E-Learning at school level: Challenges and Benefits

Joumana Dargham¹, Dana Saeed¹, and Hamid Mcheik²

1. University of Balamand, Computer science department

Joumana.dargham@balamand.edu.lb, dandoun5@hotmail.com

2. University of Quebec at Chicoutimi, Computer science and Math department

Hamid.Mcheick@uqac.ca

ABSTRACT

E-Learning technologies continue to expand. Learners separated by time or space have a multitude of choices in how and what skills and knowledge are delivered. Online programs are rapidly becoming a popular form of learning in educational institutions today. The online environment offers extraordinary opportunities for people who would otherwise have limited access to education, as well as a new paradigm for educators in which dynamic courses of the highest quality can be developed. It provides an excellent method of course delivery unbound by time or location allowing for accessibility to information at anytime from anywhere. “Collaborative learning” is taking place where the facilitator and student collaborate to create a dynamic learning experience. The new era of teaching, at all education levels, is overwhelming the world; the challenge is how and where we integrate it. The minimum requirement for students to participate in an online course is access to a computer, the Internet and motivation to succeed in a non-traditional classroom. In this paper, we are proposing some measures to guarantee successful integration of online teaching in education institutions, focusing at school level.

KEY WORDS

E-learning, online courses, self-paced learning.

1. Introduction

Learners’ needs and interests are the key conductors in an E-Learning class. While participating in online courses, students use various technology resources to gain information and skills required; online lecture environments, testing and assessment, discussion boards, chats, audio and video conferencing are examples of resources. Features such as forums, wikis, blogs and others allow a simple delivery, monitoring and interaction in courses. On top of its easy delivery of information and interactive nature, the main benefit behind using the E-Learning instead of the traditional way is that Learners develop communication as well as personal skills such as autonomy, analytical perception, abstraction and others. Students may explore current and future technologies and learning systems, which impact E-Learning development, management, and implementation. However, a combination of both E-learning and face-to-face classroom works well when human flavor is important for the material in hand.

New E-Learning technology continues to become greatly accessed and implemented by and for people of all walks of life. Increasingly, the technologies are becoming more integrated as an invisible and ever-present part of a global system. It has made educational design an important skill for corporate trainers and adult educators to have. Trainers and others who are responsible for designing instruction for learners must keep updating their knowledge with...
changing training and education technology to infuse E-Learning into teaching and instructional models. All educators approach this new paradigm with varying degrees of enthusiasm and concern. Delivering courses online can improve the teaching skills and offer unprecedented learning opportunities for the students; yet, it is important to consider both the good sides and bad sides of online learning so you can be better prepared to face the new challenges as well as embrace the new opportunities.

AMSI (Academia Management Solutions International) has experienced the online education at school level in the Arab region. It manages the network of five schools running between Dubai-UAE, Qatar, and Lebanon, with some challenges like:

- Number of students is exceeding acceptable average.
- The English language is a second language in the Arab Region, so they might find difficulties when using the system.
- The use of technology in the Arab Region is not as widely used as in other regions such as Europe and America.
- The very limited number of schools applying E-Learning system in the Arab Region.
- Some parents still believe that E-Learning is minor compared to the regular process of teaching.
- The young age of the students required to have maturity and responsibility.
- The high cost of such learning environment limiting its access to all kinds and levels of students.

2. How E-learning courses should work

The main benefit of using the E-Learning is that Learners follow their own rhythm in learning and filter the knowledge that suits their needs. Students may explore current and future technologies and learning systems; they can also impact E-Learning development, management, and implementation. Ideally, E-Learning often works best when it is combined with face-to-face classroom experience [5]. The core components of an E-Learning environment are: the instructor, the administrator, the students, the software and the course material. In the following a sequence of steps an online course could go through [4]:

- Students are enrolled in the online course and given private access to course material.
- A facilitator is assigned for each course, and can also have many courses at the same time. Technical background is a required facilitator’s skill.
- The instructor of the course and its facilitator manage lessons and materials, quizzes and assignments and other activities.
- Students work on their own time and pace, going over the online course material using any personal computer with web access.
- Students submit completed assignments via the e-learning software tool and communicate with the instructor and the facilitator at any time by using the school’s email as a tool of online communication.
- At regular times the instructor tests student’s retention material. Online courses may have short online Self-Tests, quizzes and assignments for each lesson. Usually an instructor will give final exams and an assigned project for each course to evaluate the whole course. Depending on the school’s examination policies, the instructor may need to assign a new course or ask the student to re-do the course again.
- Students are assessed and graded on a combination of factors: quizzes scores, homework assignments, individual and extra project grades, participation in class discussion, etc.

3. Key elements of successful Online Program

The successfulness of the E-learning program depends on both: The participants and their skills, and the organization of the curriculum and the practices behind it.

3.1. The students

Students are the direct beneficiaries of the Program and thus its direct evaluators. An online student should understand the important characteristics necessary to succeed. Attitude, skills and commitment are some of these characteristics. The student must be open-minded, self-motivated,
accepting of critical thinking, willing to work collaboratively, and trusting of the online experience. Finally the student must commit the time necessary (four to six hours per week) to stay current and he/she must have access to the necessary equipment and tools. Online education gives students control over their learning experience, and allows for flexibility of study schedules; however, this places a greater responsibility on the instructors to guide the students.

3.2. The Curriculum

Online Programs offer technology-based instructional environment that expand learning opportunities and provide top quality education through a variety of formats and modalities. The curriculum, the instructor, the technology and the students must be carefully considered and balanced in order to take full advantage of the strengths of this Program and at the same time, avoid pitfalls that could result from its weaknesses. The online courses are part of the academic curriculum. It is the responsibility of the school to determine the appropriateness and the validity of the subject matter and the delivery methods. The curriculum of an online course is designed especially for a short-term, in order not to lose the students interest and to keep them motivated. Course content is organized in modules with clear deadlines for the assigned work in each part. Instructors should give sample and clear assignments, and not assign over complicated tasks. Lectures are reduced and compensated with open-ended remarks that elicit comments and a display of varying view points. Some LMS[6] have online curriculum that focuses on application of knowledge to the real world and fosters critical thinking skills. They are based on two important factors: process and outcomes. The process must integrate life, work and educational experience, generate continuous dialog, draw a connection between the learned concepts and work experience, include ample time for the completion of the assigned work, utilize a minimal amount of memorization, and maintain a balance between the technology, instructor, and the student. The outcomes must be achievable and offer the opportunity for students to use them in practical and everyday situations [2].

3.3. The facilitator

The facilitator is an important element of an online program, because often, he/she is the monitor of the online course, and thus has a powerful influence on the success or failure of the Program [3]. He/She must know how to integrate life experience, communication, professionalism, and content into the learning environment. For example when he/she is encouraging and being positive, students will quickly develop a level of comfort in the e-learning environment. Challenges different than those required for traditional classrooms are introduced. Those are related to critical thinking, online interaction and 24-hours-a-day classroom management populated by students who demand relevance and may require extra support. In the following some of the skills and activities of the facilitator:

1. Understand the course material inside out from a technical perspective. Importance of material, its organization, need for external access and research, practices and intensive support are questions to be answered.
2. Course planning and organization.
3. Ability to create an atmosphere of collaborative student work. He/She needs to know how to follow up on the student’s work.
4. Organize, store and manage in a database all the questions and assignments handed in from the instructor.
5. Set the agenda and provide leadership and direction to the whole class.
6. Develop methods for learner feedback and reinforcement.
7. Sequence the follow up and the assignment grading.
8. Personalize instruction to be relevant to the needs of individual participants, which is also part of the instructor’s duties.

3.4. Online Instructor

In the e-learning environment the instructor’s main role is to deliver and prepare the information, guide the students and offer instructions and support whenever needed. Successful teachers in a centered
classroom do not always translate to successful online instructors. If the ICT Teachers do not properly control the online delivery and methodologies, the success of the online program will be compromised. On top of the skills the facilitator should have the online instructor should be able to compensate for lack of delivering content caused by different factors. He/she should create support in terms of alternative material, questions forums, availability and back up plans.

4. Advantages and limitations of Online Learning

The known differentiators of an online learning are:

- **Anywhere:** Students can participate from classes or from home provided they have a computer and internet connection.
- **Anytime, Any Pace:** The online courses are open 24 hours a day, seven days a week. Time efficiency is another strength brought by the online learning format. Students can log on to their course at any time of day, and have continuous access to courses’ material and to instructor’s support.
- **Online Feedback:** Each lesson in the online course has a place for the teacher for feedback. Within an online feedback, the learner is able to benefit from the teacher comments before moving on to the next lesson in any online course. Using the online feedback tool will effectively help the teacher passes the required message to the students and to make sure the students are on the right track while learning.

4.1. Advantages of self-paced learning

- Students can develop knowledge and skills when they need it.
- Students are not dependent on the structure and pace established by the teacher.
- Each student has the same level of guidance.
- Students are active rather than passive, and assume greater responsibility for their own learning.
- Time management skills are acquired. To succeed a course students learn how to manage their time to finish the required material.

- Planning and organization skills are developed. Learning activities can be organized sequentially, because each component in a self-paced course has objectives that must be met before proceeding to the next component.
- Self-paced learning provides teachers with the time to focus more attention on students who need assistance. Although students who are not having difficulties certainly should not be neglected, this approach allows the teacher to spend time with participants who do require assistance.

4.2. Limitations to Self Paced Learning

As with any approach to learning, there are also limitations to consider. The limitation can be avoided with excellent planning, time management and training.

The Limitations to self-paced learning could be:

- New of its kind, students may feel uncomfortable with learning on their own.
- Student-dependent and motivation-based learning.
- Requires Readings and active participation.
- Students may possess poor time management skills. Procrastination may make the self-paced learning process less effective than it can be.
- Training is required for facilitators and students.
- It requires extra management, preparation and monitoring effort.
- It may be challenging and time-consuming to design and develop the appropriate learning revision materials.
- Managed and Advanced Databases are needed.

5. Managing self-paced learning students

The Internet is the mean of communication for online courses and a customized application facilitates course management. Many Learning Management Systems (LMS) exist. These manage the delivery of self-paced/ e-learning courses. Learners log into the LMS using a browser and launch courses. The LMS tracks the learners’ activities.
The following course related tasks should be carried out in self-paced learning; they contribute to the success of the course.

1. **Assessment**: Feedback on the students’ performance.
2. **Elaboration**: Course material is created, assignments are defined; course related problems are pointed out.
3. **Coordination**: Based on the exchange of course related issues between the facilitator and the course instructor iterated on a need basis.
4. **Initiation**: Students’ accounts are created, and guidelines and course policies are identified.
5. **Monitoring**: Use of a Learning Management System (LMS) to manage students’ progress, communication with students on a case-by-case basis, all the work progress of the students can be viewed and accessed directly through the instructor’s and administrator’s account, where they can add their comments and evaluation on.

6. **Course Information & Assessment**

   The enhancement of Learning Strategy emphasized a shift towards using technology to improve core activities where one of the most important one is the assessment that shows the teaching effectiveness of the instructors and the whole institution. We should define a range of generic and discipline-based resources and activities under the surface of technology to ensure good assessment. An extensive variety of modes of assessment of E-Learning should be introduced to the learning processes. The major issues associated with planning, creating, monitoring and evaluating appropriate assessment of E-Learning with relation to whole course structures and stated learning outcomes are:
   - All kinds of competencies – knowledge, skills, and attitudes – may be mediated within an E-Learning environment. Therefore, it is possible to create learning content including information about certain subject, facts relevant for a learner, or knowledge related to different domains. Thus, technology can be seen as an enabler for these types of competencies, because information can be enriched with multimedia assets. The behavior of a student can be observed within the context of the e-learning system by terms of the micro-adaptive approach for E-Learning. It is easier to mediate knowledge through E-Learning environments, while the effort for teaching skills or attitudes is much more complex.
   - Within an E-Learning system, objectives need to be defined regarding the target group, with respect to the standardization process in the field of E-Learning, specifications such as SCORM (Sharable Content Object Reference Model)[7] already allowed describing objectives as meta-information for the course. Nevertheless, an objective specified with SCORM can be seen as a state within the system and does not tell anything about the level of the learning outcome. Furthermore, it is hardly possible to reach high-level learning objectives for all three types of competencies within a pure E-Learning situation as stated in many aspects of relevant case studies. Learning objectives, which are defined by a teacher, always have to be evaluated in some way – to grade the students and to improve the quality of the course for future sessions. Considering the possibilities of e-learning, it is well documented that we can assess the gained knowledge by using limited-choice questions like quizzes or multiple-choice questions. Furthermore, for most areas and, in particular, to reach high-level learning objectives, it is necessary to examine students asking open-ended questions. In Addition, the answers to such questions have to be interpreted and evaluated by experts. Researchers use artificial intelligence methods within intelligent tutoring systems, but the results are rather limited yet,
in terms of skills, the learning results cannot be measured using technology-based methods without hard efforts. With respect to the assessment methods focusing on defining competencies and evaluating the learning process according to the determined learning objectives, the following possibilities for implementing assessment in the E-Learning situation can be examined:

- Most E-Learning systems offer the possibilities to create and provide limited-choice questions. Although quizzes can save a lot of time to grade a large amount of students and states good results for low-level objectives of the cognitive domain [1], however; they show a worse performance for the employment of more detailed learning strategies and higher levels of cognitive processing. Therefore, it is necessary to implement open-ended questions within the E-Learning situation, for instance by tasks like uploading assignments or submitting some sort of project work. It is obvious that the evaluation of such tasks is extremely time-consuming for a teacher. Therefore, it is recommended to apply supporting methods such as automated grading.

As an extension of automated essay grading, Intelligent Tutoring Systems (ITS)[3] may provide some kind of expertise within a field and allow fully automated teaching and assessment, yet, this kind of systems is hard to understand, because it is often restricted to a certain domain and, thus, to a few learning objectives. An example for a rather complex system in this area is INCENSE providing different scenarios for teaching the software engineering process [3].

- Several approaches were described beginning with the usage of professional authoring software up to a shift to the constructed learning paradigm. On the one side, automatically generated crossword puzzles may be enabler for the students’ interest and motivation and have positive effects on assessing low- to medium-level objectives of the cognitive domain, especially when they are presented to them as a sort of activity or extra work, allowing them to interact more with the learning system. On the other side, applying learning methods requires a high self-motivation to the students, which can lead to high-level objectives in all domains. Students may prefer open-ended questions, when they are working in groups.

- Finally, involving games and simulation in the E-Learning situation can also be seen as a solution to reach high-level objectives, in particular for intellectual skills, but also for mediating knowledge or internalizing value systems.

7. Conclusion

Although basic didactical elements may be problematic within the E-Learning situation, the necessity for didactical aspects such as defining competencies, determining learning objectives and implementing assessment methods can be considered as very essential for online courses. As it was revealed in the paper, the assessment and the grading should not be realized by only using quizzes. There are several other ways to assess the learning process, which might work better or worse for defined objectives, like assigning tasks and assignments to enhance the student’s knowledge on the course and make sure that he is fully aware of the material’s content. In fact, mediating objectives of the affective domain through E-Learning is always more extensive and might not be assessable in online courses. Furthermore, it is also very hard to reach high-level objectives for all kinds of competencies within pure technology-based learning and teaching.

References