-216. https://doi.org/10.1177/2042753018785180

Consortium for School Networking (CoSN). (2020). COVID-19 response: Preparing to take school online. https://www.cosn.org/sites/default/files/COVID-19%20Member%20Exclusive_0.pdf

Driessnack, M., Sousa, V. D., & Mendes, I. A. C. (2007). An overview of research designs relevant to nursing: Part 1: Quantitative research designs. *Revista Latino-Americana de Enfermagem, 15*(4). http://dx.doi.org/10.1590/S0104-11692007000300022.

Eliasa, S. M., Smith, W. L., & Barneya, C. E. (2012). Age as a moderator of attitude towards technology in the workplace: Work motivation and overall job satisfaction. *Behaviour & Information Technology, 31*(5), 453-467. https://doi.org/10.1080/0144929X.2010.513419

Ghanbari Khanghah, A., & Moghadasi Rostamnia, T. (2009). Investigating knowledge, skill, and attitudes of faculty members and students of Gilan medical university on E-learning. *Bi-quarterly of Center of Studies and Development of Medical Science Teaching, 5*(3), 108-10. [Persian].

Goyal, S. (2012). E-learning: Future of Education. *Journal of Education and Learning, 6*(2), 239-242. http://dx.doi.org/10.11591/edulearn.v6i4.168

Guillén-Gámez, F. D., & Mayorga-Fernández, M. J. (2020). Identification of variables that predict teachers' attitudes toward ICT in higher education for teaching and research: A study with regression. *Sustainability,* (12), 1312. https://doi.org/10.3390/su12041312

Guragain, N. (2016). E-learning benefits and applications, Published Master thesis, University of Applied Sciences, *6-8,* Retrieved on May 10 2020. http://urn.fi/URN:NBN:fi:amk-201602122192

Hakimi, H., Somayeh, M., Dehghani, M., Mozaffari, F., Ghasemnegad, S., Samaneh, B., & Mousazadeh, N. (2016). The effectiveness of e-learning in learning: A review of the literature. *International Journal of Medical Research & Health Sciences, 5*(2), 86-91. Available online at www.ijmrhs.com

Idris, F. E. A., & Osman, Y. (2017). Implementation of e-learning in the University of Gezira barriers and opportunities. *Edu. Sci. Res, 1*(1), 24-35. https://doi.org/10.22496/esr2016090470

Ismail, A. L. A., Weheida, S. M., Basal, A. A., & Shokier, M. E. (2020). E-learning barriers as perceived by students in the Faculty of Nursing at Tanta University. *IOSR Journal of Nursing and Health Science (IOSR-JNHS, 9*(1), 28-41

Khan, S. B., & Jumani, N. B. (2012). E-learning versus traditional learning in Pakistan. *Asian Journal of Distance Education, 10*(1), 28-34. Retrieved from https://www.asianjde.org/ojs/index.php/AsianJDE/article/view/197

Kisanjara, S. B., Tossy, T. M., Sife, A. S., & Msanjila, S. S. (2019). E-learning uptake among academicians and students in Tanzanian universities. *International Online Journal of Education and Teaching (IOJET), 6*(1), 18-35. http://iojet.org/index.php/IOJET/article/view/429

Mahmoud, S. R., El Magrabi, N. M., & Mohamed, F. R. (2015). Faculty of nursing teaching staff members and students' attitudes toward E-learning. *Journal of Nursing and Health Science, 4*(4), 36-45 https://doi.org/10.9790/1959-04463645

Maleki, A., Faghihzadeh, S., Taran Layegh, Z., & Najafi, L. (2015). Faculty members' attitude toward e-learning Zanjan University of Medical Sciences. *Educ Strategy Med Sci. 8*(3), 159-164. http://edcbmj.ir/browse.php?a_id=838&sid=1&slc_lang=en

Marzilli, C., Delello, J., Marmion, S., McWhorter, R., Roberts, P., & Marzilli, T. S. (2014). Faculty attitudes towards integrating technology and innovation.

International Journal on Integrating Technology in Education (IJITE), 3(1), 1-20. https://doi.org/10.5121/ijite.2014.3101

Mekheimer, M. A. (2017). Investigating EFL Instructors' attitudes towards and motivation for e-learning tools in English language learning programmes. *Journal of Arabic Studies in Education & Psychology (ASEP), 90*(2), 589-608. https://doi.org/10.12816/saep.2017.6479

Muflih, S., Abuhammad, S., Karasneh, R., Al-Azzam, S., Alzoubi, K. H., & Muflih, M. (2020). Online education for undergraduate health professional education during the COVID-19 Pandemic: Attitudes, barriers, and ethical issues. *Research Square.* https://doi.org/10.21203/rs.3.rs-42336/v1.

O'Doherty, D., Dromey, M., Lougheed, J., Hannigan, A., Last, J., & Deirdre McGrath, D. (2018). Barriers and solutions to online learning in medical education: An integrative review, *BMC Medical Education, 18*(1), 130. https://doi.org/10.1186/s12909-018-1240-0

Panda, S., & Mishra, S. (2007). E-learning in a mega open university: Faculty attitude, barriers, and motivators. *Educational Media International, 44*(4), 323-338. https://www.learntechlib.org/p/99870/

Rouleau, G., Gagnon, M. P., Côté, J., Payne-Gagnon, J., Hudson, E., Dubois, C. A., & Bouix-Picasso, J. (2019). Effects of e-learning in a continuing education context on nursing care: Systematic review of systematic qualitative, quantitative, and mixed-studies reviews. *Journal of Medical Internet Research, 21*(10), e15118. https://doi.org/10.2196/15118

Sener, J. (2015). Updated e-learning definitions, available at https://onlinelearningconsortium.org/updated-e-learning-definitions-2/.

Semerci, A., & Aydin, M., K. (2018). Examining high school teachers' attitudes towards ICT Use in Education. *International Journal of Progressive Education, 14*(2), 93-105. https://doi.org/10.29329/ijpe.2018.139.7

Tamm, S. (2019). Types of e-learning these are the ten distinguishable types of e-learning, available at https://e-student.org/types-of-e-learning/.

Yeh, Y.-c., & Chu, L.-H. (2018). The mediating role of self-regulation on harmonious passion, obsessive passion, and knowledge management in e-learning. *Educational Technology Research and Development, 66*(3), 615–637. https://doi.org/10.1007/s11423-017-9562-x