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Determinants of Tertiary Education Quality in Bangladesh

Hamid, Md. Kaysher

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Demystifying the Challenges of Sharable and Open Educational Resources in Tertiary Education

Rozhan M. Idrus
School of Distance Education, Universiti Sains Malaysia, Minden, 11800 USM, Penang, Malaysia
rozhan@usm.my; rozhanmidrus@gmail.com

Abstract: There is no more reason for anyone to be left behind or deprived of knowledge and information anymore. Educational media and hence interactive technologies has evolved to the extent that there can and must be a paradigm shift in the way education and the working and learning processes is presented and conducted. Extending these ‘educational’ norms into the learning environment of the 21st century, one can envisage a flatter field, a spectrum of educational technologies, robust design of instruction, pedagogical re-engineering and including a learning support system that would fulfill any given scenario or environment that is governed by the underlying intention of information revolution and cultural integration, in whatever region one find themselves to be. Educational resources can exist in a variety of forms such that a digital divide need not exist. The ability to have access and share courses/resources and the creation of open source has moved teaching collaboration across boundaries from the realm of possibility to the world of reality. The capability of the Internet has afforded us unprecedented sharing diversities and possibilities, not a duplication of past activities. Based on a standard or anchor content, further learning objects could now be experimented and generated via localisation, customisation, teaching styles, learning styles, learning theories, taking into account the Y-generation and the need of skills of the 21st century. This will give rise to a global classroom effect and further deliberations could be impacted by the teacher-learner interaction in any educational transaction activities. The concept of technogogy is proposed to undertake the resource design framework leading to a student centred and personalised learning environment. Experimental pedagogy will accentuate the importance for pedagogical reasons to communicate the idea that there are process trade-offs, the methods selected for discussion in the classes were not arbitrary or random, but of potential utility, of some currency contributing to the language of interactive design, or intentionally provocative. Methods fell into many categories such as ideation, evaluation, representation, reflection, experience design, acquiring resources, and group work. What ICTs as educational tools can do, if they are used prudently, are enable developing countries to expand access to and raise the quality of education collectively/consortium via shareable and open resources.

Keywords: e-Learning, Open Educational Resources, Shareable Content Objects, Learning Styles, Experimental Pedagogy, Technogogy, Student Centred Learning

Designing begins with fumbling ... and we can learn a great deal from that. Even if the results are not too good, it is really the work that matters, not the results...

Josef Albers

I. INTRODUCTION

In essence, it is now possible for more people than ever to collaborate and compete in real time with more people on more kinds of work, from more areas of the planet, and on more equal footing than at any previous time in the history of the world – using computers, email, fibre optics networks, teleconferencing and dynamic new software [1]. If we leapfrog into the current use of the Internet in education, the learning resources available can now be shared with the rest of the world, not just the region. Local constraints notwithstanding, making Open e-Learning Resources shareable in teaching collaboration is highly probable.

Open Educational Resources (OER) are teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others.

Further, the use of Shareable Content Objects (SCO) that makes content reusable could save time, money and might allow institutions to concentrate of enriching the subject matter via other forms of classroom activities. However, the decision to place free materials on the web is NOT
easily made. More often, there are substantial barriers such as;

- intellectual property,
- language and culture within the country,
- language and culture between countries,
- making different technologies work together,
- invisible barrier of an ingrained reluctance to change that exists in many institutions and countries.

II. BARRIERS

The barriers mentioned are corroborated by a research findings from Latham [2] showed that;

- Asian distance education is more concerned with access while Western distance education is more concerned with quality
- Asian distance education compensates for too few places in universities while Western distance education mainly provides for working adults seeking mid-career change or lifelong learning
- The status of on- and off-campus programs should be the same . . . however, quality assurance should take account of the unique value-adding features of distance and e-learning
- Countries, cultures and needs differ, so different solutions may apply
- There is need for leadership, policy-making, evaluation, QA, appropriate resourcing, staff development and cultural change
He went on to further show that;
- There is need for staff development and support in pedagogy and instructional design
- E-learning entails far more than mastering the technology and posting lectures on the web
- Distance and e-learning need multi-disciplinary teams, not the ‘lone ranger’ approach
- There is need for time release and other incentives to encourage and support staff in providing quality courses and courseware
- Learner support is often lacking or inadequate
- Placing courseware on the Web exposes institutions to peer review
- There is need for robust and strategically significant research to inform policy-making and practice and assure that distance education and e-learning achieve access, equity and quality, and are cost efficient / effective

III. ICT INTEGRATION & E-LEARNING

To promote an global tertiary community, member countries will encourage the development of peoples’ knowledge and proficiency in using ICT, particularly the Internet, through formal education, training for professionals, and community learning institutions. Nonetheless, there are challenges in this endeavour, as gleaned from a member country.

The status of e-Learning endeavours in public institutions of higher learning in Malaysia was recently tabled for the first time at the 1st Roundtable Conference on e-Learning in Public Institutions of Higher Learning in Malaysia held at the UiTM from 30-31 January 2008. The conference was participated by delegates from 16 public universities. We shall glean the salient points in their deliberations.

It was surprising to note that only two institutions (12%) has a Centre of e-Learning while the rest were subsumed under various ICT units or multimedia centre and one institution only had an administrator without any attachment to a unit. 56% were operating on an open source learning management system (LMS) while 50% of the institutions outsourced the construction of their respective LMS.

Another startling discovery was that only four institutions (25%) has a policy on e-learning in their respective institutions while the rest were implemented on a voluntary basis with one institution making it compulsory for one subject to be delivered as an e-Lecture as part of the course evaluation process. It was also revealed that the development of the coursewares was performed by the academic staff themselves in 80% of the institutions.

In a case study by Puteh [3], two institutions, namely Universiti Kebangsaan Malaysia (UKM) and Universiti Teknologi Malaysia (UTM), was analysed for their development of e-Learning strategies since 1996. To cut a long story short, it was found that generating senior leadership
capable of integrating the various university plans and strategies was not successful. These leadership issues are exacerbated by the working environments that are characterised by the lack of encouragement, fear of intellectual piracy, inadequate technical training, insufficient equipment and no incentives for innovation.

In a recent study, Embi [4] in his Keynote presentation cited that the main challenges related to the governance of e-Learning are the shortage of manpower (84.5%) and the lack of incentives for those involved in implementing e-Learning in IHLs (69.2%). In addition, other challenges encountered in relation to the governance of e-Learning are the lack of a clear e-Learning policy (61.5%), the absence of a clear governance structure (50%), and the lack of a clear line of responsibility on the task of planning and implementing e-Learning (42.3%). Seven IHLs (26.9%) felt that the absence of a dedicated e-Learning centre/unit/department is one of the main challenges. Only three IHLs (11.5%) are of the view that the main challenge is the lack of support from top management.

As a result, the Ministry of Higher Education recently launched the National e-Learning Policy on the 16th April 2012 with three phases of implementation (Phase 1: 2011-2012, Phase 2: 2013-2014) , reaching optimum (Phase 3) in 2015. The policy is based on five pillars of operations, namely, infrastructure, organisational structure, curriculum and e-content, professional development and culture.

There are also many similar efforts globally such as the Hong Kong’s 2007 Digital 21 Strategy, the Singapore’s 10-year iN2015 InfoComm Masterplan, Taiwan’s National Science and Technology Programme for e-Learning and Saudi Arabia Ministry of Higher Education’s National Centre for E-Learning and Distance Education.

IV. OF OPEN COURSEWARES

The Open University, Harvard, MIT, Tokyo University and the Paris Technology Institutes and over a hundred other universities as well as many other libraries, government agencies, museums and public television organizations who have opened their education content to world [5].

In Malaysia, the Malaysian Grid for Learning (MyGfL) [6,7,8] is the country’s current effort and initiative to provide e-learning technologies and solutions to support the lifelong learning agenda in Malaysia through the use of ICT, viz, to

- develop systems, tools and repositories in establishing a national learning grid to enable and support e-Learning activities and processes for the purpose of life-long learning
- bring together all relevant players in the e-learning ecosystem (learners, enablers & providers) to participate in the overall e-Learning value chain and be part of the national learning grid.
- develop e-learning standards to ensure conformance and adoption of best practices in e-learning content and systems
- encourage sharing and development of local/indigenous content, thus stimulating content industry.

MyGfL operates under the policy of providing content for people of all ages, from children to elderly people, irrespective of race, religion or socioeconomic background. People can register with the site free of charge. With some exceptions, most of the content on the site was created in both Malay and English languages and is available free of charge.


Some of the categories include more than 100 topics. Many of the contents cater to the needs of people of all generations and are extremely...
meaningful and useful to them. In addition, MyGFL provides registrants with various useful tools for their studies, such as e-mail, bookmark function, notes, chat and forums.

V. SUSTAINABILITY
Why is it so difficult to engage in ICT endeavours that can be sustained? There are various facets of sustainability that must be addressed as these will directly affect the respective country’s implementation. Unless the institution is a full fledge open & distance learning provider, sustaining a technology assisted endeavours encounter issue as they are up against the full-time teaching format.

Issues that relate to the notion of sustainability includes [9];
- a working definition,
- production and sharing of resources
- usability of the resources
- acknowledgement of contributors
- long-term plan
- long-term goals

VI. CHALLENGES
In tandem with the issues of sustainability are the challenges that lie ahead in our effort to create and disseminate shareable and open e-learning resources in teaching collaboration, viz,

A. Policy & Planning
A rigorous analysis of the present state of the educational system. ICT-based interventions must take into account the current institutional practices and arrangements - drivers and barriers to ICT.

The specification of educational goals at different education and training levels as well as the different modalities of use of ICTs that can best be employed in pursuit of these goals. The identification of stakeholders and the harmonising of efforts across different interest groups and countries including accreditation.

The specification of existing sources of financing and the development Policymakers should also look at the ubiquity of different types of ICT in the country in general, and in the educational system (at all levels) in particular.

B. Capacity Building
Teachers - professional development should have five foci:
- skills with particular applications;
- integration into existing curricula;
- curricular changes related to the use of IT (ID);
- changes in teacher role; and
- under pinning educational theories.

Education administrators, technical support specialists and content developers are all critical players that are often overlooked

C. Language & Content
English is the dominant language of the Internet. An estimated 80% of online content is in English. A large proportion of the educational software produced in the world market is in English. In Web-based learning, technical standardization of content has also become a pressing issue. Standardization allows different applications to share content and learning systems (Instructional Management System (IMS), the Advanced Distributed Learning /Shareable Courseware Object Reference Model (ADL/SCORM) initiative, the Aviation Industry Computer Based Training Committee (AICC), and the European ARIADNE project) The ease by which Web-based educational content can be stored, transmitted, duplicated, and modified has also raised concerns about the protection of intellectual property rights.

D. Financing
One of the greatest challenges in ICT use in education is balancing educational goals with economic realities. But the financial litmus test of ICT-based programmes are survival after donor/project money has run out. Ultimately it is about economics rather than education.

E. Models of Open Resources
Three models for open educational resource projects in tertiary education, namely, the MIT model, the USU model, and the Rice model, provided us with a glimpse of the instructive diversity in terms of their size, organisation, and provision of IP-clearance, content creation, and other services. Would adoption or adaptation be our course of action?
F. Development of Resources

Open educational resource endeavours can choose to develop and share several kinds of content in the teaching and learning process. Obviously, in the process, we have the teacher and the learner; usage will have different orientation based on the purpose of use. Issues that relates to the development of the resources are;

- teaching resources,
- resources for studying
- format of resources
- Cost for both authoring and format
- Effectiveness of the instruction

At the end of the day, we will need to ponder on the kind or type of content that is being produces and uploaded as open resources, lest we end up with information but not education. Open content doesn’t need to be interactive to be valuable: most open source materials are hosted as free databases, documents and podcasts.

G. Usage of Resources

Users of educational resources do a variety of things with them, based on preferences, perception and orientation of the respective institution. Due to the diversity of users, the resources also undergo various adoption and adaptation, such as [9];

- as is re-use
- technical adaptation
- linguistic adaptation
- cultural inclination
- pedagogical adaptation – experimental
- Annotation
- Curation
- Source code access

Meaningful use of the open resources must be the ultimate goal; simply digitising or uploaded information is far from the objective of sharing the resources.

H. Funding Models

Users of educational resources do a variety of things with them, based on preferences, perception and orientation of the respective institution. Due to the diversity of users, the resources also undergo various adoption and adaptation, such as [9];

- Endowment model
- Membership model
- Donations model
- Conversion model
- Contributor-pay model
- Sponsorship model
- Institutional model
- Governmental model
- Replacement model.
- Foundation model.
- Segmentation model.
- Voluntary support model.

Starting an open educational resource platform is not so straight forward for a sustained and goal oriented purpose.

VII. DISCUSSION

Although it may seem that the resources have open access, there are cost implications in the preparation, format, delivery and presentation to the users (whoever they may be). It is the opinion of the author that we are not capitalising on the paradigm of networking in cyberspace and still function in an old paradigm but highlighted by the use of technology.

As such, every institution is doing their own thing and now has the ability to show it to the world via the Internet. In essence, we are still working in silos rather than create a global classroom.

A. Resource Directory

Ten years ago, on Sept. 30, 2002, OpenCourseWare published its first set of materials from MIT courses online. Since then, the academic world has witnessed a vibrant open education movement grow around MIT’s efforts, with more than 250 universities around the world sharing educational materials from over 17,000 courses in the OpenCourseWare format [10].

OpenCourseWare, as a repository, is in dire need of a directory; this could occur if we were to create a directory, such as a phone directory, so that we can ‘dial’ up the desired course, by language, subject technology, pedagogy or other tags deemed relevant based on the subject matter.

B. Dominant LO Design

The teaching and learning landscape is in need of a dominant design for learning objects to churn 'quality' content, not just the uploading of digitised content and materials that are not pedagogically articulated.

The concept of technogogy is proposed to undertake the task of preparing learning object
design. Technogogy is defined as the convergence of technology (T), pedagogy (P) and content (C) in the transformative use of technology to foster learning (Figure 1). The elements of TPC slides on the learner axis to take into account styles and preferences of the learner in the design.

**Figure 1** Technogogy framework

Based on the technogogy design framework, content can be searchable based on the content, learners, pedagogy and technology. Ultimately, based on technogogy, a student can enter a site and be administered an interactive learning style self-assessment (optional) and subsequently be led to a sector where appropriate learning resources/objects (based on the student’s style and preferences) awaits. Conversely, the learner may be led by the learning preference tag attached to the content.

The concept of technogogy was also incorporated with the elements of instructional design to produce a ubiquitous learning design framework.

**C. Customise/ Localise**

The open resources can be further enriched when the same content is customised or localised by different institutions as well as different countries. In this way, the content will be have breadth in its application and diversity of scenarios and parameters, resulting in a global approach to the same content. In this respect a single topic can have entries from different institutions from different countries and even in different languages; all it needs are tags when preparing the learning object.

An example would be the Linear Algebra course by Prof. Gilbert Strang [11], that is made available in the Spanish, Portuguese and Turkish language. If need be, more examples can be added by the user or additional videos or resource to address specific issues in the content. Would it be necessary to have another Linear Algebra video that addresses the same topics?

**D. Experimental Pedagogy**

The creation and sharing of open resources has also afforded us the opportunity to introduce experimental pedagogy at a global level. Problem based learning would make a perfect example. Since it is important for pedagogical reasons to communicate the idea that there are process trade-offs, the methods selected for discussion in the classes were not arbitrary or random, but of potential utility, of some currency contributing to the language of interactive design, or intentionally provocative. Methods could fall into many categories: ideation, evaluation, representation, reflection, experience design, acquiring resources, and teamwork, to name a few. As such, a tool that was originally introduced into the (global) classrooms for research purposes could be a valuable pedagogical tool [12,13].

For example, Nadelhoffer, T. & Nahmias [13] informally polled their students in a way to get them to think about the issues, to demonstrate the conflicting intuitions that motivate competing philosophical positions, and to get them interested and engaged in a philosophical debate. The same pedagogy could be used by others and we might even get a global perspective on the matter once it is shared, an event that could lead to a separate discussion platform ensuing from the open resource; a back reference will facilitate for access to the results of the poll and the deliberations.

**D. SCL/PLE**

The Student Centred Learning (SCL) and the Personalised Learning Environment (PLE); sounds like a mantra in the wake of the capability of the Internet and mobile devices to reach learners anytime and anywhere.

Educational resources could now incorporate this in their lesson design to enrich the student learning environment that captures the 21st century learning skills; a platform provided via open resources. Di Napoli [14] stated that, as teachers, we should avoid seeing ‘student-centred learning’ as a ‘quality’ imposition on the part of governments and institutions, as it should really be at the centre of our preoccupations as educators.

However, ‘teacher-centred learning’ and ‘student-centred learning’ are not necessarily mutually exclusive. Rather, they constitute a continuum. The choice will be dictated by contextual factors. If done properly and with a
collective effort among peers, ‘student-centred learning’ can be one way of re-appropriating our own professionalism in the face of fast, top-down changes in the technologically driven learning environment. Basic open resource content could be re-designed into student centred learning activities based on the specific cohorts to add value to the teaching and learning experience.

E. ASR – Academe Social Responsibility

This concept is borrowed from the Corporate Social Responsibility (CSR); a more common approach to CSR is corporate philanthropy. This includes monetary donations and aid given to local and non-local non-profit organizations and communities, including donations in areas such as the arts, education, housing, health, social welfare, and the environment, among others, but excluding political contributions and commercial sponsorship of events [15]. The concept can be borrowed such that institutions provide allocation for the purpose of developing the open resources, a portion for in-house, and another for the global agenda.

VIII. CONCLUDING REMARKS

In end, the open educational resources will need to revert to the aim of the institution for having it in the first place. Is it working? In its finality, institutions must decide whether the focus of the open education movement shift from the provision of mainly classroom-based content as OCW has done to materials specifically designed for online learning. Then, how far would any institution construct their own blend of educational transaction. This paper suggests a new orientation in the notion of sharing and the construction of learning objects to reflect the massive relevance and capability of the global classroom resources.

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