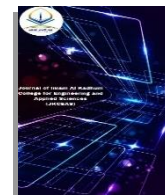***JOURNAL OF IMAM AL KADHUM COLLEGE FOR ENGINEERING***

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Harmonizing Some Solutions for E-learning and Online Learning: A Case Study of Imam Kadhum College

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Abstract

This paper presents descriptive information for E-Learning, its design, and development as well as the application, integration, and management as it relates to Imam Kadhum College. One of the most significant things E-Learning applications have done is remove distance as a barrier to learning. E-Learning applications in form of online or virtual classrooms have been embraced especially in environments that have the facility to accommodate them. However, recent trends have caused a lot of reputable institutions such as Imam Kadhum College to re-examine their respective model, the mode in which education is disseminated to their student population as Online Classrooms increased competition among institutions all over the world. This paper aims to examine E-Learning, the possible effects it already has on learning and future implications it might have on the way education is disseminated in a learning environment such as Imam Kadhum College. The sample size taken into consideration is the population of Imam Kadhum (a) College for Islamic Science, Iraq. A couple of E-Learning Systems and software online such as Edx.org will also be examined in this research and will be used as a reference system.

Keywords: E-Learning; Online Learning; Virtual College; Access Rights; Online Resources.

1. Introduction

In recent times, the number of students enrolling in Colleges and Universities worldwide has increased because people have realized the essence and importance of building corporate careers irrespective of their disciplines. In as much as individuals have realized that, the reality institutions are experiencing is that they can only cater to the populations in their immediate environment. Imam Kadhum College is a college located in Iraq and has over the years built its portfolio as a reputable institution. Its student population has grown also over the years and has become a center for research in its locality [1].

Due to the increase in student population and the fact that it has plans to engage international students shortly, this brought about the idea of integrating E-Learning Solutions and platforms into the already existing processes[2]. The concept of E-Learning integration was given birth to as well as integrating into to further create a chance for international students to experience their facilities and the quality of education it offers [3].

One of the advantages of E-Learning solutions is that it provides a general platform for students to access tutored online learning with a once-in-a-lifetime experience that connects students from different cultures, beliefs, backgrounds, and even regions.

E-Learning solutions have also given birth to self-paced learning which enables students to have first-class university education from the comfort of their room and at their own pace of learning, a practice that makes E-Learning a different experience from the conventional learning methods which is also been considered as part of the E-learning platform to be integrated. The problem statement is described in the integration of E-Learning Solutions, which is not the concern, but

harmonizing it for the targeted population might be a problem many institutions still find hard to climb with the Imam Kadhum Collage as a case study [4].

This research paper examines how E-Learning solutions can be harmonized to cater to Imam Kadhum College. This is further expressed in the objectives which are: to understand E-Learning and Online Learning solutions, and implementation, to understand the harmonization, and to also integrate E-Learning and Online Learning solutions into a standard working College such as Imam Kadhum Collage as a real-time case study.

2.   Definitions and Key Terms

To be able to understand E-Learning solutions, their respective architecture, and how they work, some key definitions and terms must be clearly understood. Five key definitions and terms are important for this research. These are [5][6]:

2.1 Distance Learning
Distance learning can be explained in different ways but the most appropriate definition is that "it is an institution-based type of formal education where an environment is created that further facilitates the connection of a learning group to their respective correspondence which could be learners, instructors as well as an available resource through communication system" (Alao and Lawal, 2016).

This means that a student and a tutor located in different geographical locations can be connected by a single platform to teach and learn. The communication system most times is always interactive.

2.2 E-Learning
Electronic Learning (E-Learning) is a form of learning that involves learning through the use of digital devices for both teachings as well as learning. It is a two-way communication. As described by Moore et al (2010) "E-learning is the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services, as well as remote exchange and collaboration".

E-learning is better explained, similar to distance learning but the difference is that E-learning requires multimedia technology and the internet while distance learning does not necessarily require that.

2.3 Online Learning
Online Learning is what is achieved from the implementation of E-Learning. SA (2015) described it by saying "Online Learning is eLearning with a mandatory involvement of a digital network which a learner needs to access at least part of the learning materials and services. Online learning refers to network-enabled teaching and learning that allows the learner to have increased interaction with content, teacher, and other learners".

This is also explained as a scenario where a student is engaged in online learning that involves interaction with a group as well as tutors assigned to a particular course. For this to take place, a network-enabled connection needs to be provided

2.4 Virtual College
A virtual College as described by SA (2015) "is higher education institution or network of higher education institutions responsible for design, development, and offer of courses and programs in a flexible and online environment". This means everything that comes with teaching and learning is done online including assessment and attendance.

2.5 Online Resource
Online resource as the name implies refers to resources that are found on the internet, which provides useful information for a study. Online resources can be in form of web pages or documents. Online resource cuts across different disciplines. This might include documents, audio, video, and graphic resources. The combination of these various forms of online educational materials forms online resources.

3. E-Learning main parts

The E-Learning architecture is simple but complicated to those who do not understand the basics, technologies involved, the flow of information, access rights, and the bedrock for its communication. The E-Learning architecture is divided into three main parts [7]:

3.1 Access Rights and Privileges
The access right and privileges described the amount of access each designated user has after logging into the system as an architecture. The system admin usually has exclusive access rights to be able to monitor and manage all system processes. The student has limited access rights which may include registration, login, access to courses being offered, related study materials and resource, assessment and assignments, course progress, assessment scores, Online forum and discussion, and timetable. Instructors, on the other hand, might have access right to be able to perform some of the following: upload study materials including, videos, documents, and presentations, upload assessments, upload student scores, and upload performance reports.

3.2 E-Learning Resources
Resources refer to the materials provided by the institution for the instructors and students to help execute their job to further complement the efforts of the students as well as the instructors. Resources provided by an institution to both students and instructors might include an Online library with thousands of related journals, E-books, conference papers, and educational magazines.

3.3 Communication
The communication part of the architecture enhances constant communication between instructors and their respective students. This might include different technologies that allow communication through text, email voice, and even video. This is to also facilitate communication between students offering the same course and instructors whenever they run into difficulties and need help. Communication might be in form of forums, video sessions, and emails.

4 Systems Architecture
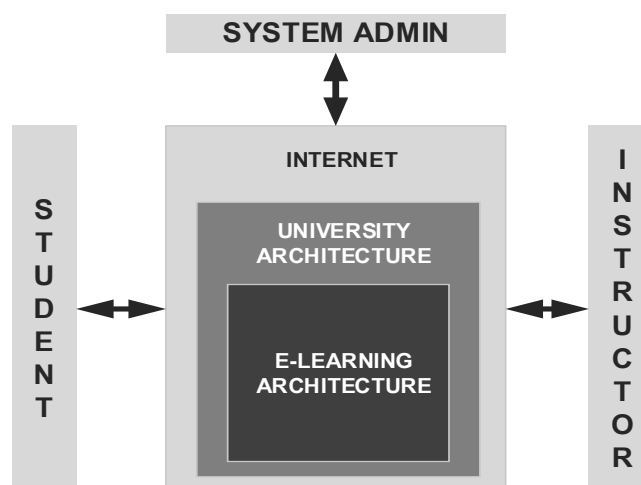System architecture can be described as in fig.1Architecture [t sections [8]:

Fig.1. System Architecture [8]

4.1 Internet
The internet is the bedrock for which the E-Learning architecture, which is embedded in the University architecture, functions. It provides a platform for which both architectures can functions as a system on their own with thousands of users worldwide.

4.2 University Architecture
The university architecture is that part of the whole structure that accommodates another integrated system into a single platform for them to function as a whole entity. These systems might include a fee management system, attendance system,

feedback system, and timetable management system. Other systems are embedded in it but come with the E-Learning architecture.

4.3 E-Learning Architecture

This part of the structure is the part that allows students to engage in learning using provided platforms like the E-Learning system. This also comes as an embedded system with integrated systems. This might include Assessment management system, Online Library, forum, and interaction management as well as a database management system that stores and manages all forms of data.as shown in fig.2.
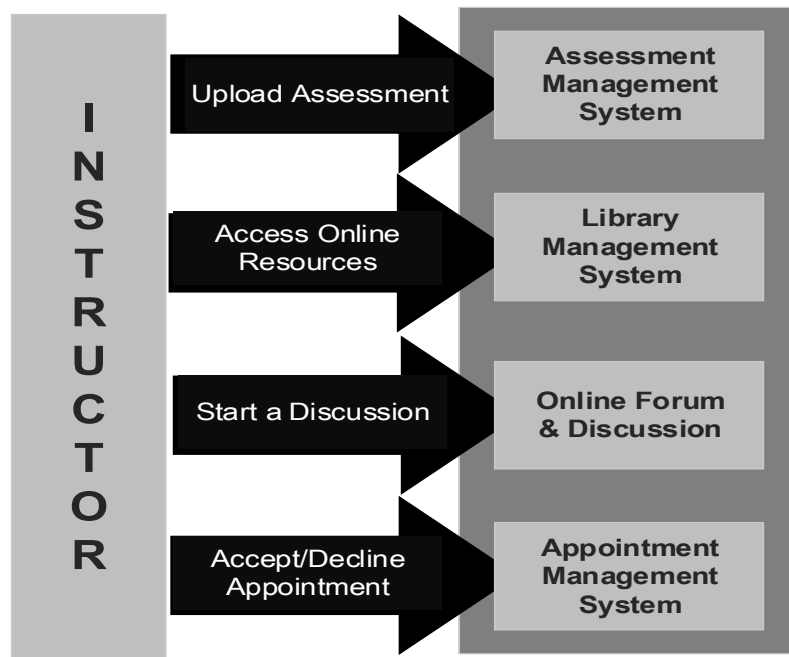

Fig. 2. E-Learning Architecture for Instructor [8]

4.4 Users

The users are the valid user who must have undergone one form of registration and has been given valid access right to some of the resources in the E-Learning system. Users can include, system admin, instructors, students as shown in fig.3, and managerial staff of the respective institution.
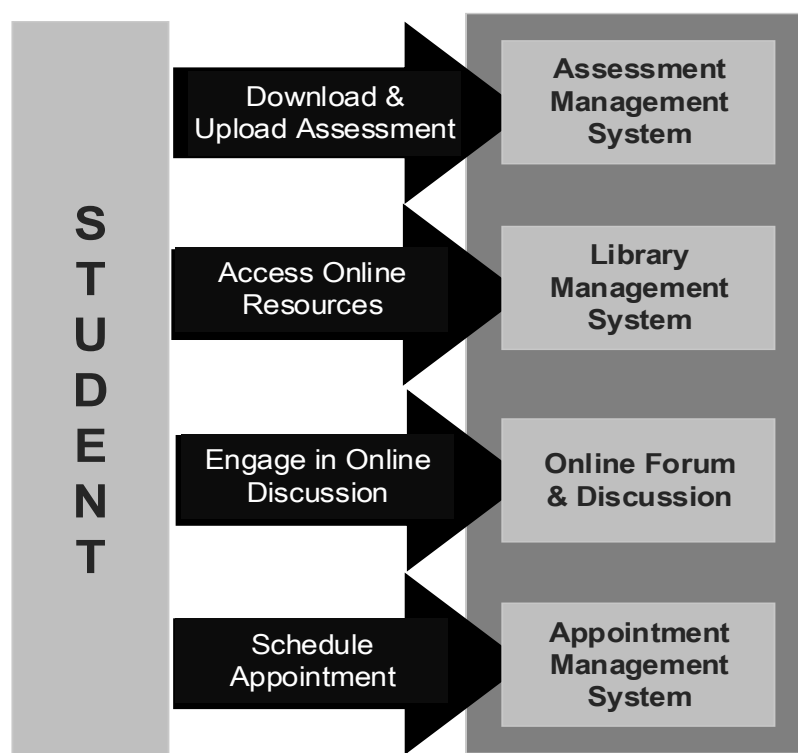
Fig 3. E-Learning Architecture for Student [8]

5. Benefits of Integrating E-Learning

There are numerous benefits to the use of E-Learning, especially in higher education such as the colleges and institutions of higher learning. some benefits though the benefits are not restricted to only the student's perspective but also the instructor's perspective[9][10].

A. Disability

The fact that E-Learning is achieved over the internet solves the issue of disability for both student and instructor where distance, travel expenses, and work commitment is no longer seen as a barrier.

B. Flexibility

It gives flexibility especially to working-class students to be able to cope with the workload and schedule as well as assessment.

C. Desired Route

It also allows people of different nationalities to be educated in a defined route that they desire and not necessarily, what is available to them in terms of distance.

D. Internationality

E-Learning implementation achieves internationality for both instructors and students as they both get to interact and exchange ideas with people from different nationalities, backgrounds, and beliefs.

E. Drive and Enjoyment

E-Learning implementation comes with different tools and forms of learning which include text, videos, animations, and pictures which makes it more enjoyable for the instructor to prepare the learning materials as well as for the student to learn using those materials.

F. Dedicated Teaching

With an E-Learning system implemented, students can have dedicated teaching from tutors from anywhere in the world especially if the E-Learning system has been implemented to integrate nationalities from all over the world.

G. Better Concentration
Online teaching enables instructors to concentrate better, unlike traditional teaching where environmental factors interrupt the lesson being delivered or even the flow of dissemination.

 I. Better Objectivity
This comes with instructors, the fact that the instructors communicate with students through email, makes them more objective especially when it comes to assessment.

6.   E-Learning Solution Case Study

To be able to implement E-Learning for the desired environment, there is a need to critically examine already existing E-Learning solutions to understand how they work and how they can be developed to match a specific population's needs [11]. For this research paper, an E-Learning solution named Edx.org would be used as a case study to benchmark the integration into Imam Kadhum Collage but first, there is a need to identify the categories
of E-Learning solutions. There are three main categories of E-Learning Solutions:

•   First Category: this is the category of an E-Learning solution is developed specifically for an institution in which only courses offered by the institution are also offered as online courses using the E-Learning solution as a reference point. A typical example of this is the Online Course offered by the University of Liverpool.

•   Second Category: This category of E-Learning System solution is developed specifically for a distinct and specified training in which students enroll for a distinct course and certifications can only be granted upon completion by the organization. A typical example of this is MCSE offered by Microsoft.

•   Third Category: This category of E-Learning system solution is designed as a general platform in which institutions from anywhere in the world can put up their online courses for students all over the world to enroll and take. Usually, this kind of setup comes as a part of the mainstream. A typical example of this is Edx.

Edx has been chosen to be a case study to understand the development, implementation, effect, and impact of E-Learning and Online solutions [12].

7.   Edx as a Case Study

Edx is an E-Learning and Online Learning platform founded and developed by Harvard University and MIT. It offers high-quality education and courses from the best universities in the world. It has more than 90 global partners. Its mission is reflected in three phases: increase access to high-quality education for everyone and everywhere, enhance teaching and learning on campus and online, and advance teaching and learning through research [13].
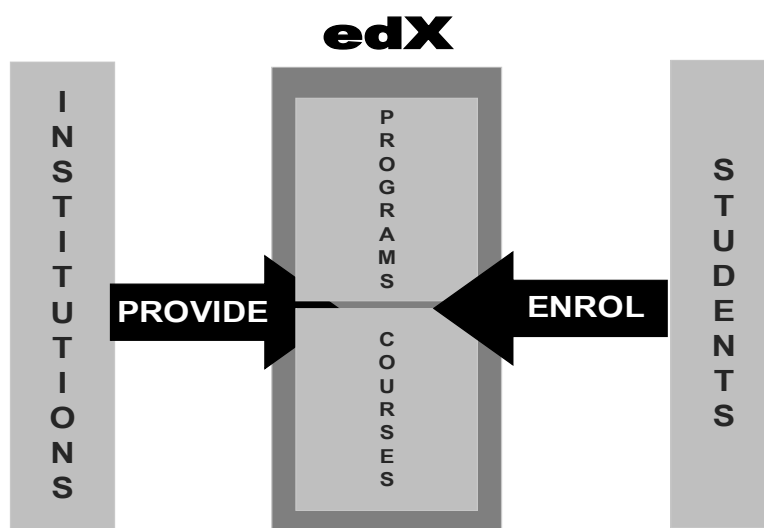
Fig.4. E-Learning Architecture for EdX [14]

Edx works in a very simple way: it connects prospective students to prospective colleges in two ways,see fig.4.

- A student can enroll in a course that is a part of a program and upon completion, the student will get a certificate. A typical example is a student enrolling for Web Design on Edx. Berkeley University of California provides the course. Upon completion, a certificate can be issued to the student [15].
- A student can enroll for a course that is a part of a program and upon completion, the student will have the option of getting a certificate for that particular course or using it as a prerequisite to enroll in other associated courses to complete a full program. A typical example is Essentials of Cybersecurity offered by the University of Washington. Essentials of Security is a 4-course program with entails 3 other more. Completing one will create a chance to complete the other three[16].

The   Effects of Edx Architecture are:

- Career-focused

Most of the courses and programs come with career outcomes and most of the courses are validated by top companies. One important thing is that the course has job relevance and one can start immediately after the course is finished

- Pathway to Credits

This is more relevant, especially in MicroMasters Programs, a MicroMasters credential is comparable to one-quarter of one's semester's worth which forms about 25% of a regular master's degree. Finishing that would enable one to apply for the full degree and use credit from MicroMasters.

- Faster

Programs and courses take a shorter time, on average of about 4 to 12 weeks. This becomes very useful in master's as it allows one to accelerate the route to full degree completion

- Flexible

Learning is flexible as courses and programs are offered multiple times. This means a student has the privilege to take a course or program at his/her pace which makes it very flexible. This becomes very handy, especially for working professionals who combine work and study.

- Affordable

Most courses and degrees are very cheap compared to when the full degree is taken on campus. The cost of a traditional Master's program can be daunting, with an average of about $8,000 to about $20,000. Micro Masters cost about $800 to $1700. This gives an affordable approach to master's level education [13].

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8. Integrating E-Learning Solution in Colleges (Imam Kadhum)

There is no doubt that the effect the E-Learning system solution has had on education cannot be overemphasized. It has succeeded in helping almost every category and age group to continue learning.

- Students looking at earning an international degree do not need to travel several miles before they earn a degree from their home.
- For graduates who want to advance their respective careers, there are thousands of short courses with certifications that can be done to enhance their qualifications.
- For working adults, it is made flexible so they can work and study at their own pace.

While the Effects on Integration E-Learning (Imam Kadhum) is :

- It will make learning easy and very flexible for the students as a lot of them can enroll in programs through E-Learning System

- Because learning has become flexible, more courses can be offered to their students

- The physical barrier of having students from their locality will have been removed which means students from different states and countries within the Arab region can enroll in courses offered by the school through E-Learning System.

9.   Methodology

The methodology gives a clear indication of how relevant data can be obtained as well as analyze it to further have an idea of what the implementation and integration of an E-Learning Platform might be for Imam Kadhum. Three different kinds of input are important in this case, which are:

- Student Input: this describes the input and feedback from the current active students of Imam Kadhum College about adopting, implementing, and integrating E-Learning Solutions as a tool to facilitate their learning experience
- Staff Input: this also describes input and feedback from the current active staff of Imam Kadhum College about adopting, implementing, and integrating E-Learning Solutions as a tool to facilitate their teaching experience

- Management Input: this also describes input and feedback from the current active students of Imam Kadhum College about adopting, implementing, and integrating E-Learning Solutions as a tool to further improve the teaching and learning experience of both tutors and students respectively.   The sample size is drawn from Imam Kadhum College as a representation of the total data size population. This is then followed by a stratified sampling technique in which relevant strata or subgroups are first obtained As stratified random sample is one in which the population is first divided into relevant strata or subgroups and then, using the simple random sample method, a sample is drawn from each stratum".

The following groups and subgroups can be obtained from the total population:
- Management:
  - Top Management
  - Junior Management
- Staff
  - Teaching Staff
  - Non-Teaching Staff
- Students
  - Foundation Students
  - Degree Students
  - Postgraduate Students

A random selection is further done to draw participants from each subgroup to represent the total population of the Imam Kadhum College and is finalized by surveying each subgroup to get feedback from each subgroup.

10. Conclusions

In conclusion, harmonizing solutions for e-learning and online learning is good as it allows colleges such as Imam Kadhum College to expand worldwide to be able to serve students all over the world. This depends on the number of courses and variety of programs. Integrating E Learning into their already existing platform and architecture, will enhance learning, enhance the quality of education and increase the college rating as an institution with up-to-date technology for improving learning. The integration of an E-learning solution such as Edx into a college like Imam Kadhum Collage will not only enhance learning but also improve the quality of education as well as the high flexibility it brings to its prospective students both locally and internally. A methodology is also developed as to how research data can be collected from the population sample, which is Imam Kadhum College.

References

1. Also. D, Lawal. A Information Technology Solutions for Online Teaching Learning and Evaluation, Journal of Multidisciplinary Engineering Science Studies (JMESS) Vol. 2 Issue 7, July – 2016.

2. Park, David Sejin. "Characterizing and evaluating student dropout through understanding student's journey in a MicroMasters program." PhD diss., Massachusetts Institute of Technology, 2022. Anne-Mette. N ,"E-Learning in Poly-Topic Settings", Electronic Journal of e-Learning Volume 12 Issue 2,2014.

3. Brigitte. H, Karim. T , , Powerful Practices in Digital Learning Processes, Electronic Journal of e-Learning Volume 13 Issue 4, 2015.

4. Al Rawashdeh, Alaa Zuhir, Enaam Youssef Mohammed, Asma Rebhi Al Arab, Mahmoud Alara, and Butheyna Al-Rawashdeh. "Advantages and disadvantages of using e-learning in university education: Analyzing students' perspectives." Electronic Journal of e-Learning 19, no. 3, 107-117, 2021.

5. Cindy. A Thomas. F, Terry. L , Applying Universal Design for Learning in Online Courses: Pedagogical and Practical Considerations. Journal of Educators Online-JEO July , Vol 13 Number 2, 2015.

6. Moore, Joi L., Camille Dickson-Deane, and Krista Galyen. "e-Learning, online learning, and distance learning environments: Are they the same?." The Internet and higher education 14, no. 2, 129-135, 2011.

7. Díaz Redondo, Rebeca P., Manuel Caeiro Rodríguez, Juan José López Escobar, and Ana Fernández Vilas. "Integrating micro-learning content in traditional e-learning platforms." Multimedia Tools and Applications 80, no. 2 , 3121-3151, 2021.

8. Koutsoupidou. T ,"Online Distance Learning and Music Training: Benefits, drawbacks, and challenges". 7th International Conference in Open & Distance Learning – November, 2013.

9. Bahri, Arsad, Irma Suryani Idris, and Muis Hasmunarti. "Blended learning integrated with innovative learning strategy to improve self-regulated learning." In Journal of Physics: Conference Series, vol. 14, no. 1, pp. 779-794. Faculty of Education, Eskisehir Osmangazi University, 2021.

10. Rachel. L ,6 Reasons to Start Learning Today on edX. Available at: https://blog.edx.org/6-reasons-to-start-learning-today-on-edx. Accessed on the 16th of February, 2018.

11. Murtaza, Mir, Yamna Ahmed, Jawwad Ahmed Shamsi, Fahad Sherwani, and Mariam Usman. "AI-based personalized e-learning systems: Issues, challenges, and solutions." IEEE Access ,2022.

12. Li, Yanlin. "Online Teaching of Higher Education in the Post-MOOC Era." In 2021 2nd International Conference on Computers, Information Processing and Advanced Education, pp. 198-201. 2021.

13. Despujol, Ignacio, Linda Castañeda, and Carlos Turró. "MOOCs as a massive learning resource for a Higher Education Community. The Universitat Politècnica de València experience using the EdX remote access program." Education and Information Technologies 1-22, 2022.

14. Raksamon. Y Teachers,' Perspective towards Digital Teaching Tools in Thai EFL Classrooms International Journal of Languages, Literature and Linguistics, Vol. 3, No. 2, June, 2017.

15. Aydemir, Mesut, E. Emre Özkeskin, and Ayşe Aydın Akkurt. "A theoretical framework on open and distance learning." Procedia-Social and Behavioral Sciences 174 M 1750-1757, 2019.

16. Decuypere, Mathias. "Open Education platforms: Theoretical ideas, digital operations and the figure of the open learner." European Educational Research Journal 18, no. 4 , 439-460, 2019.