

Evaluating AOU e-Learning Platform Based on Khan's Framework

Bayan Abu-Shawar

IT Department, Arab Open University, Jordan

b_shawar@aou.edu.jo

Abstract—The rapid growth of online world and the great evolution in digital technology open new horizons in different domains including education one. Blended learning and e-Learning approaches are new trends that are based on using computers as a medium to deliver and share educational materials which makes education available anytime, and anywhere. Khan suggested eight dimensional e-learning framework which serves as a base to help institutions to plan, design, implement and evaluate their e-learning programs. This paper discusses whether learning management systems at Arab Open University (AOU) meet the eight dimensional e-learning frameworks suggested by Badrul Khans. A detailed description of Khan's framework and the LMS used at Arab Open University are included in this paper. We claim that the AOU LMS is a good framework for e-learning based on these eight dimensions.

Keywords-e-Learning platform; Khan's framework; LMS; e-Learning; blended learning.

I. INTRODUCTION

The growth of Internet-based technology has brought new opportunities and methodologies to education and teaching represent in e-learning, online learning, distance learning, blended learning and open learning. These approaches are typically used in place of traditional methods and mean that students deliver their knowledge though the web rather than face-to-face tutoring.

E-learning is a new trend of education systems, which implies the "use of Internet technology for the creation, management, making available, security, selection and use of educational content to store information about those who learn and to monitor those who learn, and to make communication and cooperation possible." [1].

Kruse [2] addressed the benefits of e-learning for both parties: organization and learners. Advantages of organizers are reducing the cost in terms of money and time. The money cost is reduced by saving the instructor salaries, and meeting room rentals. The reduction of time spent away from the job by employees may be most positive shot. Learning time reduced as well, the retention is increased, and the contents are delivered consistently. On another hand, learners are able to find the materials online regardless of the time and the place; it reduces the stress for slow or quick learners and increases users' satisfaction; increases learners' confidence; and more encourages students' participations.

In order to make such e-learning or blended learning works effectively a well-designed framework is needed. Khan's [3] framework offers eight factors that help in planning, designing, and evaluating e-learning materials, e-

learning authoring tools, and e-learning platforms, such as Learning Management systems (LMS). The framework dimensions are: institutional, pedagogical, technological, interface design, evaluation, management, resource support, and ethical. Khan's framework aims to serve as a self-assessment instrument for institutions to evaluate their e-learning readiness or their opportunities for growth [4].

In this paper, the e-learning platform of the AOU is described in Section II. Khan's framework is presented in Section III. Section IV investigates AOU e-learning platform in terms of Khan's framework. A comparison between University of Jordan and AOU is discussed in Section V. Section VI presents conclusion.

II. THE E-LEARNING PLATFORM OF THE AOU

Arab Open University was established in 2002 in the Arabic region, and adopted the open learning approach. An open learning system is defined as "a program offering access to individuals without the traditional constraints related to location, timetabling, entry qualifications." [5].

The aim of AOU is to attract large number of students who cannot attend traditional universities because of work, age, financial reasons and other circumstances. The "open" terminology in this context means the freedom from many restrictions or constraints imposed by regular higher education institutions which include the time, space and content delivery methods.

Freed et al. [6] claimed that the "interaction between instructors and students and students to students remained as the biggest barrier to the success of educational media". The amount of interaction plays a great role in course effectiveness [7]. For this purpose and to reduce the gap between distance learning and regular learning, the AOU requires student to attend weekly tutorials. Some may argue that it is not open in this sense; however, the amount of attendance is relatively low in comparison with regular institutions. For example, 3 hours modules which require 48 hours attendance in regular universities, is reduced to 12 hours attendance in the AOU.

In order to give a better service to students and tutor, to facilitate accessing the required material from anywhere, and to facilitate the communication between them, an e-learning platform is needed. A learning platform "is software or a combination of software that sits on or is accessible from a network, which supports teaching and learning for practitioners and learners." [18]. A learning platform is considered as a common interface to store and access the prepared materials; to build and deliver learning activities such quizzes and home-works; support distance learning and

provide a set of communication possibilities such as timetables, videos, etc.

AOU has partnerships with the United Kingdom Open University (UKOU) [19] and according to that at the beginning the AOU used the FirstClass system as a Computer Mediated Communication (CMC) tool to achieve a good quality of interaction. The FirstClass tool provides emails, chat, newsgroups and conferences as possible mediums of communication between tutors, tutors and their students, and finally between students themselves. The most important reason behind using FirstClass was the tutor Marked Assignment (TMA) handling services it provided. However, the main servers are located in the UKOU which influences the control process, causes delays, and totally depends on the support in UKOU for batch feeds to the FirstClass system [8].

To overcome these problems, AOU uses Moodle [17] as an electronic platform. Moodle is an open-source Course Management System (CMS) used by educational institutes, business, and even individual instructors to add web technology to their courses. A course management system is "often internet-based, software allowing instructors to manage materials distribution, assignments, communications and other aspects of instructions for their courses." [9] CMS's, which are also known as Learning Management Systems (LMS) or Virtual Learning Environments (VLE), are web applications, meaning they run on a server and are accessed by using a web browser. Both students and tutors can access the system from anywhere with an Internet connection.

The Moodle community has been critical in the success of the system. With so many global users, there is always someone who can answer a question or give advice. At the same time, the Moodle developers and users work together to ensure quality, add new modules and features, and suggest new ideas for development [10][11]. Moodle also stacks up well against the feature sets of the major commercial systems, e.g., Blackboard and WebCT [12]. Moodle provides many learning tools and activities such as forums, chats, quizzes, surveys, gather and review assignments, and recording grades.

Moodle was used in AOU mainly to design a well formed learning management system which facilitates the interaction among all parties in the teaching process, students and tutors, and more over to integrate the LMS with the Student Information System (SIS).

In addition that Moodle is easy to learn and use, and that it is popular with large user community and development bodies. Moodle is flexible in terms of:

- Multi-language interface,
- Customization (site, profiles),
- Separate group features, and pedagogy.

III. KHAN'S E-LEARNING FRAMEWORK

Khan [3] suggested eight factors of e-learning framework that provides a structure to help institutions reviewing e-learning initiatives and programs to achieve the desired learning outcomes. Each dimension represents "a category of issues that need to be considered in order to create successful e-learning experiences" [4]. The question: "What does it take to provide the best and most meaningful open, flexible, and distributed learning environments for learners worldwide?" [4] originates the idea of Khan's framework. The framework aims to guide planning, designing, and implementing online programs and materials. Figure 1 shows the eight dimensional e-learning framework which are listed below:

- Pedagogical dimension, which mainly concerns of issues related to teaching and learning such as course contents, how to design it, how to offer it to target audience and how the learning outcomes will be achieved.
- Technological dimension examines issues related to hardware, software and infrastructure. E-learning environment, LMS, server capacity, bandwidth, security and backup are also covered in this dimension.
- Interface design dimension concerns the overall look and feel of an e-learning program. Interface design encompasses web and content design, navigation, web accessibility, and usability testing.
- Evaluation dimension addresses the evaluation of e-learning at institutional level, evaluation learning assessments.
- Management dimension refers to the maintenance and modification of the learning environment, it also addresses issues related to quality control, staffing and scheduling.
- Resource support dimension related to all technical and human resources support to create meaningful online environment which includes web-based, digital libraries, journals, and online tutorials.
- Ethical dimension considers issues related to social and political influence, diversity, and legal issues such as plagiarism, and copy rights.
- Institutional dimension includes three sub dimensions: issues of administrative affairs related to financial aid, registration, payment, graduation and grades; issues of academic affairs related to accreditation policy, faculty and support staff, and class size; issues of student services related to e-learning which covers everything from counseling and library support to book store, internships, and alumni affairs.



Figure 1. Khan's framework [4]

IV. IMPLEMENTING KHAN'S FRAMEWORK AT AOU E-LEARNING PLATFORM

AOU adopted the blended learning approach, which is a hybrid of both face to face tutoring and online learning. So, students attend face to face tutorials once a week for each course; at the same time all learning materials are provided online for students.

Moodle was used in AOU to design a well formed e-learning platform and learning management system (LMS). To guarantee security issue, upon launching the LMS site, a unified webpage, as shown in Figure 2, is used, where users are asked for their authentication. LMS users are classified into six categories according to their authorities: administrator, creator, an editing-tutor, non-editing tutor, student, and guest where each one has different roles as listed below:

- Administrator can create courses, course sections, and create course module blocks and can create new user names for new tutors and students. Admin can add discussion forums, add chat rooms, messaging system, add announcement, add any offline or online activities for any course,
- *Creator* has responsibilities according to course level such as: creating course sections, adding students to their sections, assigning tutors to their sections, and adding module blocks and references.
- Editing-tutor can do all creation activities related to the course level that he is assigned to such as adding: lecture notes, references, assignments, online quizzes, etc.
- Non-Editing tutor can use web site as it without any privilege to create new activities. However, he is able to insert grades for assignment quizzes, giving feedback to students, share in the discussion forums, etc.
- A student can use the course website to download files and assignment, re submit assignment after

solving, do online quizzes, fill online questionnaire related to course and another one to evaluate tutor. Moreover, the student plays the major role in discussion forums with other students and with his/her tutor.

- A guest can observe the activities going on the site depending on his level as course level or category level but he could not do any interaction

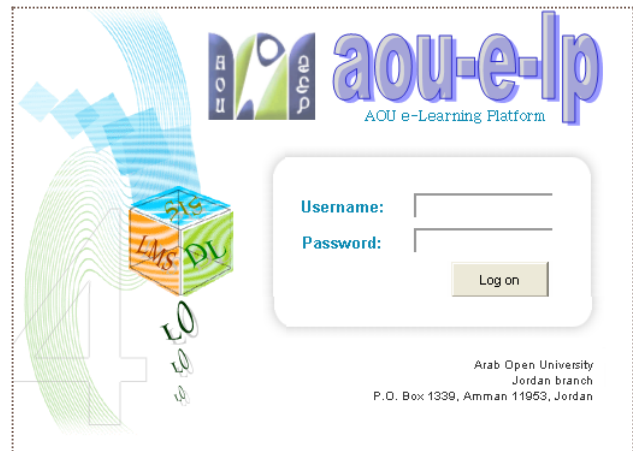


Figure 2. AOU e-learning platform starting page

The infrastructure of LMS is composed mainly of authoring tool, and activities tool. Publishing learning materials by adding text, creating files, or any content management is achieved by authoring tool. Communication medium is achieved via activities tool that provides ability to create chat rooms, discussion forums, messaging system, online quizzes, and grading. Each website of a module provides online chatting between student and tutor, different forums that enables students to communicate with each other and with their tutor sharing their ideas, problems and solutions. According to LMS infrastructure, and security issues the technological dimension is guaranteed.

After authentications, another webpage is appeared that it shows a list of modules students register on, or the tutor is teaching, the user can select the module he/she wants where another module website is presented. The module website is designed to enable learners to study it online, where learning outcomes of each module, and each unit is identified. The website of module is divided into weeks according to module calendar, where each week has its lecture notes, or slides, in addition to video lectures that is offered for students. Based on that the pedagogical dimension is considered where in addition to face-to face tutoring, online tutoring is also available any time.

Ethical dimension is achieved based on the fact that all students have the same rights and etiquette regardless of gender, age or disabilities. In terms of assignments, and exams there are strict rules applied in case of plagiarism. AOU staff has also the same rights, and duties.

In addition to online material, AOU has an agreement with EPESCO, IEEE, Enrolled and other digital libraries so

AOU staff and students can access this digital library with its journals, and publications. According to this, the support report dimension is also guaranteed.

In general, the interface of LMS has attraction look and feels appearance in terms of colors, standardization, standardization, and organizations per module. This interface is easy to use and user friendly, it needs only an hour lecturing to teach new students how to use it. Based on this, the Khan's interface design dimension is applied at AOU e-learning platform.

In terms of evaluation dimension, AOU evaluates each module and each tutor through online questionnaires. Face-to-face monitoring is also applied to evaluate monitoring is also applied to evaluate tutor teaching strategy; based on results of this evaluation, modifications and developments are taken in both dimension tutors and modules. Moreover, the management dimension is taking into account modifications and updating in all program levels including LMS platform. For example, a lot of inner house enhancements were applied on LMS, such as integrate the LMS with the SIS and the Human Resource System (HRS). In addition, to release students from being restricted to textual learning contents only, learning materials are provided as: textual lecture notes, video lectures by registering lectures using MS-Producer, and animation presentation through PowerPoint application.

Finally, in respect to institutional dimension, we need to elaborate the three sub-dimensions applied at AOU as follows:

- *Issues of administrative affairs:* AOU have specific fees related to faculties and registration; it provides financial aid for students and also has regulation to fund excellent students. At the same time, AOU has different sources of financial aid from Higher Ministry of Education and head quarter in Kuwait to fund research and projects issues. AOU follows a standard scale for full time employee salary and the part timer.
- *Issues of academic affair:* AOU follows the regulations and standards of Higher Ministry of Education in terms of graduation and grading system. Since AOU has a partnership with Open University (OU) in United Kingdome, the accreditation policy of OU is applied at AOU where accreditation is conducted with OU team every four years, to discuss any required changes in curriculum based on market needs. For teaching purposes, most class rooms are equipped with data show that is connected to computer; also the class size ranged from 25 to 30 students.
- *Issues of student services:* A lot of services are provided to students in AOU such as: connecting to the SIS to do online registration, obtaining their grades, perform learning activities through the LMS, such as submitting assignments, do online quizzes, and retrieve resources through AOU digital library subscriptions. There is a book store to provide students with their required books, and establishing

the student affair department to solve student problems, to encourage them practicing their hobbies, and establishing graduation alumni. AOU offers internship for the tutors to get PhD degree from UK universities under certain regulations.

From the above description, we can figure out that AOU e-learning platform applied Khan's eight dimensional e-learning framework in a digitization way. All services provided by AOU for students or staff are part of LMS, which facilitate online accessing via e-Learning platform.

V. COMPARING E-LEARNING PLATFORMS BETWEEN AOU AND UNIVERSITY OF JORDAN

University of Jordan (JU) is both a modern as well as old institution of Higher Education in Jordan. Established in 1962, the University has, since then, applied itself to the advancement of knowledge no less than to its dissemination [13].

E-learning came to assist accomplishing the educational system in JU. In order to give a better service to students and tutors, to facilitate accessing the required material from anywhere, and to facilitate the communication between them, an e-learning platform is needed.

JU is using Blackboard as an electronic platform. Blackboard is a web-based system that supports and manages various aspects of learning and teaching. Blackboard provides many learning tools and activities such as course announcements, course documents, self-assessment quizzes and online testing, discussion forums, surveys, electronic assignment submissions, and links to external Web pages.

Blackboard has been used in JU mainly to design a well formed virtual learning environment which facilitates the interaction among all parties in the teaching process, students and tutors. Moreover, in addition to being easy to use and learn, Blackboard is a multi-language platform - since JU is using both Arabic and English in its computerized systems, and can be customized (site, profiles).

JU Blackboard system was designed as a modification to the existing system; it was developed by students as a graduation project [14]. The following summarizes the benefits of using the blackboard system in JU:

- Providing a web-based system for students and staff in order to have a direct effective communication channel.
- Giving students valuable information to complete their learning process through course outlines, notes, assignments, quizzes, etc.
- Facilitating learning activities by providing students with valuable channels of communication such as discussion boards with staff, even with students themselves.
- Enhancing the utilization of existing learning tools and making them more attractive for students and staff.

- Giving staff more depth and control over their accounts.
- In addition to blackboard features, the enhanced system will add new features such as discussion boards, emails service, playing media files, etc.
- Enhancing knowledge sharing, and building relationships with the students themselves.
- Ensuring that students are timely updated with information regarding courses and other valuable announcements.
- JU and AOU developed various systems, including the e-learning system, the Student Information System (SIS), and the Human Resource System (HRS). However, JU had the advantage of providing more useful tools for university staff and students, including the registration using SMS system, the e-library system, and the automated exams system.
- On the other hand, although the JU systems have one integrated data base, these systems are separated in the interface, where users of AOU can access most of its systems using a unified interface. JU used Blackboard in its e-learning system, while AOU used Moodle. Moodle is an open source CMS used by educational institutes, business, and even individual instructors to add web technology to their courses. More details about this system and the differences between Blackboard and Moodle can be found in [15][16][17].

VI. CONCLUSION

The e-learning becomes widely used as a way of teaching in the education community. The need for learning management systems to deliver the courses online becomes a significant issue. Khan's e-learning framework served as an instrument to guide institutions to plan, design, implement and evaluate their e-learning programs. In this paper we present Khan's framework, AOU blended learning approach, and we conducted that AOU e-learning platform implemented Khan's eight dimensional e-learning framework: pedagogical, technological information, interface, ethics, management, report support, evaluation and institution dimension. A comparison between the e-learning platform in JU and AOU was discussed.

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