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Students' Satisfaction and Barriers of E–Learning Course among Nursing Students, Mansoura University

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Abstract: Many organizations and institutions are using E-learning because it can be as effective as traditional training at a lower cost. Delivery costs of e-learning (Including web server costs and technical support) are significantly lower than those for classroom equipment, teacher time, travel time for students and lost time for attending classroom sessions. The study aimed to assess students' satisfaction and barriers to E-learning course among nursing students at Mansoura University. A qualitative exploratory descriptive design was used during the academic year 2017-2018. Three hundred and fifty male and female students were selected through purposive sampling technique. This study was conducted at the Faculty of Nursing, Mansoura University. The developed questionnaire was constructed for the study which consisted of three parts: Students' personal and computer background, Students' satisfaction regarding the E-learning course and Students' barriers regarding the E-learning course. *Results*: the great majority (93.4%) of the studied sample have high satisfaction with their e-learning experience and nearly three quarter (82.9%) of the studied students have low barriers to the e- learning course. 60% of the studied sample was preferred E-learning due to saving time and place and 51.1% increased self- responsibility and self-confident. More than half of the studied students motivated to improve interaction with colleagues. *Conclusions*: the majority of studied students are highly satisfied with their e-Learning experience that shows e-learning has a lot of potential in augmenting higher education, but still some students experienced some difficulties and technical barriers during their experiences of E-learning (80.6). Recommendation: the application of e- learning courses in educational institutions should be guided both by governmental and institutional support to improve learning opportunities for students and enhance learning outcomes and skills.

Key words: Students' Satisfaction · E-Learning Course · Barriers

INTRODUCTION

E-learning can be described as "The use of computer and Internet technology to provide a wide range of learning and performance-enhancing solutions" [1]. Increasing students' enrollment in Egyptian universities that was started in the 1970s and 1980s led to declining quality of higher education in Egypt and declining quality of nursing education in particular. Another major challenge to teach the large numbers of nursing students, while preserving the quality of their education, is the shortages of academic nursing staff in most nursing faculties. In such situation, there is an urgent need for e-learning, which is a mean of alleviating the educational and health problems [2].

E-learning can be seen as an innovative approach to delivering educational services through digital forms of information that enhance learners ' awareness, skills and other outcomes [3]. E-learning can offer many advantages to colleges and students alike. both universities and students. For universities, firstly, e-learning lets universities save substantial costs in connection with investing in physical teaching and learning infrastructures for universities. Secondly, e-learning allows universities to become more digitized and leads to the development of a virtual and knowledgeable society where learning and knowledge sharing can be done in an easy and fast way anywhere, using Internet-enabled technologies [4].

Thirdly, e-learning is enabling universities to further integrate into the global academic environment [5].

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In addition to traditional learning, e-learning offers students with an alternative choice of learning style. E-learning is not restricted to time and space as it can take place at home, at work or anywhere through Internet-connected computers or mobile devices and the university's e-learning system [6, 7]. This is particularly useful for students who are concurrently studying and working [8]. Eventually, e-learning allows students to completely control the pace and rhythm of their studies because they are not required to attend campus physical classes [6].

Information and Communication Technologies (ICT) has changed our life and learn. There are many effective instructional strategies offered by E-learning. For example, feedback practicing, joining collaboration activities with self-managed study, customizing learning ways dependent on students' needs and utilizing simulation. In addition, all students get the similar quality of guidance and instructions in light of the fact that there is no reliance on a specific educator [9]. As far as the educator is concerned, e-learning programs provide the ' teacher ' with several opportunities to turn from ' the source of knowledge ' into a facilitator and role model in the process of knowledge and skills acquisition [10, 11].

Teachers and students in modern distance learning courses are divided by time and space, but telecommunications hardware and software allow interaction and collaboration. Some of the tools used in online courses include: (a) email, (b) chat rooms, (c) chat rooms, (d) newsletters, (e) file transfer protocol and (f) audio and video electronics [12]. There are many dimensions that assess the quality of education imparted, one of the most important dimensions of education is students' satisfaction; how they perceive the quality of the education they receive? And this becomes even more important when we talk about e-Learning where there is no or little physical interaction between educator and student [13].

There are three stages of higher education barriers during the uses of ICTs [14]. The first category is related to organizations ' obstacles and focuses on strategic planning research, the lack of organizational policies and the cost of implementation [15]. The second level is linked to both external and internal obstacles, such as institutional support and planning, technical support, space and personal motivation, resistance to change, inability to meet expectations, professional development, community, technical inconsistency and pedagogical beliefs [16]. The third level refers to barriers that students face when using ICTs in interaction and learning [14].

Nursing competencies are essential for quality of patient care. Due to the complexity of clinical situations, conventional didactic training is limited in providing real interactions for student-patient nursing interactions due to limited clinical hours and placements, incoherent availability of specific patients with disease [17]. Use e-learning becomes important for higher education institutions and to compete with other organizations and achieve financial stability, they recognize and accept this fact. The other explanation why higher education officials are introducing this new learning model in educational institutions is to improve learning opportunities for students and enhance learning outcomes and skills [18].

Mansoura University E-learning Center was established in 2005 to encourage and cultivate excellence in learning by offering expertise and supporting university-level faculties. Mansoura University is the leading university in Egypt due to its strong network infrastructure and the use of ICT in education. The university awarded the National E-content Award in 2006 from the Ministry of Communication and Information Technology (MCIT)[19]. Universities in Egypt have successfully implemented a variety of distance learning initiatives, but there are still relatively new and limited study and e-learning activities.

Aim of the Study: The present study aimed to investigate nursing students' satisfaction and barriers of E-Learning course among nursing students at Mansoura University

Research Questions:

- What is the level of nursing students' satisfaction with offered e-learning course in nursing education?
- What are the common barriers facing the nursing students about E-Learning course?

MATERIALS AND METHODS

Research Design: This study was conducted using a descriptive research design.

Setting: This study was conducted at Faculty of Nursing-University of Mansoura, Egypt, Department of Critical Care and Emergency Nursing.

Subjects: 350 out of total 500 male and female fourth-level nursing students who were enrolled in the first semester of the academic year 2017-2018 in critical care nursing

were eligible to participate in the study and all served as one group. Non-probability purposive sample was employed to recruit participants based on the following inclusion criteria: 1) having a personal computer or laptop with internet access and 2) agreed to share their experience, satisfaction and barriers of the electronic course.

Tool of the Study: Students structured questionnaire was developed by the researcher based upon relevant literature [20, 21]. This tool compromised of three parts.

Part I: Students' Personal and Computer Background: It included age, sex, computer skills and student experience.

Part II: Students' Satisfaction Regarding the E-Learning Course: This part includes basic assessment measures for student satisfaction regarding e-learning course.

Part III: Students' Barriers Regarding the E-Learning Course: This tool includes the possible common barriers facing students regarding the E-learning course. It included technical and equipment barriers in addition to communicational and personnel barriers.

Scoring System: The students were asked in the previous parts to record their responses to items (Part I, II and III) of the tool on a five-point scale (1 = "Strongly disagree", 2 = "Disagree", 3 = "Neither agree nor disagree agree", 4 = agree", 5 = strongly agree). The total score <60% is considered an unsatisfactory agree level; while score ≥ 60% is considered a satisfactory agree level.

Methods of Data Collection

Validity and Reliability: A group of 5 experts in the field of critical care nursing and information technology tested the tool for content validity, understanding and applicability. The tool's accuracy has been tested using the Alpha test by Cronbach which evaluated the tool's internal consistency. The tool's reliability was 0.85, suggesting high reliability. The A random sample of 5 students tested the accuracy and consistency of the questionnaire, a small change was made and the pilot sample was excluded from the study.

Ethical Considerations: Ethical approval was obtained from the Research Ethical Committee of Faculty of Nursing, Mansoura University. Students are aware of the purpose and benefits of the research. Students were given the opportunity to withdraw from the study analysis at any time. Those who agreed to participate in the study analysis received informed consent. Completion and delivery of the questionnaire is the students ' permission to participate in the study analysis. The privacy of the data collected has been maintained and no one can access the data that researchers expect.

Data Collection: Based on previous research studies, Questionnaire items were created and used as a survey tool. Each item of this tool has been checked on a five-point Likert scale ranging from 1 to 5 as strongly agrees.

All participants were requested to mark one choice only. Data was collected via the internet through a questionnaire given to students at the end of the second semester to assess their satisfaction and barriers towards the using of the E- learning course. The researchers sent the participants an e-mail with instructions to access and complete the questionnaire online course. To order to prevent unauthorized involvement in the analysis, participants are given individual passwords. The estimated time to complete the questionnaire for the participants was 30 minutes. In 10% of the study sample, a pilot test for the accuracy and validity of the instruments was carried out. According to the pilot test results, some elements have been updated.

Designing the Nursing Electronic Course: At the preparatory phase, the theoretical course was redesigned for the electronic format. The course encompassed six modules. Each module was subdivided into two lessons. All lessons had the same design with a set of learning objectives, lesson materials in the form of text, PowerPoint slides, videos, animations and recorded lectures by researchers' voices and ended by self assessment interactive quizzes. Electronic Learning Center created an account for each student. An orientation session was done by the researchers at the faculty's computer lab for all participants before joining the E-course to guide them on how to register and log in the system using the assigned username and password and how to navigate the electronic course and module system contents.

Data Analysis: Sorting, coding, organizing, categorizing and then converting information into specially designed formats. SPSS (Statistical Product and Service Solutions Standards) version 20.0 was used to analyze the data. Data are presented in the form of frequencies and percentages using descriptive statistics. The following statistical tests were used: A nova test and post hoc test used Level of significance $p < 0.05$.

RESULTS

Table 1 illustrates that approximately more than half of the studied sample was female (64.9%). As regard age group of studied students, it ranged from 20 to 31 years old with a mean age of 20.78 ± 0.415 years. More than half (59.7%) of the studied sample was good in computer knowledge and skills and 37.4 were fair. 55.4% of the studied students used three or more fingers in typing. Additionally, more than half of the studied sample used of a computer to research (57.14%).77.15% of the studied students were with no previous courses and 60% of sample were preferred E-learning than the traditional method.

Table 2 illustrates that half of the studied sample was satisfied when using Power Point presentations, texts, images, animations and proud of having the chance of learning with E-course (50-51%). More than half of the studied sample was motivated to improve interaction with colleagues (67.5%). Additionally more than half of the studied sample repeated any part of the lesson without limits and satisfied with a new learning method by the internet (55.7-52.3%). 57.1% of studied sample was satisfied from E-learning course due to saving time and place and 51.1% of the studied students had increased self-responsibility and self-confident.

Table 1: Distribution of students according to their personal characteristics and experience in computers

Characters		No. 350	%
Age	20-	77	22.0
	21	273	78.0
	Range	20.0-21.0	
	Mean ± SD	20.78±0.415	
Sex	Male	123	35.1
	Female	272	64.9
Computer knowledge and skills	Good	209	59.7
	Fair	131	37.4
	Poor	10	2.9
Fingers used in typing	Two	64	18.3
	Three or more	194	55.4
	All (or touch	92	26.3
Uses of computer	Studying	60	17.14
	Researching	200	57.14
	Playing	90	25.7
Previous computer courses	Yes	80	22.85
	No	270	77.15
Opinions concerning E-leaning course	- Traditional learning is better than E-learning.	90	25.7
	- E- Learning is better than traditional method.	210	60
	- No difference	50	14.3

Table 2: Distribution of the studied students according to their satisfaction

	The studied students (n=350)									
	Strongly agree		Agree		Neither agree nor disagree		Disagree		Strongly disagree	
Satisfaction items	N	%	N	%	N	%	N	%	N	%
I can learn by myself using power point presentations, texts, images, animations and videos.	114	32.6	175	50.0	61	17.4	0	0.00	0	0.00
I feel proud having the chance of learning with E-course.	147	42.0	179	51.1	24	6.9	0	0.00	0	0.00
It is good to follow the new technology in learning	204	58.3	128	36.6	18	5.1	0	0.00	0	0.00
The course motivated me to	236	67.4	104	29.7	1	0.3	9	2.6	0	0.00
I can repeat any part of the lesson without limits	123	35.1	195	55.7	32	9.1	0	0.00	0	0.00
Images, videos and audios were interesting than text	132	37.7	194	55.4	24	6.9	0	0.00	0	0.00
It also makes the learning process interested	171	48.9	160	45.7	19	5.4	0	0.00	0	0.00
Easy access to different resources"	150	42.9	131	37.4	57	16.3	12	3.40	0	0.00
It is good to try a new learning method by internet	160	45.7	183	52.3	6	1.7	1	0.30	0	0.00
E-learning course save time and place	80	22.8	200	57.1	30	8.6	39	11.14	1	0.30
It builds self responsibility and self-confident quantity	158	45.1	181	51.7	8	2.3	3	0.90	0	0.00
I got prompt and quick feedback from staff and colleagues	144	41.1	126	36.0	48	13.7	32	9.10	0	0.00

Table 3: Distribution of students by their technical and equipment barriers

	The studied students (n=350)									
	Strongly agree		Agree		Neither agree nor disagree		Disagree		Strongly disagree	
Technical items	N	%	N	%	N	%	N	%	N	%
I face difficulties in accessing the hard and software needed for online education.	56	16.0	282	80.6	9	2.6	3	0.9	0	0.00
I face poor internet connection and bad navigation.	77	22.0	208	59.4	40	11.4	25	7.1	0	0.00
I face difficulties due to my incompetence in utilizing internet connection devices.	164	46.9	282	80.6	9	2.6	3	0.9	0	0.00
Shortness or absence of technical help worries me personally.	150	42.9	142	40.6	40	11.4	18	5.1	0	0.00
I face difficulties due to shortness of sufficient information given on access to online education.	164	46.9	126	36.0	0	0.00	60	17.1	0	0.00
Computer quantity is not enough for learner quantity	123	35.1	173	49.4	11	3.1	43	12.3	0	0.0
Internet network system in faculty often error	116	33.1	172	49.1	61	17.4	1	0.3	0	0.0
No instruction found on e-learning course of how to use it	7	2.0	121	34.6	0	0.00	142	40.6	80	22.9
Internet network system send data slowly	77	22.0	175	50.0	95	27.1	3	0.9	0	0.0
Most computers has poor working efficiency	54	15.4	231	66.0	62	17.7	3	0.9	0	0.0
Mean score of technical and equipment barriers	(33-46) 39.63±2.562									

Table 4: Distribution of the communication and personnel barriers

	Student No (350)							
	Strongly agree		Agree		Neither agree nor disagree		Disagree	
Communicational	N	%	N	%	N	%	N	%
I prefer traditional method for learning	27	7.7	94	26.9	11	3.1	218	62.3
I have difficulties with nonverbal communication and online education collaboration	24	6.9	134	38.3	94	26.9	98	28.0
I don't have any difficulty dealing with the easy tasks,	69	19.7	228	65.1	0	0.0	53	15.1
I don't face any trouble in performing the easy tasks, but in the challenging ones I find difficulties.	147	42.0	190	54.3	12	3.4	1	0.3
I'm worried about taking responsibility for online courses.	147	42.0	190	54.3	12	3.4	1	0.3
I have not own computer	82	23.4	163	46.6	8	2.3	97	27.7
I don't get motivated by e-	62	17.7	184	52.6	20	5.7	84	24.0
I think e-learning course needed more time.	5	1.4	255	72.9	2	0.6	88	25.1
I may be interrupted at home or at faculty while taking e-course	47	13.4	191	54.6	18	5.1	94	26.9
I don't have access to computer	91	26.0	197	56.3	57	16.3	5	1.4
I'm concerned that my personal life may be impacted by online education.	92	26.3	218	62.3	37	10.6	3	0.9
I Live in student's dorm and I don't have access to computer	3	0.9	233	66.6	50	14.3	64	18.3
Fear of change from traditional teaching to E-course	35	10.0	180	51.4	52	14.9	83	23.7
have many subjects to study, small time for e-learning course	79	22.6	217	62.0	51	14.6	3	0.9
Mean score of communicational and personnel barriers	(40-58) 47.91±3.207							

Table 5: Distribution of the students by their total levels of satisfaction and barrier

	The studied students (n=350)	
	N	%
Total level of satisfaction		
• <48 Low satisfaction	23	6.6
• ≥ 48 High satisfaction	327	93.4
Range		
Mean SD	(45-58) 51.64±2.606	
Total level of barriers		
• <92 Low	290	82.9
• ≥ 92 High	60	17.1
Range		
Mean SD	(76-100) 87.54±4.088	

Table 3 demonstrates that more than three forth of the students agree that they face difficulties in accessing the hard and software needed for online education (80.6%) and incompetence in utilizing internet connection devices (80.6%) were the most common technical and equipment barriers whereas about two thirds (66%) agree that most of the computers have poor working efficiency. The same table revealed that about half of studied sample agreed that they face poor internet connection, bad navigation (59.4%), computer quantity is not enough for learner quantity (49.4%), internet network system in faculty often error (49.1%) and internet network system sends data slowly 50%. Also, more than one-third of

students were strongly agreed about shortness or absence of technical help and the shortness of sufficient information given on access to online education by (42.9% and 46.9% respectively). The mean score of technical and equipment barriers was 39.63±2.562.

Table 4 reveals that about two thirds (62.3%) didn't prefer the traditional methods for learning and only one third have difficulty regarding nonverbal communication and collaboration in online education. Concerning the high communication and personnel barriers to e-learning, it was found that about two-thirds of the studied students (65.1%) agreed that they have no difficulty in dealing with the easy tasks but encounter difficulties in the challenging ones. The same table shows that about three fourth of the studied sample agreed that the E-learning course needed more time. More than half of students agreed that interruption at home or at faculty while taking E-course 65.1%, 46.6% of the students haven't access to computer, 62.3% of them were worried that the online education may interfere with their personal life, also this table revealed that 66.6% of the students live in student's dorm and don't have access to computer, 51.4% of the students fear of change from traditional teaching to E-course. About 62% of the students have many subjects to study and small time for the E-learning course. The mean score of communicational and personnel barriers was 47.91±3.207.

Table 5 illustrates that the great majority (93.4%) of the studied sample had high satisfaction and nearly three quarter (82.9%) of them have low barriers about the E- learning course.

DISCUSSION

Advancement in technologies change learning methodologies and can possibly improve educational process. This improvement delivers a rich environment for e-learning characterized by flexible education, time management, cost effective by reducing need for printed learning materials and easily updated e-materials, adjustment of course content, distance delivery and scalability [10].

Effective e-learning process need to track a systematic approach in a given learning setting and reflect the definition of scope, goals and target group, accessibility of a consistent course, active participation of educators and administrators, provision of appropriate information technology (IT) and adequate infrastructure, with clear institutional support. Therefore, using e-learning can be a chance to renovate existing courses to reflect and incorporate scientific improvements [22, 23]. So, our study investigates the satisfaction of nursing students' and the barriers facing them during their use of E-learning course at Mansoura University.

In our study half of studied sample satisfied when using power point presentations, texts, images, animations and proud having the chance of learning with E-course. In this respect with Favorskaya *et al.* [24] who reported that previously, there has been a massive evolution in computer-based training systems, which afford a combination of smart and multimedia technologies in many areas comprising education, which increase student satisfaction and awareness concerning the academic experience and perceived significance of received education.

More than half of our studied sample motivated to improve interaction with colleagues. Demiray [25] denoted that the demand for E- learning has increased worldwide which increase student's satisfaction that influences the student's level of motivation, which is an important psychological factor in academic success. Additionally, researchers suggest that students using E-learning programs should be socially and academically integrated in order to provide meaningful learning experiences. Bolliger *et al.* [26] clarify that educational setting in which social communication and cooperation were permitted lead to positive learning outcomes. Collaborative educational materials allow for group work and immediate feedback and enhance learner satisfaction in the E-learning environment.

E-learning called anytime-and-anywhere because it overcomes the limitations of time and place Moreover, it can help in the knowledge improvement, institutionalizes learning and considered a link between old and new skills [17]. In our study more than half of studied sample reported that they able to repeat any part of the lesson without limits and satisfied from a new learning method by internet which save time and place and increased self-responsibility and self-confident.

Jonassen *et al.* [9] reported that there are numerous benefits of joining electronic courses comprising suitability, flexibility and easily accessed without the need for relocation. As the learners can assembly their learning time around other job or family-related tasks. Adas and Shmais [10] confirmed that access to technology is one of the most important factors influencing student satisfaction. Technologies used in online and mixed

educational situations have the potential to enrich the learning experience, to do more than what can be done in face-to-face or other approaches. Žuvic-Butoracet *et al*. [11] emphasize that e-Learning is concerned with the learning activities, resource access, communication and assessment assumed in an online environment, using a range of information and communication technologies available in computer or mobile devices.

The learning setting can be combined with traditional environments fully online. Nevertheless, E-Learning has some challenges, such as anxiety resulting from absence of skills or technology technical problems. Moreover, the change from the traditional learning to e-learning have some institutional challenges including absence of proficiency, skills in using technology and facilities [22] those may impact the students' experience or avoidance of E- learning. So students' satisfaction with E-learning plays an important part in the continuity, especially in developing countries [23].

Our results revealed that considerable percentage of studied sample agree that they experience problems in retrieving the hard and software required for online learning, difficulties resulting from ineffectiveness in operating internet connection devices and most computers has poor working efficiency. Yengin *et al.* [27] and Katuk *et al.* [28] pointed out that students' satisfaction of e-learning depends on providing infrastructure required for e-learning (Administrative decision, provision of managerial centers, appropriate management). Hampshire *et al.* [12] emphasize that the a multilevel method that includes the individual learner, learning environment, framework of the e-learning application, technological environment and the pedagogic included in the application of e-learning should be followed by successful implementation and comprehensive evaluation. Additionally, Yamamoto and Aydin [29] reported that online access is an important factor influencing learner satisfaction. Learners must have access to consistent equipment and must be acquainted with the technology used in the course in order to be successful. Learners with restricted online access are at a significant difficulty compared to learners who have unrestricted online access.

Most of our studied sample agreed that they face poor internet connection and bad navigation and computer quantity, internet network system in faculty often error and internet network system send data slowly in addition to shortness or absence of technical help and difficulties due to shortness of sufficient information given on access to online education strongly. This result was in agreement with Astri [31] who stated that access to technology is one of the most important factors influencing student satisfaction.

Students without adequate technical support and frustrated with technology in the course experience high levels of frustrations in the online environment and lower satisfaction levels. Technologies used in online learning situations have the potential to enrich the learning experience, to do more than what can be done in face-to-face or other approaches. Moreover, learners must be familiar with the technology used in the course in order to be successful. In this respect with Ozkok *et al.* [30] who mentioned an important factor that explains student satisfaction are technology and interactivity. Students need to have access to reliable equipment both personally and on the part of the institution. In addition, learners must have functional, usable tools for participation and interaction and these tools should be used early and often.

On the other hand considerable studied sample have trouble concerning nonverbal communication and cooperation in E-learning process and in dealing with the hard tasks. Others agreed that e-learning course needed more time and faced with interruption at home or at faculty while taking e-course. Students live in student's dorm reported didn't have access to computer and have many subjects to study are major communication and personnel barriers to e-learning. Our results were in agreement with Wen [32] who stated that numerous e-learning involvements have been impasse pilots that have not been scaled up but moderately terminated after the pilot phase. This is commonly occur as a result of inability to adopting a system-wide approach, which leads to inadequate choice of training, deficient technological maintenance and user support, unattainably high expectations and unrealistic financial planning.

Finally, the great majority of our studied sample students was highly satisfied and reported low barriers in E- learning. In agreement with our results Franz-Vasdeki *et al.* [33] and Huange *et al.* [34] clarify that students' satisfaction and the success of the learning package go hand in hand, each contributing to the other. Fundamental attainment of all learning program is the satisfaction with this program that point out the success of the learning package and its continuation, because it confirms his effective educational process and increases his competence which would promise his appropriate function. E-learning can afford enormous dissemination of course content and for all the Internet consumers. So, it is essential that the learning manner and its philosophy be nominated to intensify learners' satisfaction and their desire to continue e-learning.

CONCLUSIONS

The results showed that the majority of studied students are highly satisfied from the education received in e-Learning model which shows e-learning has a lot of potential in augmenting higher education. In addition, Incompetence in utilizing internet connection devices is the most common technical and equipment barriers.

RECOMMENDATIONS

The present study recommends that trained educational program should be designed to increase student's awareness and knowledge about e-learning. Faculty staff member should improve learning opportunities for students. Finally, for good and enhanced learning outcomes, all universities should have a dynamic institutional structure to incorporate e-learning technology into their system.

REFERENCES

1. Sharma, D., J.C. Lakhmi, M. Favorskaya and R.J. Howlett, 2015. Fusion of smart, multimedia and computer gaming technologies, Springer International Publishing, 1(1).
2. Cha, E.S., K.H. Kim and J.A. Erlen, 2007. Translation of scales in cross-cultural research: issues and techniques. Journal of Advanced Nursing, 58(4): 386-395.
3. Fazlollahtabar, H. and A. Muhammadzadeh, 2012. A knowledge-based user interface to optimize curriculum utility in an e-learning system. International Journal of Enterprise Information Systems (IJEIS), 8(3): 34-53.
4. Bhuasiri, W., O. Xaymoungkhoun, H. Zo, J.J. Rho and A.P. Ciganek, 2012. Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. Computers & Education, 58(2): 843-855.
5. Lee, J.W., 2010. Online support service quality, online learning acceptance and student satisfaction. The Internet and Higher Education, 13(4): 277-283.
6. Bhuasiri, W., O. Xaymoungkhoun, H. Zo, J.J. Rho and A.P. Ciganek, 2012. Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. Computers & Education, 58(2): 843-855.
7. Kilburn, A., B. Kilburn and T. Cates, 2014. Drivers of student retention: System availability, privacy, value and loyalty in online higher education. Academy of Educational Leadership Journal, 18(4).
8. Wisloski, J., 2011. Online education study: As enrollment rises, institutions see online education as a 'critical part'of growth, Online Education Information.
9. Jonassen, D.H., J. Howland, R.M. Marra and D.P. Crismond, 2008. Meaningful learning with technology (3rd ed).
10. Adas, D. and W.A. Shmais, 2011. Students' perceptions towards blended learning environment using the OCC. An-Najah University Journal for Research - Humanities, 25(6): 1681-1710.
11. Žuvić-Butorac, M., N. Ronèević, D. Nemèanin and Z. Nebić, 2011. Blended e-learning in higher education: Research on students' perspective. Issues in Informing Science and Information Technology, 8:409.
12. Hampshire, K., G. Porter, S.A. Owusu, S. Mariwah, A. Abane, E. Robson, A. Munthali, A. De Lannoy, A. Bango, N. Gunguluza and J. Milner, 2015. Informal m-health: How are young people using mobile phones to bridge healthcare gaps in Sub-Saharan Africa. Social Science & Medicine, 142: 90-99.
13. Zaheer, M., M.E. Babar, U.H. Gondal and M.M. Qadri, 2015. E-learning and student satisfaction. In Proceedings of the 29th Annual Conference of the Asian Association of Open Universities: New frontiers in ODL (pp: 275-285).
14. Gutiérrez-Santiuste, E., V.M. Gámiz-Sánchez and J. Gutiérrez-Pérez, 2015. MOOC & B-learning: Students' Barriers and Satisfaction in Formal and Non-formal Learning Environments. Journal of Interactive Online Learning, 13(3).
15. Birch, D. and B. Burnett, 2009. Bringing academics on board: Encouraging institution-wide diffusion of e-learning environments. Australasian Journal of Educational Technology, 25(1).
16. Veletsianos, G., R. Kimmons and K.D. French, 2013. Instructor experiences with a social networking site in a higher education setting: Expectations, frustrations, appropriation and compartmentalization. Educational Technology Research and Development, 61(2): 255-278.
17. Paavilainen, E. and M. Salminen-Tuomaala, 2010. Web-based learning for continuing nursing education of emergency unit staff. Journal for Nurses in Professional Development, 26(4): 159-163.

18. Rai, L. and D. Chunrao, 2016. Influencing factors of success and failure in MOOC. International Journal of Information and Education Technology, 6(4): 262.
19. Department of Health (DOH), 2010. Statement on the Future of National Programme for IT. Department of Health Publications, London.
20. Stefanovic, D., M. Drapsin, J. Nikolic, D. Scepanovic, I. Radjo and P. Drid, 2011. Empirical study of student satisfaction in e-learning system environment. Technics Technologies Education Management, 6(4): 1152-1164.
21. Lin, C.S., S. Wu and R.J. Tsai, 2005. Integrating perceived playfulness into expectation-confirmation model for web portal context. Information & Management, 42(5): 683-693.
22. Kim, J. and W. Lee, 2011. Assistance and possibilities: Analysis of learning-related factors affecting the online learning satisfaction of underprivileged students. Computers & Education, 57(4): 2395-2405.
23. Cook D.A. and R.H. Ellaway, 2015. Evaluating technology-enhanced learning: a comprehensive framework. Medical Teacher, 37(10): 961-970.
24. Favorskaya, M., D. Sharma, L.C. Jain and R.J. Howlett, 2015. Advances in smart, multimedia and computer gaming technologies. In Fusion of Smart, Multimedia and Computer Gaming Technologies (pp: 1-6). Springer, Cham.
25. Demiray, U., 2010. Cases on challenges facing e-learning and national development: Institutional studies and practices. Anadolu Üniv.
26. Bolliger, D.U. and C. Halupa, 2012. Student perceptions of satisfaction and anxiety in an online doctoral program. Distance Education, 33(1): 81-98.
27. Yengin, I., A. Karahoca and D. Karahoca, 2011. E-learning success model for instructors' satisfactions in perspective of interaction and usability outcomes. Procedia Computer Science, 3: 1396-1403.
28. Katuk, N., J. Kim and H. Ryu, 2013. Experience beyond knowledge: Pragmatic e-learning systems design with learning experience. Computers in Human Behavior, 29(3): 747-758.
29. Yamamoto, G. and C.H. Aydin, 2010. E-learning in turkey: Past, present and future. E-Learning Practices, 2:961-987.
30. Özkök Fernández-Pascual, M.D., R. Ferrer-Cascales, A. Reig-Ferrer, N. Albaladejo-Blázquez and S.L. Walker, 2015. Validation of a spanish version of the distance education learning environments survey. Learning Environments Research, 18(2): 179-196
31. Astri, L.Y., 2017. Barrier factors that influence satisfaction of e-learning: a literature study. Advanced Science Letters, 23(4): 3767-3771.
32. Wen M., D. Yang and C.P. Rosé, 2014. Linguistic reflections of student engagement in massive open online courses, In Eighth International AAAI Conference on Weblogs and Social Media.
33. Franz-Vasdeki, J., B.A. Pratt, M. Newsome and S. Germann, 2015. Taking Health solutions to scale: enabling environments and successful implementation. Journal of Mobile Technology in Medicine, 4(1): 35-38.
34. Huang, F., S. Blaschke and H. Lucas, 2017. Beyond pilotitis: taking digital health interventions to the national level in China and Uganda. Globalization and Health, 13(1): 49.