e-Learning at Al-Quds Open University
Current Situation: A Case Study

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Abstract

In response to an international evaluation in 2007, Al-Quds Open University (QOU) has implemented e-learning from the first semester 2008/2009 (ID:1081) and has achieved significant growth in this task. It has implemented various blended learning models using learning management system (Moodle), video streaming technology, and virtual class technology (Elluminate Live). In the first semester 2009/2010 (ID:1091), QOU announced three educational regions as electronic regions, in which 30% of its curricula is offered in blended learning (half of classes are face-to-face, and half are virtual via internet). In the previous four semesters, QOU implemented more than 150 courses in various models of blended learning using the above technologies.

This new trend required the university to redesign some of its courses as well as training its academic staff to enable them develop the courses suitable for delivery in a blended environment. However, some obstacles and difficulties have been encountered in many respects, such as faculties readiness, ICT infrastructure weaknesses, and lack of technical support. Moreover, an important obstacle was the resistance to change in some educational methodologies at the University. This research aims at investigating the current situation to measure the extent to which the obstacles and difficulties described above affect the process. Also, it investigates the efficiency of the training courses conducted for academic and administrative staff, and how they improved their performance in implementing e-learning. Finally, the results will be used by the university to improve the process and find solutions for the encountered obstacles and difficulties.

Introduction

Al-Quds Open University (QOU), which implements open education, has been established in 1990. It currently consists of 22 study centers distributed in Palestine that count together around 63000 students. QOU administration has started applying e-learning in the first term (1081) in the academic year 2008/2009 and has made a good point in this area. It also applied multiple models of e-learning in experimental stage, and launched three study centers as e-centers to carry out this experiment. It can be stated that this experiment has worked well, where more than 150 courses have been taught in one or more of the various models of e-learning through the terms (1081, 1082, 1083, 1091). However, it has encountered some obstacles and difficulties in many respects, such as readiness of staff, ICT infrastructure, and technical support what the experiment required to change in some educational methodologies at the university.

Current status of e-learning can be summarized by applying four educational models. These are based on five electronic technologies and platforms available at QOU to serve blended learning, which are:

1. Elluminate Live!: Virtual Class (VC).

2. MOODLE: Learning Management System (LMS).

3. OLAT: Content Management System (CMS).

4. Video Streaming (VS).

5. QOU's Web-Based Academic Portal (AP).

The educational models that utilize these technologies are:

- **e-Assignments Model:** Blended courses in which half of the meetings (lectures) are face-to-face (f2f) and half are virtual. They are designed on Moodle, which includes course plan and some useful links ? the VC link that connects students to Elluminate platform, links to recorded VCs, and PowerPoint slides summarizing each unit. Finally, two e-assignments, of 5 points each, are auto-checked and manually entered into the academic portal. The remaining 90 points are distributed on the mid-term and final examinations, which are conducted in classrooms.

- **e-Activities Model:** Courses similar to those offered in the previous model where half of the meetings are f2f and half are virtual. But here the e-assignments are replaced with online activities (discussion forums and quizzes) carrying 25 points that are manually checked and entered into the academic portal. The rest (75 points) are distributed on the mid-term and final examinations, which are conducted in classrooms.

- **Video Streaming Model:** For fundamental courses, in which a large number of students are registered, online video lectures are streamed from QOU's studio by a course coordinator who is responsible for preparation and introduction of lectures. The coordinator also prepares the assignments, mid-term and final examinations. F2f meetings are halved and conducted by assistants in classrooms. Finally, the weights are 10 points for assignments and 90 for examinations.

- **e-Course Template Model:** This is similar to the VS model except two differences:

  1. The VS lectures are replaced with online contents (examples, video clips, summaries, and assignments) designed with LECTORA authoring tool, and hosted on OLAT CMS.

  2. The semi-electronic assignment in which students copy questions to MS Word, answer them, and send assignments as attachments through the AP to their supervisor, who downloads, corrects them, and enters their points manually.

Main Objectives

- Contribute to the diagnosis of the current status of e-learning at QOU (to highlight the obstacles and challenges).

- Check the effectiveness of training programs implemented at QOU for faculties, and the extent to which these programs achieve their objectives in preparing them for applying e-learning.

- Make recommendations to QOU decision makers who may depend on these recommendations in developing blended learning models and e-learning technologies.

Main Questions

The study seeks for answers to five main questions:

1. Is the ICT infrastructure at QOU able to support e-services for the growing number of students enrolled in blended courses?

2. What is the current status of e-learning technologies at QOU?

3. Are the offered blended learning models appropriate and meet the needs of QOU?

4. Are the faculties at QOU trained and qualified for applying e-learning?

5. What mechanism is used to provide technical support for tutors and students?

Methodology

This study is based on qualitative approach that focuses on the views and impressions of the target audiences using two different qualitative data-collection tools:

Focus groups: Preparing 25 questions in 5 categories for 16 focus groups distributed in study centers as shown in Table (1), so as to ensure that the groups are statistical representatives, and the data is accurate, credible, and correct. Figure (1) below illustrates a model of this tool that shows the focus groups categories and themes. Also, Figure (2) is a hierarchical model of the main themes covered by the study, where each layer represents a key theme in diagnostic process of this study. This is done in order to facilitate classification and analysis of the answers for better results. Ten face-to-face focus groups were conducted in the West Bank, and six virtual focus groups were held remotely using virtual class technology in Jerusalem and Gaza Strip according to Table (1). This is because of some political reasons imposed by the Israeli occupation that prevent the Palestinians of the West Bank from entering Jerusalem and Gaza Strip by the apartheid wall.

Personal interviews: Thirteen interviews with the decision makers at QOU especially Vice-Presidents and directors of administrative and technical departments and centers. In this tool, 3-5 questions were prepared for each interview that focus on specific aspects of one or more of the themes of the study based on the interviewee's specialization as shown in the Table (2). These questions were designed to confirm or deny some of the results obtained from the first tool, in order to enhance, strengthen, filter, and get rid of inaccurate or abnormal results.
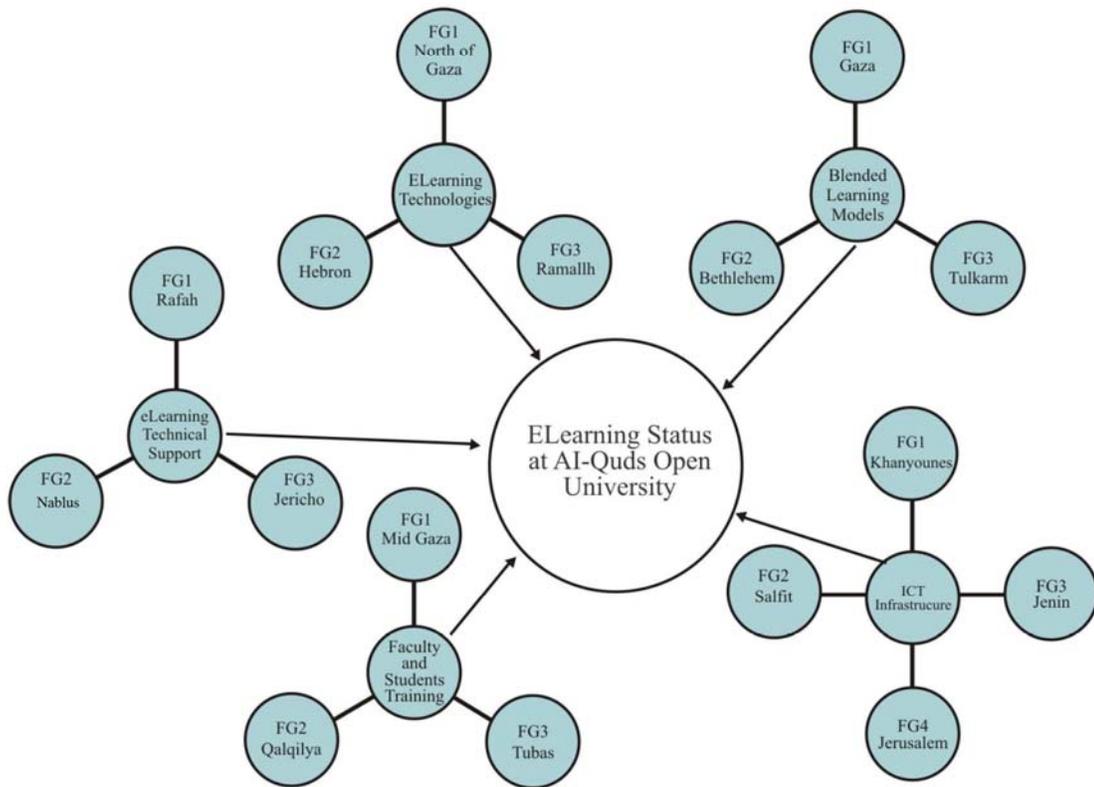
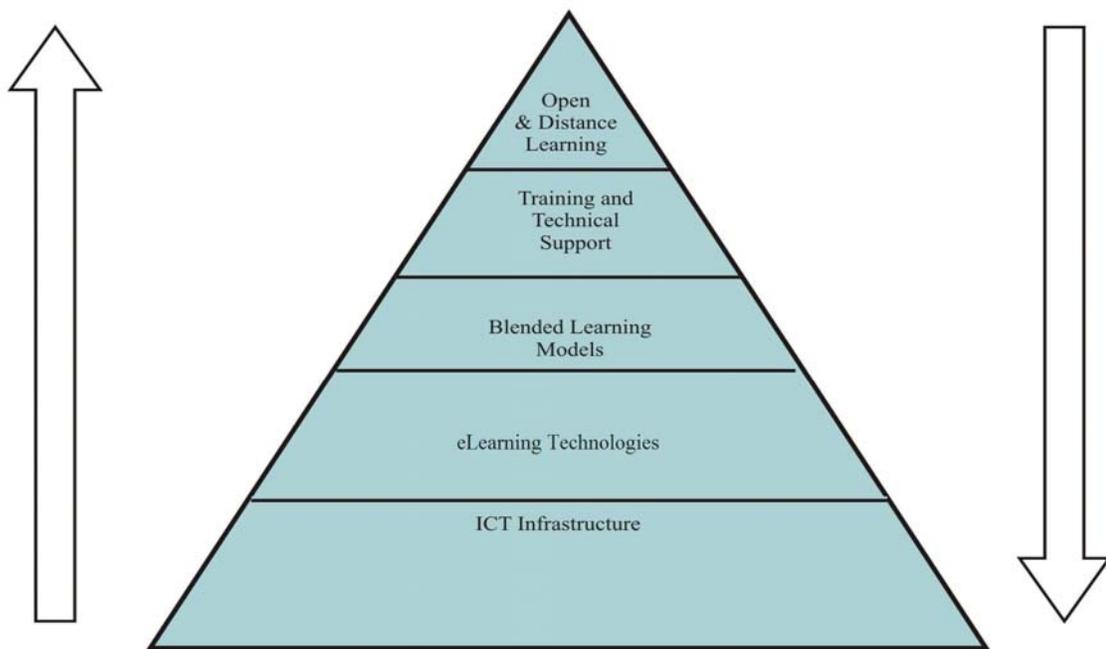**Figure 1: Focus groups categories and themes.**

Figure 2: Hierarchical Model Representing the Five Themes of the Study in Layers.

Table 1: Distribution of Main Themes on Face-to-Face and Virtual Focus Groups.

Cat.	No. of Focus Groups	F2F Focus Groups	Virtual Focus Groups	Main Theme
1st	4	Jenin, Salfit	Jerusalem, Khanyounes	ICT Infrastructure
2nd	3	Hebron, Ramallah	North of Gaza	eLearning Technologies
3rd	3	Bethlehem, Tulkarm	Gaza	Blended Learning Models
4th	3	Tubas, Qalqilya	Mid-Gaza	Qualifying and Training of Faculties and Students
5th	3	Jericho, Nablus	Rafah	Technical Support for eLearning Technologies

Table 2: Distribution of Main Themes on Interviews.

No.	Job Title	Interview Theme	Subject
1	Vice-President for Academic Affairs	All Themes	Process Management
2	Vice-President for Gaza-Strip Affairs	All Themes	General Notes
3	Vice-President for Admin. Affairs	All Themes	Process Management
4	Vice-President for Financial Affairs	All Themes	Cost
5	Asst. President for Tech. and MM Affairs	Infra., Tech., & Support.	Current and Future
6	Asst. President for eLearning Affairs	All Themes	Current and Future
7	Asst. President for Planning and Quality Affairs	All Themes	Current and Future Standards & Quality

8	Dean of Admission & Registration	Blended Learning Models	Integration
9	Dean of Student Affairs	Infra., Training, & Tech. Support for Students	Current and Future
10	Director of Measuring and Evaluation	Technologies and Models	Integration
11	Director of Education Program	Models and Training	Current and Future
12	Director of Technology and Applied Sciences Program	Technologies and Models	Current and Future
13	Director of Continuing Education	Models and Training	Methodology

Literature Survey

In June 2001, James presented the e-University Project as a case study in report No. 40 of higher education series (James, 2001). The project has been implemented at the University of Southern Queensland (USQ) and focused on three fundamental concepts: the e-Information repositories, a variety of e-Applications, and the e-Interface. The university created its Integrated Business Information System (IBIS) using the PeopleSoft software. This project was implemented in the fourth generation and then developed its capacity to implement the fifth generation distance learning (Intelligent Flexible Learning model) with "automated response system and intelligent object databases".

Another intelligent web-based system with reusable cooperative learning objects (LO) collaborated among educational organizations was proposed by Encheva & Tumin (Encheva & Tumin, 2005). The authors developed this LO to be used by expert instructors in these organizations to maintain a repository of LO that will be utilized in producing high quality courses.

An approach of e-learning service integration has been introduced by Zimmermann (Zimmermann, 2005). The author also proposed a new method for cache management, where cache servers holding the contents are distributed in the nearest point to clients.

Lastly, Al-Quds Open University (QOU) administration responded to recommendations of an international evaluation by a course redesign project (Matheos, Rogoza & Hamayil, 2009), in which it moved to blended learning environment in curricula design using Moodle LMS and virtual class (Elluminate). The authors described this step as leapfrogging into the fourth generation of distance learning. It was indicated that QOU academic portal has been the primary technology providing e-learning services. While Moodle and Elluminate were not integrated with this portal, the portal was not fully integrated with the university MIS.

Hence, the authors highlighted the need for an integrated model of e-learning.

Learning Management Systems (LMSs) do not provide university managerial functions and activities, while university management information systems (UMISs), on the other hand, do not provide learning activities (El-Ghareeb, 2009). If both are integrated and operated together they will support educational institutions and e-learning. To clarify this confusion, the author compared between an e-learning model and a UMIS model and highlighted their differences.

In an evaluation study for the course titled "Fundamentals of Investment", offered in the first term (1091) of the academic year 2009/2010 using blended learning at QOU, its results have been presented in an internal workshop to evaluate e-learning (Khalil, 2010). The results showed that the most important problems faced by students in this course was time management, followed by lack of Internet service. Hence, they used to participate in electronic activities and virtual meetings from homes or workplaces. Results also indicated that 0% of students used the Internet and computer labs at QOU. Finally, it was shown that 42% only participated in (80% -100%) of the virtual meetings, 38% participated in (0% -19%).

In February 2010, the Center for Measurement and Evaluation at QOU (Murra, 2010) evaluated e-learning in the first term 2009/2010 through two questionnaires to measure the status of e-learning in collaboration with the Open and Distance Learning Center (ODLC), one targeted tutors and administrators, and the other targeted students. The author recommended to create a technical support unit, to develop laboratories, to study the academic load, to redesign courses by trio-designers and focus on the interactive elements, to solve technical problems of electronic assignments and activities, and finally, to activate communication between the administrative authorities, the tutors, and the learners.

In a presentation by a British expert (Vincint, 2010) from the Open University UK, during the workshops organized as part of his visit to QOU to benefit from the experience of his earlier university and its experience in e-learning, the author pointed to many similarities in challenges facing both universities, especially the culture of e-learning, technical obstacles, and others. Moreover, the author proposed to slow and move gradually in the application of e-learning, and the author warned from unstudied jumps and high investments in ICT infrastructure and electronic technologies for this purpose.

Results

The collected data has been analyzed qualitatively, where data entry and content analysis have been conducted to extract the results for both tools.

Focus groups: The data was processed in two phases using a data classification matrix for each theme, where the questions represented the rows of this matrix and focus groups represented the columns:

- Vertical analysis: The frequent responses were omitted, then ordered in ascending order by voting, and finally, the percentages of similar responses to each question were calculated.

- Horizontal analysis: We examined the similarity or variance between the responses of different focus groups to each question. Then, the similar final responses were extracted.

Interviews: The responses of the interviewees were categorized according to the main themes of the study. Similar responses for each question were combined to make complete and meaningful sentences and classified into current state and future recommendations.

Finally, the results obtained in the 1st tool were compared with the results of the 2nd tool. Then the final recommendations were constructed and categorized into the five themes.

Results showed that most of the participants support the conversion towards e-learning. However, on the other hand, revealed serious indicators that should be addressed before being too late, because rush in this direction may lead to disastrous failures. The following are the main titles of the obtained results classified according to themes addressed by the study, where the detailed results will be provided as an appendix:

ICT Infrastructure

1. Readiness of computer and Internet labs in study centers.

2. Internet service in study centers and their responsiveness to e-learning needs.

3. Usage of computer and Internet labs to participate in e-activities and e-assignments.

4. Usage of computer and internet labs to participate in virtual meetings.

5. Additional hardware and software requirements to implement e-learning strategic plans.

eLearning Technologies

1. Quality of current e-courses hosted on QOU's LMS (Moodle).

2. OLAT or MOODLE, whichever is better to host e-course template.

3. Live broadcasting of online meetings: virtual classes (VCs) or video streaming (VSs) technology.

4. VS technology: distribution of live and/or recorded meetings.

5. eLearning technologies at QOU and meeting its needs.

Blended Learning Models

1. Assignments: electronic or paper-based.

2. Blended learning models: e-activities or e-assignments.

3. Video Streaming Model, the pros and cons.

4. e-Course Template, pros and cons.

5. Models of e-learning, multiple or single.

Training of faculties and students

1. Training Program 1006, appropriateness of the content.

2. Indicators of improvement in performance as a result of joining the training program.

3. Obstacles and challenges faced by trainers and trainees.

4. Participation of students in virtual classes and online activities, major and minor obstacles.

5. Awareness-raising and training activities for students on using e-learning technologies.

Technical support for tutors and students

1. Technical problems faced by tutors in e-learning technologies.

2. Mechanism of providing technical support to tutors.

3. Technical problems faced by students in e-learning technologies.

4. Mechanism of providing technical support to students.

5. Efficiency of the current mechanism to provide technical support.

Recommendations

In the light of results, a number of recommendations have been concluded that assist in developing e-learning and exploiting its potential well to improve the educational process. Moreover, these recommendations address the obstacles and challenges faced in this experiment, to avoid the possible risks. The recommendations take the following key points into account:

1. E-learning supports teaching and learning and does not substitute traditional tools. It is a method to practice QOU's philosophy in open and distance learning, to achieve high flexibility in place and time.

2. Reduce the costs of development to the minimal, so as not to affect the university's budget.

3. Gradual implementation of e-learning within QOU's potential in ICT infrastructure, faculties' qualifications, and students' potential.

4. Contribute to improving the quality of teaching and learning at QOU through:

    a. Focusing on the quality of the product (contents of the e-curricula).

    b. eLearning, which does not make notable changes in QOU's academic procedures and laws.

ICT Infrastructure

Based on the results related to ICT infrastructure, the following are recommended:

1. Avoid high investments in developing ICT infrastructure, but growing gradually with the progress in e-learning. Consequently, the necessary needs should be provided on time.

2. Continue to provide facilities for faculty and students to own computers and internet service at competitive prices through agreements with suppliers of computers, ISPs, and Banks.

3. Provide wireless internet service for faculty and students in the study centers, with some mechanism to control access and usage.

4. Reduce the number of curricula to be offered through blended learning to some reasonable ratio, and the number increases each academic year according to the growth in QOU's ICT infrastructure.

5. Distribute the blended courses on the academic programs with specific quotas such that they are

divided equally between the constituents and specialized courses.

6. Offer blended courses in all study centers (QOU level).

eLearning Technologies and e-Curricula Design

eLearning Technologies

1. Consider Moodle as the LMS, with Elluminate and Video Streaming for course delivery.

2. The academic portal is the main interface to the e-curricula with single sign in for all users.

3. Continue with the integration between the university management information system (UMIS) and e-learning technologies (AP, LMS, VC, & VS) to exchange users' information, auto-check e-assignments, and auto-transfer grades. Figure 3 illustrates the proposed integrated system.

4. Resolve the security issues in Moodle, such as viruses, warms, cross-site scripts, etc.

5. Provide flexibility in the automation that allows manual and paper-based procedures when necessary.
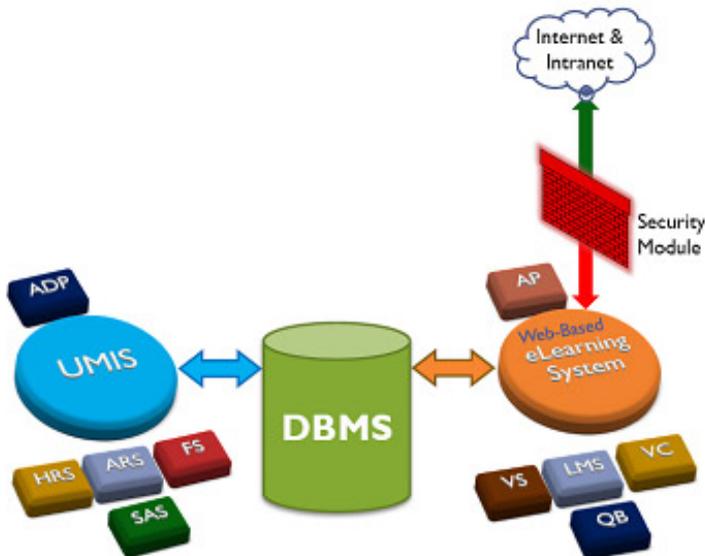

Figure 3: Proposed Integration between eLearning technologies, academic portal, and UMIS.

e-Curricula Design

1. Form a team of designers (SME, ID, and MMD) responsible for each e-curriculum design.

2. Each team is to develop an e-curriculum or improve a designed one to contain interactive activities such as examples, exercises, quizzes, assignments, and experiments to illustrate the concepts and enrich the design.

Blended Learning Models

The following recommendations serve the purpose of developing blended learning models in parallel with the described recommendations for e-learning technologies and e-curricula design, as well as the available ICT infrastructure at QOU and at students' homes.

It is recommended to reduce the four blended learning models into two in addition to the traditional model as illustrated in Figure 4. The LMS will be Moodle and the interface will be the academic portal. For all models, the formative evaluation tools will the e-assignments, and the summative evaluation tools will be the mid-term and final examinations.

	Blended Model I		Blended Model II		Blended Model III
Delivery Method	Face-to-Face		Video Streaming (VS) & Face-to-Face		Virtual Class (VC) & Face-to-Face
Content and Material	Textbook		e-Course Template & Textbook		e-Curriculum & Textbook
Formative Evaluation	e-Assignments (exam, quiz, discussion forum, essay, or presentation) LMS: MOODLE Interface: Academic Portal				
Summative Evaluation	Mid-Term Examinations & Final Examinations In classrooms				

Figure 4: Proposed blended learning models at QOU.

Blended Model I

The traditional model in which learning content will be the textbooks, and the course delivery will be f2f meetings.

Blended Model II

1. A blended model in which the e-course template supports the textbooks as content, and f2f meetings will be supported by VS meetings.

2. Move e-course template to Moodle, and replace the paper-based assignments or semi-e-assignments into e-assignments. The VS screen and other related contents will also be moved from the academic portal to Moodle.

3. Choose one qualified tutor to conduct the VS meetings covering the full curriculum, in order to produce high-quality recordings.

4. The VS recordings will be hosted as links on the e-courses. Also, these recordings can be re-broadcasted each semester continuously according to a specific timetable.

5. Broadcast VS meetings through QOU's central studio with various delivery tools to ensure quality. Moreover, synchronous and asynchronous forums may be used for interaction.

6. Assess the validity of the e-content every 3 years so that it can be improved or replaced, depending on this assessment.

7. Continue offering the courses with full f2f meetings and use e-course templates and VS recordings as supportive resources.

8. Allocate part of each f2f meeting to discuss some topics in e-curricula and VS recordings.

Blended Model III

1. A blended model in which the e-curricula supports the textbooks as content, and f2f meetings will be supported by VC meetings.

2. Choose one qualified tutor to conduct the VCs through Elluminate covering the full curriculum for one ideal class from the study center of that supervisor. The links of the recorded VCs are then hosted in the platform of that e-curriculum on Moodle.

3. VC meetings are conducted in the study center of that tutor. The tutor will be in his office and the students will be in the best computer lab

with fast internet and equipped with sound devices and cameras to ensure high quality and to utilize the full features of VC.

4. Assess the validity of contents every 3 years so that they will be improved or replaced, depending on this assessment.

5. Continue offering the courses with full f2f meetings and use the e-curricula and the VC recordings as supportive resources.

6. Allocate part of each f2f meeting to discuss some topics in the e-curricula and the VC recordings, to ensure that students benefit from them.

Alternatives

1. An alternative for blended model II is to reduce the academic loads of tutors in f2f meetings to the half and consider this in payments.

2. An alternative for blended model III is to divide the meetings such that 50% to be f2f and 50% to be virtual without affecting the academic loads and payments for tutors.

Assignments

1. The assignments will cover the formative evaluation that include e-activities such as discussion forums, essays or quizzes for the three models.

2. Develop two e-assignments and a tutorial e-assignment carefully for all three models, taking into account the diversity of questions, comprehensiveness, different levels of thinking, and the randomness (random bank of questions).

3. A third paper-based assignment may be added, if necessary.

4. Each assignment will weight 5 points, but the tutorial assignment will not be weighted.

5. When high randomness in e-assignments is achieved, they can be opened for fifty days as the paper-based ones. This provides high flexibility in delivery, and solves the problems of traffic in internet labs.

Additional Cost

1. No additional costs are required for tutors, since their academic loads do not change and all their meetings are f2f. If the alternatives in section 7-3-4 are taken into consideration, then the costs will be affected as a result, according to them.

2. The designers of the e-curricula and the tutors who recorded the VS and VC meetings will be paid once when they finish their tasks and pass the evaluation.

Training and awareness activities

Training of administrative and academic staffs

1. Continue in training program 1006 to the end, and develop the program's content before being conducted again.

2. Organize the upcoming training programs based on needs assessment, and categorize target audiences based on their levels and specializations.

3. Develop an advanced training program in Instructional Design that targets the distinct people in the previous training programs. These will be leaders of the redesigned teams.

4. Develop a training-of-trainers program with advanced evaluation tools, to prepare a team of qualified trainers in blended learning.

5. Improve the evaluation tools for trainers, trainees, training methodology, and materials.

6. Develop a web-based training information system (TIS) that helps to conduct needs assessment, manage training materials, track trainees and trainers, and evaluate the whole training process.

Awareness activities for students

These include practical parts of some fundamental courses such as "Computer" and "Learn-how-to-learn" that describe some e-learning technologies, and the orientation programs conducted by tutors of blended courses. The following are some more activities that might be done:

1. Organize awareness workshops for students every week in the first month of each semester.

2. Distribute presentations, brochures, tutorials, and videos about blended learning models to all students through the academic portal or on DVDs.

3. Provide a separate bulletin board in each study center for postings on all aspects of e-learning including publications, announcements, and guidelines.

Technical support for tutors and students

1. Establish a Technical-Support Unit for e-learning and provide it with a team (at least two), so as to provide technical support in two shifts through a toll free phone, e-mail, chat, and remote access tools.

2. Develop a computerized web-based technical support system (TSS), to register, record, and track technical consultations. This system allots each user a tracking number, where the resolution of each technical problem paused and how they were finally resolved.

General Recommendations

1. Contact with the Palestinian government especially the Ministry of Higher Education through workshops and presentations, to show that QOU has achieved leaps in the field of blended learning and to get ensure their moral support.

2. Governmental, non-governmental, commercial, and local communities should collaborate to solve the problems of bad ICT infrastructure at universities and at students' homes. It is a national duty of all the Palestinians to be aware of and to support technology in teaching and learning.

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