On Usability and Evaluation of
Open Educational Resources in Developing Nations

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Abstract

The impact of new technologies on higher education is briefly reviewed in order to retrace the origin of the Open Educational Resources initiative and its impact on Arab world. The UNESCO led project is presented together with lessons learned from it that can be of help for the Arab world. Finally, recommendations are given as a conclusion

Introduction

Recent technological advances have resulted in paradigm shifts in many issues in our lives, including higher (or tertiary) education. First, the number of tertiary education graduates needed has sharply increased because new jobs created by the Information and Communication Technology (ICT) require highly skilled graduates. The Gross Enrollment Ratio (GER), which measures the number of students in higher education divided by the population in the 5-years range corresponding to this phase, has sharply increased in developed countries. It has attained the level of 50 to 70% in these countries [1] while it is still largely below these values in developing countries, attaining less than 10% in some cases. Most Arab countries are in the 20-40% range. The gap has been steadily increasing in the past few decades [2]. There is a high correlation [3] between Gross Domestic Products (GDP) per capita and the Tertiary Completion Ratio (TCR), defined as the ratio of tertiary graduates in a nation divided by the population in the age of work (24-60 years). The correlation is high even among developed countries taken alone. This indicates that the needs for increasing the GER in Arab countries are huge. Actual resources can difficultly cope with these demands.

The second effect of technology on higher education concerns the nature of courses taught. Higher demands are registered for graduates in science and technology. Ratios of students enrolled in these disciplines are somewhere above 20% in developed countries [3], while they fail below this figure in developing countries including Arab states. Also, graduates are required to have better creative qualities than before, which require a more interactive mode of education. Both of these aspects add to the pressure on the limited available educational resources in Arab countries.

Third, tertiary education has become under the impact of ICT a global activity like many other human activities in this new era. It is now possible for a student living in a given country to receive tertiary education from an institute belonging to another country in order to work for a company belonging to a third country, all this without leaving his original country. Hence, if Arab educational institutions cannot compete by offering high

quality tertiary education then the whole Arab culture is threatened. This is another pressure on higher education in Arab countries of strategic importance.

Technology does not always create problems, it can also provide solutions! E-learning can help not only matching the demand in volume, but also in quality. In a country like India (GER ~11% in 2000) a strategic decision was taken in favor of distance learning, attaining today 25% of all enrolled tertiary education students. The ratio can only increase in the next few years. Many "Mega" universities (i.e. with more than 100 000 enrolled students) already exist worldwide wholly based on distance learning. None of these exist in the Arab world yet. There are still many difficulties in installing such systems. In addition to institutional problems and inertia, remains the hard fact that producing related materials requires high skills as well as large efforts. Hence, sharing resources worldwide becomes mandatory. This was the origin of the Open Educational Resources (OER) initiative. It represents an opportunity for the Arab world that it can not afford missing.

The OER initiative

The Open Educational Resources (OER) initiative consists of providing educational resources for free consultation and usage by university and college faculty members, with the ability to do adaptations and modifications. It also includes technology to support open and meaningful access and use of these resources. The objective of sharing the process of course creation worldwide is to enhance higher education courses worldwide by sharing others experience and efficiently using professors' contribution by continuously building on previous experience. Students, and especially post-graduates, may also benefice from these resources as additional references for a wider and multi-disciplinary culture. It is important to note that this is not a supported, degree awarding E-learning type initiative.

A project for OER evaluation and usability improvement project is now being conducted by the UNESCO branch in Cairo. It involves 3 institutions from the US: Massachusetts Institute of Technology (MIT), Carnegie Mellon University and Rice University; as well as 4 institutions from Africa: The French University of Egypt (UFE), AlAkhawain University of Morocco, University of Gamal Abdel Nasser of Guinea, and Mauritius University. The first phase has started as cooperation between MIT and UFE. The purpose of the project is to gather, analyze and synthesize Faculties feedback about the utility and suggested improvements of available OER materials

Project partners are classified as suppliers, users, monitors and sponsors, although the same institution may fulfill more than one role. Suppliers' role is to provide course materials and make them worldwide available. Course materials contain as a minimum:
- Course description
- Syllabus
- Calendar

And at least one of the following:
- Lecture notes
- Demonstrations / Simulations
- Reading materials
- Exercises / Projects / exams

Suppliers are also requested to offer human bandwidth to respond to the feedback of the finite set of selected users within this project. Response includes commenting on the users' feedback as well as offering help in solving eventual connection and/or usability problems.

Users are non-profit higher educational institutions. Private institutions are not excluded, as long as they are not profit oriented. Their role is to implement one or more of available courses from a supplier in their regular educational program. They may perform necessary adaptations to these courses to satisfy local needs. In fact, they are encouraged to do these adaptations in order to test the easiness by which editing could be performed. This is not only a software issue, but also that of course organization and structuring. Users are required to give a continuous and periodic feedback during all implementation phases. In addition, at the end of the academic unit (normally a semester), users are required to prepare an extensive evaluation report.

Some lessons learned

As expected, high interest and implication was manifested by only few professors in users' institution. It is believed that as the experience progresses, more and more professors will join this avant-garde.

Highly motivated professors tend to produce more modifications on the original contents. They all raise the question of intellectual property rights. For the moment, reference to the origin of each resource is implied in the adapted courses. A mechanism as well as adapted tools should be implemented to track intellectual property created and added on each particular unit in a course.

There is a strong demand to let the course be highly modular. In some courses this is not the case and the instructor cannot easily add or delete an item in a chapter. Having the sources is only a partial solution to this problem. Having smart cross references (equation and figure numbers) is also helpful in achieving this modularity. Last but not least, it is also a matter of course design, but this can only be done on the long run, with the objective of creating interrelated learning objects instead of chapters. It is believed that courses constructed this way may have a wider and more interested audience. Instructors could easily compose their courses by pointing to available learning objects. They only have to care for the overall structure of the curriculum, instead of managing details.

Finally, in a workshop in the Second Global Forum on International Quality Assurance, Accreditation and the Recognition of Qualifications: about Globalization and Higher Education (Paris 28 – 29 June 2004), in which representatives from the OER

project have participated, it was believed that the concept of educational resources should be broadened to cover
- Learning resources
- Courseware, content modules, learning objects, learner support and assessment tools, on-line learning communities
- Resources to support teachers
- Tools for teachers and support materials to enable them to create, adapt and use OER; as well as training materials for teachers; and other teaching tools
- Resources to assure the quality of education and educational practices

Conclusion / Recommendations

1. The OER initiative is an opportunity that Arab world cannot afford missing to share its resources in order to better match increased tertiary education needs
2. Resources created should be highly modular, in the form of learning objects in order to facilitate their usage
3. Arab as well as international institutions should sponsor the creation of an Arab Learning Objects Repository. The development of a project in this sense implying many Arab universities can be one of the outcomes of this conference.
4. A system for tracking Intellectual Property rights should be implemented
5. Last but not least, OER is a strategic approach to supporting education as a global public good, which can also enhance mutual understanding for international peace.

References

[1] Global Education Digest, UNESCO Institute of Statistics, 2004
[2] Higher Education in Developing Countries, *Peril and Promise, World Bank report* February 2000
[3] Benchmarking Education and Training Systems in Europe, an international comparative study, *Richard Desjardins, Christelle Garrouste-Norelius and Shawn Mendes,* Prepared for the European Commission Directorate-General for Education and Culture, June 2004