



Embedded e-Learning Technique Evaluation in Jordan

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ABSTRACT :

This paper presents the instructors' perspective of the embedded e-learning at Al-Hussein Bin Talal University (AHU). This e-learning experience, which started in September 2005, has been based on two main parts ; - the electronic classroom arrangement and equipment, and the classroom online provided at the homepage of the AHU website. A complete description of these two parts, together with a questionnaire-based primary assessment of this approach of embedded e-learning is presented.

1. INTRODUCTION :

E-learning has been around for ten years or so. During that time, it has emerged from being a radical idea, the effectiveness of which was yet to be proven, to something that is widely regarded as mainstream. It is the core to numerous business plans and a service offered by most colleges and universities. And now, e-learning is evolving with the World Wide Web as a whole. As technology-enabled e-learning begins to meet wide adoption at universities, questions about the quality and effectiveness of these technologies and content are an increasing area of argue (Fathi & Al-Shabi, 2005). Much of this argue takes place within the broader framework of assessing the value of various information technology investments, in which these technologies are of potential investment. Given the relatively early stage of e-learning adoption at many universities, the wide variety of technologies that support e-learning, and the challenges of knitting these technologies together and integrating them with broader enterprise applications, demonstrating the value of e-learning is critical to ensuring continued support (Maguire, 2004 ; Naidu, 2004).

Feedback is a vital part of e-learning, thus the objective of this paper is to evaluate the experience of embedded e-learning at AHU after one year. AHU was established in 1999 on a campus that was once a branch of Mu'tah University and relocated to the new campus, 9 km west of Ma'an City, in October 2004. It is the eighth of ten state universities in Jordan. The master plan of the new campus has adopted the international construction measures and was awarded an ISO accreditation, which made the construction code of the new university campus buildings meet the code of the international accreditation of the universities buildings.

2. METHODS :

Embedded e-learning at AHU was implemented in September 2005 and discussed in details in Al-Shalabi & Al-Jufout (2005 ; 2006). It is composed of two main parts ; - the electronic classroom, and the classroom online.

The electronic classroom at AHU, designed by the Faculty of Computer Engineering and Information Technology (CE & IT). This classroom is equipped with

personal computers (PC), data show, magnetic card readers, e-beam technology, and internet service access. The e-beam technology is a small compact device, which is connected to the PC via USB or by wireless technology. It can be placed in any corner of the white board. It comes with four colored pen jackets and an electronic board rubber, and has an accuracy of picking up lines / movements of 1mm (manufacturers' statement) (e-beam, 2004). The device can be used in any one of three modes :-

- Capturing writing/drawing on a whiteboard.
- Turning any whiteboard into an interactive whiteboard allowing the user to run and use applications from the board.
- Annotation of projected images from the PC. For example drawing around key points on a webpage or key icons in an application and capturing the image for use in a variety of formats.

The accuracy of picking up writing on the board is excellent and issues such as the angle one holds a pen are not a problem. The ability to export the images when used as a whiteboard capture device or annotation of PC output in a variety of forms (JPEG, BMP or straight into PowerPoint show) or series of web pages complete with viewer that allows them to be viewed across the web.

A magnetic card reader is used to read the students' ID and to record the number and names of the students available at the lecture. This reader saves the lecturer's time, thus the lecturer has no need to check the students available. Once the first student passes his ID, the software compares the student's schedule with the schedule of the classroom and if they match the classroom's door opens automatically by an electrical signal controlled by the PC.

The data show, which is suspended from the classroom's ceiling, is used for presentation software, electronic data or websites via the internet service available in the classroom. According to the Jordanian market, the overall estimated cost of the

necessary equipment of the electronic classroom is about 4000 US \$.

The saved data by the e-beam in files on the PC can be uploaded on the special webpage of the AHU electronic classroom online. The homepage of AHU website is provided with "classroom online" icon (Al-Hussein Bin Talal University, 2007). By clicking on the this icon the main window of AHU classroom online appears, where the seven AHU faculties are listed at the right side of the page, while the user's (lecturer's) username and password are on the left side. The username and password are provided by the site administrator in the AHU Computer and Information Technology Center. Here the lecturer can login to edit the data of all his courses and upload new files.

In September 2005, CE&IT equipped five classrooms and held a workshop for the faculty members to introduce this system of embedded e-learning to the faculty members (see FIGURE 1).



FIGURE 1 : . Workshop on embedded e-learning at AHU

The software that we used in this embedded e-learning at AHU is powered by Claroline (Claroline, 2007). It is a free online collaborative learning platform translated into 31 languages. Today, it allows more than 500 organizations in 68 countries to create and manage courses through the web. Under Open Source license, the Claroline platform can be freely used.

3. RESULTS :

The practical part of this paper includes developing a questionnaire to evaluate the experience of embedded e-learning at AHU; this questionnaire targeted the instructors, who are part of this e-learning experience since September 2005. They are 14 instructors, 11 of them answered the questionnaire, where the results are as follows ;

- 90% believe that the university administration is right in applying embedded e-learning, while 10% believe that it is costly and of no need.
- 64% state that this experience is beneficial for them as instructors and help them in many ways, for example: it saves their time, allows enriching the classes with more teaching techniques and examples, and encourage them to develop their courses through applying new technology.
- Regarding obstacles, 81% of them state that they faced some obstacles when they first applied this kind of teaching technique, like: how to run the system, extra time required for preparing lectures and the need for a classroom technician around during the lectures.
- 27% of them believe that embedded e-learning is not suitable for some certain courses, mathematics for example.
- All of them state that they are willing to apply it to other courses they teach.
- 91% of them recommend embedded e-learning for other instructors.

On the other hand, the instructors' evaluation for their students' performance during this experience is as follows ;

- 73% of them notice positive reactions from their students toward embedded e-learning.
- 45% of them faced some resistance from their students at the beginning phase of applying embedded e-learning.
- 64% notice that the students' marks are improving.
- 82% notice that the students' interaction in the classes is increasing.

And finally, the instructors were asked to evaluate their overall experience on a measure from 1 to 5, where the average result is 3.91. Obviously, the conclusion of the experience of embedded e-learning at AHU is positive and promising, which makes this kind of teaching recommended, and hopefully the courses base may increase for the coming academic year.

The software provides statistics of each course as shown in FIGURE 2, where the total number of users and downloads, users in the last month and users in the last week are shown. FIGURE 3 shows the traffic details of the course materials. These statistics will be monthly recorded, for each course, starting from the spring semester of the academic year 2006/2007 to show the daily traffic details for the consequent 12 months. These records will be used for the next step of evaluation of the embedded e-learning experience at AHU.

4. CONCLUSIONS :

The experience of embedded e-learning implemented at AHU is described. The primary questionnaire-based assessment after one year of this experience shows that the benefits of AHU experience in embedded e-learning, which is composed of the electronic classroom and the classroom online can be summarized by the following remarks ;

- It does not omit the interaction between the lecturers and the students.
- It saves the lecture's time, which can be used for more explanation and examples.
- The use of modern technology in the electronic classroom allows presentation of figures and animations that cannot be simply drawn on the board or explained by the lecturer.
- It positively affects the average marks of the students and their interaction.
- It embeds two categories of e-learning: learning in a classroom and online.

A positive and promising rank of 78% is given to this experience by the instructors at CE&IT.

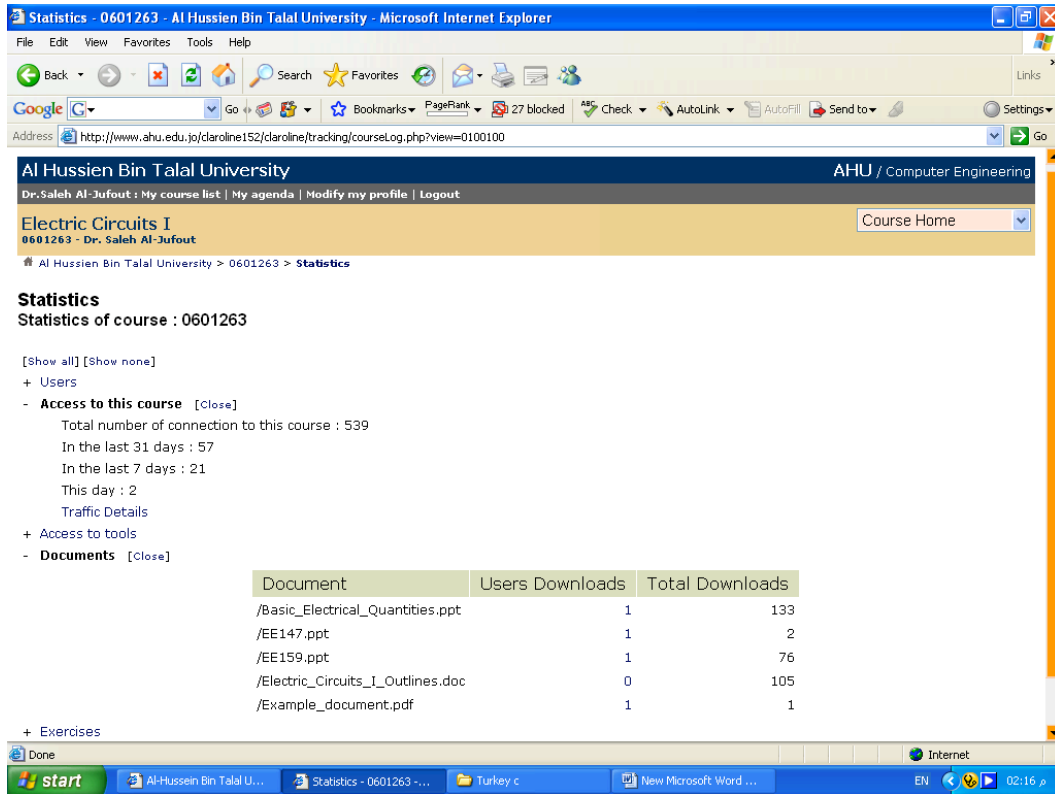


FIGURE 2 : Traffic details of our Electric Circuits II course

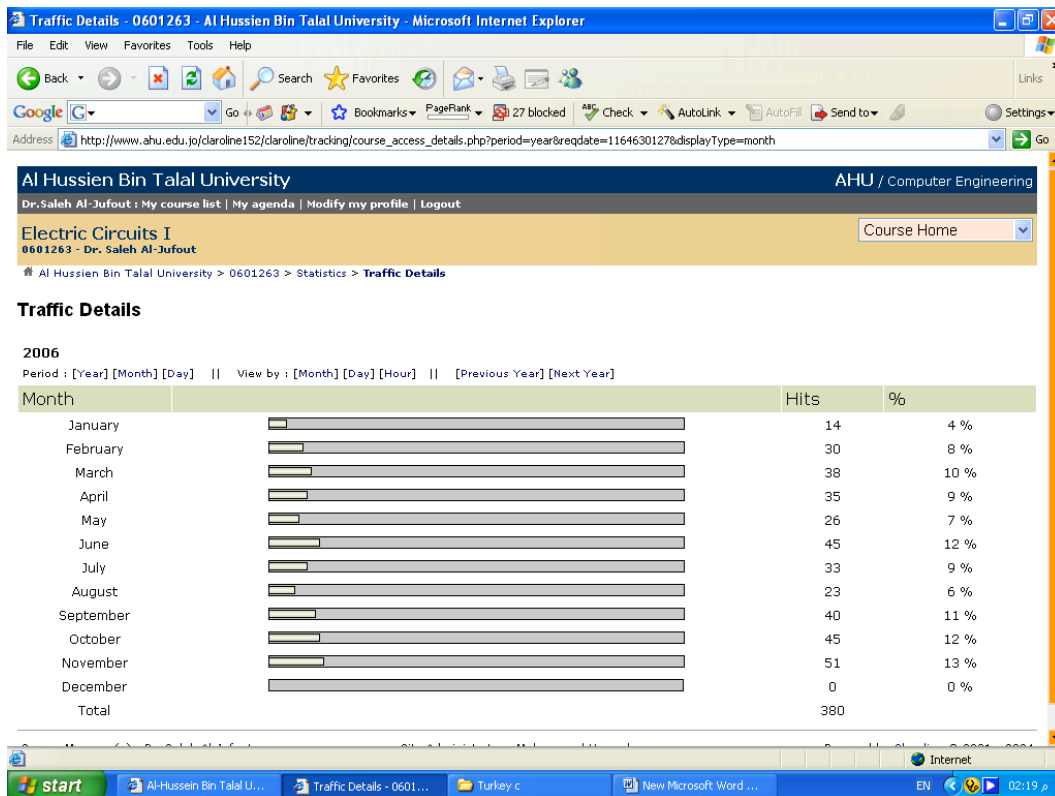


FIGURE 3 : Traffic details of our Electric Circuits II course

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