Quality Assurance in eLearning

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Abstract

One of the challenges in eLearning/distance education is quality assurance. It is required to ensure that quality standards are being met and to guarantee the success of this type of education. The objective of this paper is to focus on different aspects of eLearning in higher education in Egypt and to discuss the quality assurance issues, challenges, and opportunities in eLearning/distance education.

   Keywords: *quality assurance, eLearning, higher education*

1. Introduction

The rapid growth in eLearning encourage the Higher Education institutions offer online courses. The number of students taking at least one online course continues to expand at a rate far in excess of the growth of overall higher education enrollments. The size of the entire higher education student body has grown from 16.6 million in fall 2002 to 17.6 million for fall 2006 [1].

eLearning is the effective learning process created by combining digitally delivered content with (learning) support and services. It 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 exchanges and collaboration [2]. Therefore, to improve the learning perception, the ministry of higher education in Egypt decided to establish elearning centers to provide students with access to electronic syllabuses [3].

The growing emphases on quality measures among organizations and researchers revealed the importance of quality assurance for e-learning. While there is a free and growing market in e-learning, there is also a proliferation of benchmarks and quality guidelines [4].

The Egyptian government has recently established an organization for accreditation and quality assurance. The value of accreditation in the online courses is a sign of quality. Also, focus is shifted from concern about quantity to more attention to quality, from education for all, to "excellent education for all", and from the concept of mere education to quality education [5].

2. E-Learning in Egyptian Universities

In this section we will illustrate some applied elearning systems in both private and govermental universities in Egypt as follows.
Governmental universities: eLearning in governmental universities includes two types: asynchronous and synchronous as follows:

a- eLearning Center – Cairo University

The electronic Learning Center, ELC is the central unit in Cairo University working in eLearning projects. The vision of eLearning center is utilizing the new information and communication technology in the educational process to improve the service provided to their students and maximizing ROI. The objectives of ELC are creating world class high technology environment within Cairo University to improve the service provided to their students and the quality of their graduates to be able to compete in the global economy, and automate the educational and administrative processes [6].

E-courses in ELC provide students with slicing the learning process into multiple dimensions, using internationally recognized norms, interactive learning, group assignment, online lecturing, audio and video retrieval, online office hours, solve common problems, and detailed statistics and assessment. Multiple instructional strategies are used in designing online courses because learners have different learning styles or a combination of styles. The listing of instructional strategies and methods include direct and indirect instructions, interactive instruction, independent study, and experiential learning [6].

b- eLearning Unit – Mansoura University

The eLearning unit (ELU) in Mansoura University is a division of the university development center and it was established in 2005. Its mission is to promote and encourage excellence in teaching and learning using information and communication technologies. The objectives of ELU are: (1) supporting eLearning activities at the university including training, instructional development support, and technical support and (2) removing barriers of faculties which are interesting in using information technology in learning and teaching [7]. The eLearning unit provides the following services:

- User services include e-courses, student assessment, e-portfolio, previous exams repository, multi-lingual dictionary, CV builder and others.
- Faculty services (faculties curricula, electronic management program, and telephone guide)
- Video services (virtual classroom and video conferencing)

In 2004, Mansoura University selected Moodle as a course management system to help educators create effective online learning communities. By March 2007, the number of Moodle-based sites had grown to 21. These sites give an indication of the increasing awareness of the potential of e-learning in enhancing the educational system in Egypt, although its utilization is at a nascent stage. Moodle hosts about 700 courses range from PowerPoint presentations to full e-courses. These courses are intended for blended learning.

c- Ain Shams University

Ain Shams University decided to establish elearning center with good quality to improve the process of learning and instructions in all faculties of the university. It uses information and communication technology to convert traditional courses into e-courses and broadcast on the Internet to reach students at all times and places, which leads to raise the quality of the graduate to compete in labor markets. These e-courses are for undergraduates and graduates in several fields. They include courses from the applied sciences (computer science, engineering, medicine, natural science) and human sciences (psychology, athletics, media). Lecture notes, assignments, study materials and readings are provided in portable document format [8].

d- Assiut University

Assiut University's website indicates that it offers a number of online courses and distance education programmes in its elearning center. The online courses are offered by the computer and information, agriculture, science, commerce, pharmacy and medicine faculties. [9].

e- Alexandria University

Electronic Courses are produced at Alexandria University through the elearning center. The e-courses are offered by faculty of arts, faculty of medicine, faculty of engineering, faculty of Agriculture, faculty of education (department of French language), faculty of physical education for girls and faculty of kindergarten [10]

Private universities, we can find that American university in Cairo (AUC) apply WebCT and Egyptian eLearning University.

a- American University in Cairo

WebCT stands for Web Course Tools and it is a learning management system that facilities the creation of sophisticated World Wide Web-based education environments. WebCT provides a set of educational tools to facilitate learning, collaboration and communication. It also includes administration tools to assist professors in the process of management and continuous improvement of the course.

WebCT as a learning management system (LMC) provides a center for helping faculty members to convert their materials to web-friendly format. It provides students with centralized access to all their WebCT courses online. From within a course, students can be provided with a syllabus, calendar, Lecture notes, presentations, grades and assignments. Students can also have access to past exams, review questions and model answers that are posted online, as well as sending or receiving messages to and from their professors and colleagues. WebCT also presents powerful means of communication between the students and their professors through discussion and mail and allows students to create online self-tests and quizzes. Moreover, it provides set of evaluation tools to evaluate student progress and provide immediate feedback to the students on how well they are doing and their progress relative to the class. Professors can also create and distribute course assignments to students, download, evaluate, assign grades as well as attach assignment-related files [11].

b- Arab Open University

A branch of the Arab Open University (AOU) in cairo offers distance learning to provide virtual learning environment. Its e-learning system relies heavily on the tutoring process, which aims to promote a proactive environment of learning. Course lectures are laid out in a programmed and progressive mode via textbooks and supporting notes, and other supplementary forms of delivery media based on audio and video cassettes, CD-ROMs and online websites. These components work together to offer an environment of supported open learning [12].

c- Egyptian eLearning University

Egyptian eLearning University (EELU) is a private non-profit University established in 2008 to provide distance education through 24-hour online learning. Its vision is to be a leading university providing e-learning nationally, regionally, and internationally. EELU gives educational opportunity to learners who cannot attend a campus university [13].

The objectives of EELU are:

a- Enhancing the quality of higher education using modern technologies and create a broad information technology base.

b- Providing its graduates with the knowledge and skills that ensure high employability.

c- Providing opportunities for professionals to better their careers.

d- Establishing a strong line of research in technology-related areas, and establishing links with reputable research centers worldwide.

EELU provides a virtual educational environment that reduces dependence on the concept of physical and geographical proximities between student and instructor. Students can access courses' materials, lectures, and any information through both the EELU Intranet and the Internet. This type of learning permits collaboration between the students and the instructors and among the students themselves. EELU plans to set up a unit of quality assurance and accreditation that reports directly to the university vice president for academic affairs. The role of this unit is to develop the quality assurance process, procedures and measures and make sure that they are applied in the EELU.

3.   Challenges of both eLearning and quality of distance education

According to the survey made in four governmental universities in Egypt. Most of students had no idea about e-learning or what the term means. And the others had some knowledge about eLearning and they felt it might be a good learning technique if designed carefully and professionally implemented. The study sample showed that a significant number of students had PCs and use them to access the Internet, but very few have used them to support their learning. This might require universities to encourage students to use the Internet and recognize it as a source of information that might be used to support learning. There are some degree of mistrust of eLearning programs in Egypt, therefore the efficiency and effectiveness needs to be proven for eLearning programs [14].

Beckstrom at el., illustrated other barriers for eLearning in Egypt as follows [15]:-

- No eLearning community exists outside of Cairo, and very little exists in terms of eLearning community inside Cairo.
- eLearning is still an evolving term in Egypt. The culture is still changing with respect to eLearning.
- No real policies are in place to protect eLearning content authors.
- The Supreme Council of Universities still does not accredit courses or degrees delivered through eLearning.
- A strong vision for eLearning has not been provided.
- eLearning course developers need to be trained and developed

Other challenges to quality of online education are as the following [16]:-

1- Students, institutions, and public agencies still regard distance education with caution

2- eLearning universities need to demonstrate the quality of their services in ways that are acceptable to potential students, employers, faculty and staff, as well as governments.

3- Most students are depend on face-to-face interaction and the least able to deal with distance education/eLearning

4. Quality Concept in eLearning

Ehlers illustrated different meanings and different levels of quality (context-quality, structure quality, process-quality, output-quality or impact-quality). Different actors in e-learning perceive quality in different ways. Ehlers classifies seven fields of quality: tutor support, collaboration, technology, costs/benefits, information transparency, course structure, and didactics. All these aspects have to be considered when considering quality in e-learning [17]. Moreover, eLearning should be treated as a system consisting of many elements. The elements of this system are interlinked and all elements must be in place and function well. From the quality perspective this means that it is not enough, for example, just to provide high quality e-learning materials, but that an appropriate support system and course administration (to learner needs and existing materials) must also be used [18].

Knowledge of quality	Experience of quality
Quality innovation	Analysis and criticism of quality

Figure 1: Four dimensions of quality competence

Quality competence is thus a key element in the successful implementation of education and training concepts. It is a set of four dimensions that contribute to carrying out successful quality development in education as shown in figure 1 [19].

1- Knowledge of quality

This dimension addresses the "pure" knowledge about the possibilities of today's quality development and up-to-date quality strategies in e-learning and education. The term "quality strategies" refers to all guidelines, structures, rules, tools, checklists, or other measures that have the goal of enhancing the quality of an e-learning scenario.

2- Experience of quality

This dimension describes the ability to use quality strategies. It is based on the experiences that actors have with quality development and with applying quality measures and strategies to educational scenarios. It refers not only to the pure application of quality strategies or tools but also covers the processes of feedback analysis and initiating improvement.

3- Quality innovation

This dimension refers to the modification, creation, and development of quality strategies and/or instruments for one's own purpose. This requires both the innovative ability to change and further develop quality strategies by applying the logic of the media system, and a creative ability to design entirely new forms of quality development.

4- Analysis of quality and criticism of quality

This dimension refers to the ability to analyze quality development processes critically, comparing and contrasting a range of target systems and perspectives. For learners, critically analyze means being aware of their own responsibility for quality in e-learning. For providers, this means the ability to undertake quality development through a process of flexible negotiation, allowing a variety of individual and societal target systems to be involved in the issues addressed by education and training.

5. Quality Approaches

The quality strategies or instruments are coming from adapted quality approaches. The common approaches are ISO 9000 (International standardization Organization), TQM (Total Quality Management), EFQM Excellence model (European Foundation Quality Management), Kirkpatrick four-level, and BAOL Quality Mark (British Association for Open Learning). The following is a brief discussion about these approaches.

a- ISO 9000

ISO 9000 is often called a quality system or a quality management. ISO 9000 is a generic name given to a family of standards developed to provide a framework around which a quality management system can effectively be implemented (BSI Management Systems, 2007)**.** It is process-based structure anticipated with properties focused on management of responsibility, resources, processes and analysis [20]. ISO 9000 standards are management oriented; they ensure quality of processes and presupposing the willingness of the service provider to improve these processes [21].

b- Total Quality Management

TQM is both a philosophy and a set of management guiding principles for managing an organization (Dale, 1999). TQM places strong focus on process measurement and controls as means of continuous improvement. It is used to achieve best possible outcomes from the inputs in order to deliver best value for the customer.

TQM processes are divided into four sequential categories: plan, do, check, and act (the PDCA cycle). In the planning phase, define problem to be addressed, collect relevant data ascertain the problem's root cause; in the doing phase, develop and implement a solution, and decide upon a measurement to gauge its effectiveness; in the checking phase, confirm the results through before-and-after data comparison; in the acting phase, document the results, inform others about process changes, and make recommendations for the problem to be addressed in the next PDCA cycle [22].

c- EFQM Excellence model

The EFQM Excellence Model is a non-prescriptive framework based on 9 criteria. Five of these are 'Enablers' and four are 'Results'. The 'Enabler' criteria cover what an organization does. The 'Results' criteria cover what an organization achieves. 'Results' are caused by 'Enablers' and 'Enablers' are improved using feedback from 'Results'. The model is based on

the premise that: Excellent results with respect to performance, customers, people and society are achieved through leadership driving policy and strategy, that is delivered through people, partnerships and resources, and processes [23].

EFQM is recommended strategy for self assessment and improving performance. EFQM is convinced that, applied rigorously, self-assessment will help organizations, large and small, in the private and public sectors, work more effectively [23].

d- Kirkpatrick four-level

According to Kirkpatrick's four-level model for assessing training effectiveness, evaluation should always begin with level one, and then, as time and budget allows, should move sequentially through levels two, three, and four. The levels are: reaction, learning, behavior, and results [24].

- Level one: Reaction measures the reaction of trainees to the training program. The purpose of measuring reaction is to ensure that trainees are motivated and interested in learning.
- Level two: Learning measures the knowledge acquired, skills improved, or attitudes changed as a result of the training. Application of the new knowledge, skills, or attitudes is not measured at this level.
- Level three: Behavior measures the transfer of training or if trainees are applying new knowledge, skills, or attitudes on the job.
- Level four: Results measures the result of training as it relates to factors such as sales, productivity, profit, costs, employee turnover, and product/service quality.

e- BAOL Quality Mark

The British Association for Open Learning (BAOL) has developed quality marks to cover materials development, advice and guidance, learner support, and learning centers. It is claimed that earning these quality marks provides a market advantage for e-learning providers, especially as they face the prospects of competing internationally. The BAOL Quality Mark includes internal self assessment and external verification of those providing products and services for open and flexible learning. The open learning activities, for example, are grouped within these categories: materials development, advice and guidance and learner support [25].

To understand quality approaches you need first collect detailed information about these exist approaches then compare and evaluate them against each other and finally find adapted quality approach in order to build your quality strategy and scenario. Table 1 shows the advantages and disadvantages of quality models.

Table 1: Advantages and disadvantages of Quality approaches

Approach/Model	Advantage	Disadvantage
Total quality management (TQM)	faults and problems are spotted and sorted quicker workers motivation and team work involvement in decisions of TQM Lower costs because of decreasing the waste Quality Control inspectors	Initial introduction costs for training workers and disrupting current production whilst being implemented Benefits may not be seen for several years Workers may be resistant to change
ISO 9000	Quality is maintained; Spent more time on customer focus; Can increase customer confidence and satisfaction.	Costly; Time consuming to document and maintain Heavy emphasis on documentation.
European Foundation for Quality Management (EFQM) Excellence Model	Instill a culture of continuous improvement It is flexible enough to be used for specific issues Excellence Model can be used as an internally driven self-assessment tool	Excellence Model maybe expensive for smaller social enterprises to enter There is no accreditation for the Model and it will not be overtly visible or recognizable to customers, service users, funders and other stakeholders.
Kirkpatrick four-level	The Kirkpatrick model explains the usefulness of performing training evaluations at each level. Each level provides a diagnostic checkpoint for problems at the succeeding level.	The difficulty and cost of conducting an evaluation increases as you move up the levels. So, considering what levels of evaluation you will conduct for which programs is important.
BAOL Quality Mark	The BAOL Quality Mark includes internal self assessment and external verification for open and flexible learning as well as the development of action plans for performance improvement.	Quality marks do not always meet the quality requirements of organizations and their customers because they vary in their scope, applicability and their usefulness.

6. The Proposed Quality Development System

In order to develop quality assurance system for eLearning, the following issues should be taken into consideration:

1- Establishing a mission statement and a set of objectives as the basis for a customer focus which in turn will provide the basis for a quality program. An example of mission statment is : applying eLearning solutions in order to make education more accessible, efficient and effective. The specific objectives are:

- improving student access to course presentations
- improving education efficiency such as availability of class resources in web-based repository for 24 hours
- improving education effectiveness such as enhance course delivery and encourage student interaction

2- Considering for every stage of quality assurance development the stakeholders who are affected by the activities of the system. There are a wide range of stakeholders such as students, staff, university management, suppliers of learning resources, and broader community.

3- Pay attention to the three-legged stool (good study materials, good student support, and good logistics) in designing quality system.

4- There are other factors rather than a set of learning materials can assure the quality of learning outcomes such as learner support and overall management of the program.

5- Quality culture is important for effective quality system. This requires the awareness for the need to develop internal quality culture and disseminating existing best practices in higher education field.

There are two dimensions for the introduction and development of a quality culture into an organization. First, a managerial dimension which deals with implementing tools and instruments to measure, evaluate, enhance, and assure quality. Second, a dimension of quality commitment focuses on an individual level. It relates to the individual commitment to strive for quality, using tools and instruments for quality development [19].

Quality is now and will in future be of great importance for e-learning. The proposed quality development system based on the four dimensions of quality competence is as follows:

1- First, the awareness of current quality approaches which mean any policies, procedures, rules, tools, checklists or any other verification instruments or measures that have the purpose of enhancing the quality of e-learning products or services. Therefore, the institution who want to develop QA system needs to have knowlege about the important of quality development in elearning.

The quality strategies or instruments are coming from adapted quality approaches. The common approaches are ISO 9000, EFQM Excellence model, Kirkpatrick four-level, and BAOL Quality Mark.   Once the decision has been made to select a particular quality strategy, the process of implementing it within the organization needs to involve all levels of staff. The awareness of quality currently demonstrated at the strategy level must permeate all levels of the organization if there is to be the prospect of truly integrative, comprehensive and successful quality development.

2- Second, selecting one of the available quality strategies that meet the university requirements as the model for quality development project. If there is no strategy meets the requirements then the new quality strategy need to be created. This phase requires quality analysis and quality knowledge to create your own strategy or choose the suitable one.

3- After implementing the quality strategy, the next step is the ability of the university to design quality strategy for its own context; that's needs to seek for information about possible designs for quality development through internet websites and best practices. Therefore design competence requires adapting the available external developed quality

strategy to the specific university needs. This process involves experiences, evaluation and analysis competencies. The adaptation of quality instruments such as checklists and process description requires a high amount of quality experiences

4- Finally, examine and analyze the quality development processes critically, and compare and contrast different sets of objectives and perspectives. Illustrating whether the changed processes and new values which are suggested in a new quality strategy are incorporated into the activity patterns of the stakeholders. Quality is a dynamic process of adaptation to the needs of the stakeholders, and primarily those of the learners. Therefore, the analysis and criticism dimension of quality competence is therefore of great importance.

7. Conclusion

eLearning could overcome many barriers and problems in higher education in Egypt. This requires some degree of trust for eLearning programs in Egyptian Universities, students understanding eLearning methods and capabilities, and developing effective quality system in order to guarantee the success in eLearning. In order to develop effective quality systems in eLearning, the institution should: (1) identify its mission and objectives and how to achieve them, (2) specify roles, responsibilities, and procedures in a clear manner, (3) develop internal quality culture, and (4) apply evaluation criteria that guarantee the institution success.

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