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Najib Najjar, Laurence Ajjaka

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## E-learning: innovations and challenges in the new millennia

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Najib Najjar\* and Laurence Ajjaka

Faculty of Humanities,  
Department of English Language,  
American University of Technology,  
Halat, 00000, Lebanon  
Email: najib.najjar@aut.edu  
Email: Najibnajjar79@gmail.com  
Email: laurence.ajjaka@aut.edu  
\*Corresponding author

**Abstract:** E-learning has swiftly established itself as a vital tool in education especially within the institutions and curricula of higher education. It has been hailed as the future of higher education and is often described as an indispensable addition to galvanise the pedagogical process. Incorporating e-learning has allowed more students access to higher education since it freed them from the obligation of physical presence. It facilitated the diversification of offered programs because classes could be made available regardless of the number of students. There are suggestions that its practicality can aid in quelling the commercialisation of higher education. However, there are fears that the lack of human interaction will have adverse effects on the ability of students to acquire skills and generate an ethical persona. There are also concerns regarding the quality of education that is provided by instructors that are overburdened with courses. As e-learning programs continue to develop, it's important to emphasise the upsides while maintaining a critical eye on the shortcomings.

**Keywords:** e-learning; higher education; diversification; commercialisation; shortcomings.

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**Biographical notes:** Najib Najjar received his BA and MA from Notre Dame University (NDU) and is finalising his PhD in linguistics at the Holy Spirit University of Kaslik (USEK). He has also acquired English language teaching qualifications from the University of Cambridge (UK) and University of Oregon Yamada Language Center (USA). Since 2008, he has been teaching the language at different institutions such as International House, Notre Dame University, Holy Spirit University of Kaslik and American University of Technology where he is a professor and a chairperson for the English Program and Department at the Faculty of Humanities. His main area of research interest is curricula and syllabi designing and engineering methods of teaching.

Laurence Ajjaka is a proven professional with over 20 years of experience mentoring undergraduate and graduate students from various ethnic backgrounds with a PhD in English literature. Skilled in managing people, writing, teaching challenging topics, and public speaking. She is adept at giving

pupils excellent advice and social support. A social educator with a career devoted to teaching in support of public school and university reform that is committed to providing services to a student body that is really diverse.

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## 1 Introduction

### 1.1 Background of the study

E-learning can be defined as utilising information and communication technologies to allow instructors and students access to information (Arkorful and Abaidoo, 2014). Such a broad definition does not capture the methods of application that use e-learning. There are also varying degrees on integration with some relying on e-learning as a supplementary aid known as computer-assisted learning and those who use it as the primary and sometimes the only portal that is known as computer-managed instruction (Algahtani, 2011).

The focus of the paper is about the implications of e-learning in higher education. Most studies regard this integration as a success in enhancing and promoting the learning experience. Trepule et al. (2015) found that introducing technology-enhanced education into higher education allows easy access to information and offered more flexibility with regarding time. Their empirical findings showed that although the methods of teaching used in this experiment were student-centered, the teacher had a vital part to play with regards to making didactic decisions. Furthermore, their findings warned about some disadvantages such as the lack of social interaction and community support that complement a wholesome higher education experience. To strengthen this argument, we implemented the mixed methods approach which includes surveys, correlation studies, quasi-experiments, questionnaires, tests and interviews says Terrel (2016), in order to comprise, deduce, validate and verify the empirical study mentioned above. Two different close ended surveys at two Lebanese Universities with different geographical and cultural background where given to four groups of students around 25 students each to validate the previous. The importance of this paper is to highlight the results of previous studies and investigate a new one with a mixed approach for relevant validation and grab the best of both worlds.

There have been recent concerns regarding the commercialisation of higher education with the increasing pressure of turning a profit in private institutes. The latter have been sometimes been forced to compromise their standards and fund allocation to please their students. However, using e-learning could be incremental to lessening the burdens of onsite learning that often comes with a higher pricing tag than online education (Ravanelli and Serina, 2014). Online education will allow those unable to physically attend due to time constraints can now benefit from higher education. It can also help students who are overseas enrol without leaving their own countries and families. However, these programs need to be carefully tailored to accommodate the needs of students which vary considerably.

## *1.2 Significance of the study*

E-learning is becoming more prominent in the world because it has become the viable and preferred option for many parents and students. It can ease the financial burden for many since it saves parents the cost of transportation and allows older students to work while studying. With the cost of living skyrocketing in Lebanon, this cannot be overlooked. Each study that adds to the literature and understanding of e-learning becomes essential.

## *1.3 Purpose of the study*

The purpose of this study is to investigate e-learning among university students in Lebanon. It wants to further the understanding of how students interact with e-learning positively and negatively.

## *1.4 Objective of the study*

This study will be a quantitative addition to the body of literature on e-learning. It can be used as evidence to develop more curricula and programs for students in various majors. Because it is relatively new to Lebanon, it has to be moderated and adapted to the system, and this can be done properly only if the changes were based on scientific research evidence.

## *1.5 Research questions*

The relevant literature prompts two essential questions:

*R1:* How is e-learning aiding in galvanising and promoting higher education to new and old students?

*R2:* What are the negative implication of e-learning integration and how can they be circumnavigated?

## *1.6 Limitations of the study*

This study has the typical limitations of a quantitative study. The questions are limited and do not allow further investigation of the results. It is also difficult to produce generalisations based on the small sampling size that was chosen. However, expanding the sample is very time-consuming and expensive.

# **2 Literature review**

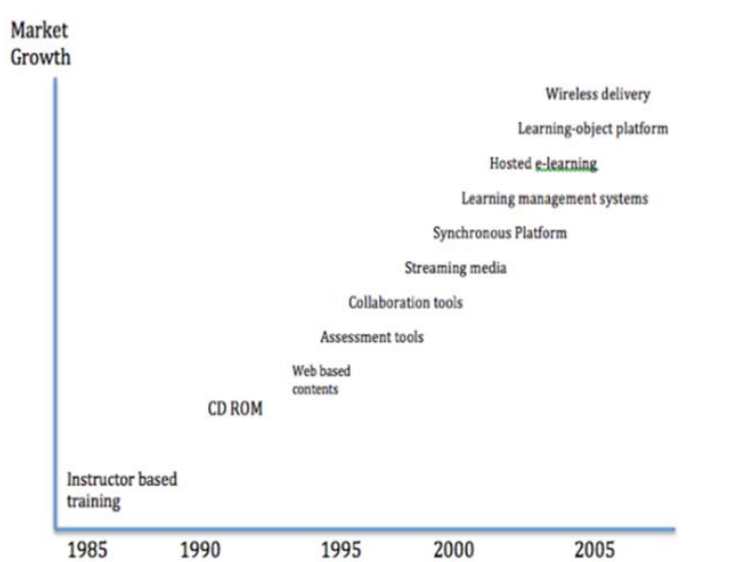
## *2.1 Chapter 1: innovation in e-learning utilisation in higher education*

E-learning has established itself as an indispensable tool in higher education despite not having been recognised for a substantial number of years to the point that US allocated \$13 billion of its budget for this sole purpose (Radovic-Markovic, 2014). Only 2.4% of

the higher educational institutes of the USA have not employed e-learning as their program signifying just how essential it has been rendered.

Figure 1 illustrates the evolution of e-Learning technologies and its effect on e-Learning content that has been highly facilitated by advances in technologies. Content development has been transformed from instructor based until the wireless delivery as shown in the figure.

**Figure 1** The evolution of technological advancement in e-learning as cited from Guragain (2016) (see online version for colours)



During the 1980s, instructor based training was the only form of education available until the arrival of the CD ROM in the 1990s. As the use of computers and the internet became available to more people, the tools evolved for the next 15 years to reach a zenith in the early years of the 21st century.

One of the most utilised forms of e-learning is the Moodle platform that allows the higher education institute controlled access to students and staff (Costa et al., 2012). It is one of the preferred electronic platforms for universities because it allows selective access to information rendering a personalised experience that would otherwise be impossible with a regular format for websites. Students can easily manoeuvre their way instead of becoming muddled and confused. Furthermore, it is ideal because it allows each user access from remote areas with no regard for time constraints (Arkorful and Abaidoo, 2014). It makes it feasible for an instructor to send supportive material and examinations. There is no longer any obligation to have a minimum number of students for a class to be available, something that helps students who have set certain timetables for their selection of courses. It also has a chat forum where normally shy students can voice their opinions in a safe environment without the added stress of being scrutinised by the entire class, something that keeps many quiet.

This platform is also very useful for managing registration; students now have easy access into all their available courses and deadlines personalised to their academic pursuits. This has saved on plenty of secretarial traffic and lessened the frustration of this

process. At the level of the institute, it has become possible to diversify the number of programs offered because they are no longer being limited to the physical requirements of acquiring classes for these courses. Even though there are some majors and disciplines that cannot be taught exclusively through e-learning such as STEMS, but they can still benefit from general requirement courses that lessen the classroom requirement.

The spread of smartphones has exerted an important impact on the widespread e-learning because it negated the need for a desktop or laptop. Smartphones gained their success to the flourishing of social media especially among the youth of the world. What started off as a tool to access social media platforms developed into an indispensable tool that has taken on function so diverse, it stunned even its creators. Over two-thirds of the world are connected by mobile devices (Hollander, 2017). The people connected to mobile devices are less, but they are also projected to grow to the point they will make up 66% of all the communication worldwide in the year 2020. When discussing the user satisfaction with regards to a certain technology, it is calculated by the balance between the benefits they are reaping compared to the complexity associated with gaining these perceived benefits (Ramadiani et al., 2017). There is a direct correlation between the perceived usefulness and the willingness of the user to adopt that technology. When it comes to designing a smartphone-oriented e-learning platform, the dimensions should be taken into account to fit the limited screen of the mobile device. It should also contain a number of features that make it easier to navigate between pages. Increasing the video content is another feature that will impress mobile users who are often hesitant to read on a small screen.

This technology will be of aid in developing countries where students often cannot afford the luxury of advanced devices or incapable of traversing long distances to reach their institutes. E-learning has evolved from a humble trend into a full-fledged tool of education that has opened new avenues and possibilities for higher education.

## *2.2 Chapter 2: drawbacks of e-learning utilisation in higher education*

Even with all of its accolades, e-learning is not without momentous drawbacks that diminish from the learning experience of higher education. Some of the advantages that promote e-learning are also responsible for its drawbacks. It relies heavily on technology which is not much of a concern when the user has steady internet access as well as a positive attitude towards technology. However, older students and students in countries with poor internet access might look unfavourably upon being forced to rely heavily on technology (LeMotte, 2015).

The higher education years are instrumental in developing the character of young adults that typically live in a limited environmental until they reach higher education where they are introduced to a large variety of people. Motivation is another key component in determining the success of e-learning, and sadly most undergraduates seem to lack that ability (Bhuasiri et al., 2012). Students are likely to lack intrinsic and extrinsic motivation to commit to their studies because discipline is a quality that must be cultivated over time. After the restrictions of their school years, many undergraduates fluctuate in their focus on their studies because they are not yet competent enough in self-organisation. And this lack of direct communication also influences them in many other traits because they do not get to experience the interaction and develop their ethics and system of beliefs that cannot come to shape without proper interaction with their peers, instructors, and staff. Instructors are also being disadvantaged by relying too heavily on

e-learning. One of the advantages of e-learning is it negates the need for having a physical class, so now some institutes are overburdening their teaching staff with courses (Clover, 2017).

Instructors now have to rely mostly on objective assessment, it is not feasible for them to have the feedback needed from their interaction with students as it would have been in a traditional setting. In some extreme cases, these instructors are completely overburdened with correcting endless quizzes and assignments through which their input starts to become compromised. Synonymous to every tool available to mankind in this age to advancement, there will always be disadvantages associated with e-learning. Utilising it should always be accompanied with a modicum of caution to ensure optimal benefit.

### **3 Methodology**

We implemented the mixed methods approach which includes surveys, correlation studies, quasi- experiments, questionnaires, tests and interviews as Terrel (2016) says, in order to comprise, deduce, validate and verify the empirical study mentioned above.

The methodology will two-fold. The first approach is to compile comprehensive literature about the reality of e-learning in MENA and Lebanon to assess the existence and integration of e-learning into the curricula and operating systems of higher education institutes.

The second portion of the methodology has been centered on USEK's and AUT's experience in implementing e-learning on several electronic platform such as Microsoft teams, Zoom, Turnitin, Moodle and Power Campus for its students. It included a compilation of student's experiences and suggestions based on their personal trial. This is made possible by the fact that each student is required to submit his or her opinion about their current semester, and failing to do so would not qualify him or her to register later on. Students were given two different close ended surveys at two Lebanese Universities with different geographical and cultural background were given to four groups of students around 25 students each to validate the previous (See Appendix 1 and 2).

The two approaches will be meshed together to obtain an inkling for the current situation and the possible recommendations that can be made based on the literature as well as university and pragmatic implementation of the study.

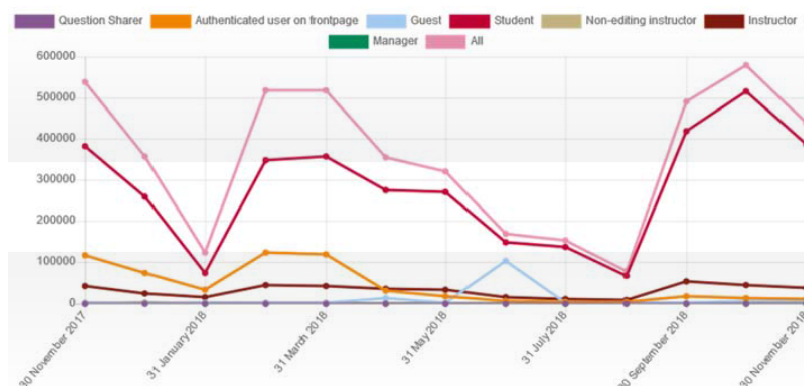
### **4 Results and analysis**

Based on the Moodle report at USEK, there seems to be 100% engagement of students in Moodle but the engagement's levels vary from just acquiring the course material (~30%) to fully engaged in learning and assessment activities on the platform (30% – the case of the online courses). In between, there is a category that benefits from blended learning (40%) where activities are developed for both face-to-face and online delivery. The level of engagement of students in this category is to be considered as average.

Figure 2 represents the variation of usage of the Moodle between November 2017 and November 2018 detailing the purpose of usage. There are peaks and slumps in the frequency of users, but that can be explained by having breaks between semesters and peak uses during submission times. Students make up the majority of users throughout

the year, and the slight difference between their numbers and the overall usage shows that they constitute the majority of the beneficiaries of the Moodle which in turn is a positive indication as it was primarily designed for them.

**Figure 2** Variation of Moodle usage purposes between November, 2017 and November 2018 (see online version for colours)



This also means that should any significant changes be performed within the structure or function of the Moodle, it must be done to appease the students that are the major benefactors among all those tested. Moreover, the remaining groups need to be encouraged to become more involved with the e-learning and Moodle systems. The faculties can supervise how the instructors design their courses, and therefore assign certain criteria that ensure more engagement. The same can be done when it comes to the staff and various faculty members.

Pertaining to the results of the reports of both questionnaires, E-learning is an integral part of the two universities which recognise the various advantages that can be reaped from an online platform. Similar to the majority of higher education institutes, the online aspect provides access to course material, registering for classes, assignment, and tests. Their Moodle, however, aims at broadening this horizon by fostering an inclusive community that encourages interactive learning instead of acting as passive recipients of knowledge. Students are granted control over their own academic decisions. They can map out their entire pedagogical career through the electronic platform and thus take charge of their own decisions instead of being under the mercy of external influences. Students can assess their progress in each individual course by taking part in the various activities catered to aiding them in participating in the learning process (see Appendix 1 and 2).

On top of the advantages that came out from the evaluations, we cannot deny the fact that more advantages in a variety of fields exist such as:

#### 4.1 Better results and more profit

It is extremely effective as students are scoring higher and the majority of organisation's profits have increased. It helps retain the information and the lecture faster and generates ease to whoever needs to repeat the explanation more than once (Gupta, 2017). Students and parents love it because it reduces the cost, especially in Lebanon where the



transportation fees are extremely high. Not to mention the accommodation that the students need when his basic residence is far from the Campus. The institutions, however, have saved a lot of money but in a different manner. Classes could be filled to the max due to the fact that students from different campuses can attend the same class. This means that they need not to open more classes and low enrolments would not exist anymore. Moreover, the gigantic usage of tissues, water and power is decreased to over 90% as some studies show (Barden, 2017).

#### *4.2 The learning is swift, easy and for everyone*

The learning process is swift as students could focus on the preferred parts of each lesson without covering all the points as some students would need less or more than others in every class. Lessons and activities usually start quickly and finishes in less time. Add to this, students do not need to waste half of their day on the road to attend their classes. Most say that the reduced timing falls somewhere between 25–60% of what is needed for a traditional on-campus class (Singh et al., 2020). Gautam et al. (2020) claimed that using interactive platforms could help update the content of the session, the materials and get extra activities in a click whether synchronous or unsynchronous. Students are able to attend the class at any time and as often as they need. This digital revolution is suited for everyone. Depending on their time and ease, learners can access the material whenever they feel like. Many attend classes on weekends or nightfall.

#### *4.3 Budget and environmentally friendly*

A lot could be added and said especially about the benefits to the environment from paper production and electricity to consumption of fuel and emission of gasses (Kaur and Gothwal, 2021). He says “it is a paperless method and it does not involve cutting down trees or creating paper-cellulose production factories that emit CO<sub>2</sub> and cause pollution” he adds that there is also a great deal less emission of gasses from cars and less electricity on university campuses. Most classes and labs would be empty then.

We do not to intend to overlook the disadvantage mentioned by many and the minority who did not plainly favour e-learning, in particular, amidst the students who took part in these questionnaires; however, because of the huge lump of advantages e-learning provides, compared to face to face classes, one cannot but take his hats off to e-learning without turning a blind eye on its downsides. For instance, the two universities are conscious of the challenges that associate with online learning, and most of the complaints revolve around the availability of internet access especially that Lebanon is renowned for having slow and botchy access to the World Wide Web.

These compromises live sessions and synchronous activities, so instructors are encouraged to provide asynchronous activities. Furthermore, these activities are carefully monitored to avoid any large files that also are also impeded by the slow internet speed. Students who are involved with e-learning also complain about the lack of the instructor’s physical presence, something that hinders their exchange of ideas and questions. Such cases are dealt with by arranging for meetings and fostering live sessions where all parties can communicate better.

Looking into the future, e-learning is a model that all universities will come to rely upon the foreseeable future. The live sessions are being looked into by allocating more face time between instructors and students. Recording sessions are now being conducted

through glass technology that was recently acquired and sharing the links on Moodle. The library is also diligent in developing and offering Open Educational Resources. The number of online courses is slowly being increased because those involved are conscious of striking the right balance between the convenience of e-learning and the importance of personal interaction and support.

## 5 Conclusion

E-learning is an important educational tool, and it serves as an ideal medium for higher education during these turbulent economic situations where the majority of students are forced to supplement their incomes by working while pursuing their degrees. It is efficient and allows for a degree of flexibility for instructors and students. Being a relatively recent invention, it is still untapped in terms of real potential and should also be carefully considered for any spots of weaknesses. It is vital that any further steps and innovations must be carefully weighed to reap all possible benefits.

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## Appendix

### AMERICAN UNIVERSITY OF TECHNOLOGY

#### FALL/SPRING 2021 SEMESTER STUDENT COURSE FEEDBACK

#### AGGREGATE OF THREE COURSES

NAME OF INSTRUCTOR: Najjar, Najib N. RESPONSES: 60

#### ONLINE COURSE MANAGEMENT

*How satisfied are you with your instructor's online presence and course management? (1 = Extremely Dissatisfied; 2 = Dissatisfied; 3 = Satisfied; 4 = Extremely Satisfied).*

**YOUR AVERAGE SCORE: 3.3**

#### E-LEARNING EVALUATION

<i>E-learning evaluation</i>	%	
	YES	NO
<i>Do you prefer online on campus learning</i>	67	33
<i>Is your instructor always online as per course class schedule?</i>	83	17
<i>Did your instructor clearly set the rules of online engagement and netiquette?</i>	100	
<i>Is your performance considerably high when studying online</i>	67	33
<i>Does your instructor record every synchronous session (as per class schedule)?</i>	100	

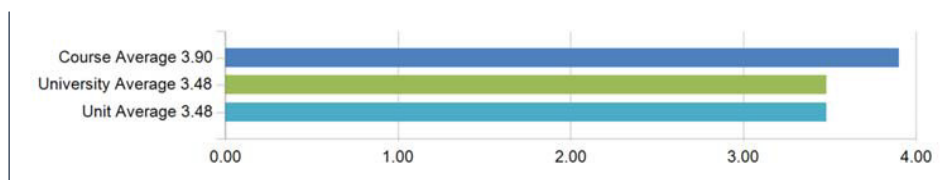
<i>NADN = No, as I did not need it</i>	<i>YES</i>	<i>NO</i>	<i>NADN</i>
Were instructions as clear as in a face-to face class	<b>81</b>	<b>19</b>	
Did you have more time to study and prepare than a face-to face	<b>100</b>		
Was your exposure to the material mentioned in the syllabus enough	<b>100</b>		
I consider the value of this type of e-learning is equal to a face-to face class version	<b>90</b>	<b>10</b>	

HOLY SPIRIT UNIVERSITY OF KASLIK

## E-LEARNING EVALUATION

### Evaluation of the Online Learning Experience

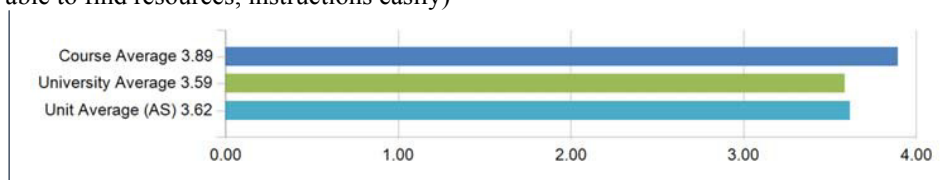
Overall



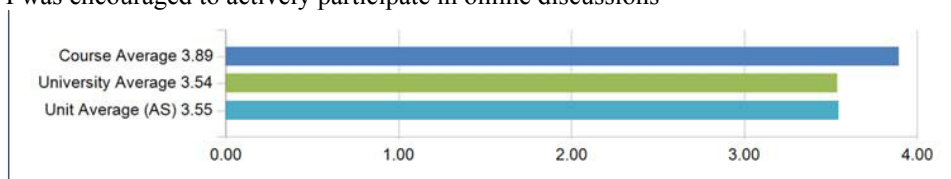
The online material contributed to my understanding of the course



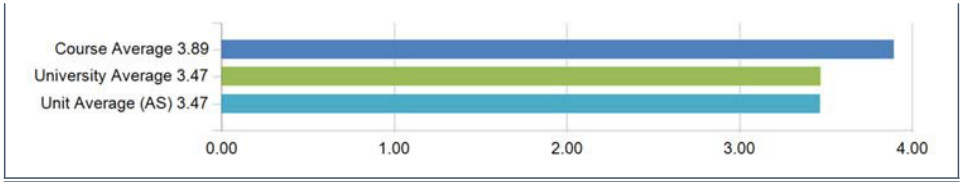
Instructions were clear, and navigation within the course environment was easy (being able to find resources, instructions easily)



I was encouraged to actively participate in online discussions



The technology used in this class allowed me to participate at least as fully as I would have done in a classroom-only class



My Performance is higher when studying online, at my own pace

