AAOU Journal, Vol. 6, No. 1, September 2011, 51-58

Developing Quality Learning Materials for Effective Teaching and Learning in an ODL environment: Making the jump from print modules to online modules

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Abstract

This paper highlights the need to develop quality learning materials for effective teaching and learning in an online and distance learning (ODL) environment. This is especially important today as ODL institutions mushroom and compete on an increasingly global platform. While this has helped to widen access to education, it also means that more attention needs to be paid to the quality of teaching and learning materials if ODL institutions wish to continue attracting learners, reduce attrition rate and stay relevant. Attempts must be made to come up with good learning material which can offer ODL learners a fulfilling and enriching learning experience. At Open University Malaysia, a number of e-learning initiatives have been launched towards this end. One of these is the online, hypertext-linked or html modules. The first phase of this project has already been implemented. The rationale for this latest e-learning initiative is outlined. The paper also comes up with a taxonomy of best practice beliefs which identify the characteristics html modules should have if they are to be truly effective. It is hoped that this will provide some sort of benchmark, or standards, for html modules to strive for, as well as a set of criteria for a formative evaluation of the modules. Ultimately, this may provide guidelines for improving html modules and useful pointers for fine tuning this e-learning initiative in the future.

Introduction

The dynamic growth of ODL institutions in recent years has removed much of the earlier skepticism surrounding such institutions. A typical case in point is Open University Malaysia (OUM). Ever since it was first set up in 2001 offering just four programmes to a mere 753 learners, it has grown by leaps and bounds and now boasts 73 programmes and a cumulative enrolment of more than 90,000 learners. The last decade, however, has seen a mushrooming of ODL institutions throughout the world, all offering a plethora of programmes. While this has, in some ways, accelerated the democratization of education, there is no denying that education has also become an increasingly business-oriented entrepreneurial enterprise, with learners actively seeking “best buys” and demanding quality assurance.

In this scenario, it is imperative that ODL institutions reinvent themselves so as to be able to compete on a global platform, attracting new learners and reducing learner attrition

rate. In conventional universities, much rests on the academics who strive to enhance a university's image and rankings through publications and research. In ODL institutions, the test lies in the type of teaching and learning materials offered, as learners are usually adults studying at their own pace, on their own time, in locations physically separate from that of the instructor and other learners. Much thus depends on an institution's ability to offer learners quality learning material in multiple formats to cater to diverse learning styles, so as to provide learners with a meaningful and fulfilling learning experience.

This paper highlights an e-learning initiative recently introduced at OUM – the online, hyperlinked or html module. It delves into the rationale and best practice beliefs behind the introduction of these html modules and attempts to come up with a set of factors to evaluate their effectiveness. It is hoped that this taxonomy of characteristics will provide a set of standards, or benchmark, of what good html modules should be like. The ultimate objective is to contribute towards a formative evaluation of this e-learning innovation so as to provide guidelines for improving it in the future.

Print modules vs. hyperlinked modules

In the ODL environment, learners leverage on technology to access the learning they desire, irrespective of financial background, age, gender or rank. They can log in to their "class" anywhere, any time, and communicate with instructors and other learners both synchronously or asynchronously.

The blended pedagogy model adopted at OUM sees learners engaging in learning on three interfaces – self-managed learning via print modules, face-to-face interaction and online learning via its virtual learning environment/management system or myVLE. Of these three, self-managed learning via print modules account for almost 80% of the total learning at OUM. The print modules are written by experienced module writers, or subject matter experts, carefully selected by the university's Centre for Instructional Design and Technology (CiDT).

However, there are certain disadvantages to print modules. First, they are usually linear in approach and didactic in nature. Second, they are not interactive as learners interact only with the printed text. And third, they do not allow learners to actively draw upon or share rich work experiences which can help them socially construct meaning by assimilating and accommodating new information with existing knowledge structures (Woolfolk, 1993).

Online or html modules are a viable alternative to print modules. The decision to come up with html modules for certain programmes is an attempt to look into new ways to engage learners and provide them with a more interactive learning experience. The initiative can also be considered a response to cost and logistic considerations. As OUM forges ahead in its internationalization efforts and make inroads in countries like Yemen, Bahrain and Saudi Arabia, it makes economic sense to migrate to html modules as these are not only more engaging and stimulating but also highly portable, with none of the printing, storing and delivery problems commonly associated with print modules. Html modules can also

offer a sustainable quality learning experience as recurring costs are minimal after the high initial outlay.

The task for converting print modules to html modules was entrusted to CiDT. The first phase was completed in May 2010, with more than 200 modules uploaded onto myVLE. CiDT has already initiated research surveys to monitor and gauge the impact of the html modules.

This investigation is an independent attempt to look into the use of html modules for OUM learners. What is documented here is only Phase I of the research study. The idea is to come up with a framework for evaluating the html modules based on best practice beliefs, which can contribute towards improving the quality (effectiveness) of html modules.

Methodology

The research question for this study was: What are the characteristics that html modules should have in order to be considered as quality teaching and learning materials?

The primary research method was a literature review, which identified best practice beliefs in the ODL environment and general principles of good instructional design. The literature review suggests that the ODL environment lends itself particularly to constructivism, where learning is the result of the complex interplay of learners' existing knowledge, the social context and the problem to be solved (Tam, 2000). In such a constructivist learning environment, the instructor is a guide, facilitator and coach, not a dispenser of knowledge.

Based on the literature review, a set of characteristics was identified as essential attributes of good online modules. These characteristics were corroborated and refined by two colleagues who confirmed the importance of all the characteristics listed. Suggestions were put forth in terms of rewording, merging and adding to the list of characteristics, based on the experience of the colleagues who each had more than 10 years experience in facilitating technology-integrated instruction.

A taxonomy of 12 best practice beliefs was then drawn up, comprising the characteristics of good html modules, as listed below:

Html modules should allow non-linear learning

Although html modules offer the same content as print modules, hyper buttons allow learners non-linear access to the content. This means learners can study in a more flexible manner, entering a discussion topic and leaving it freely, at different points, via hyper buttons and links to related websites. This availability of multiple learning pathways is especially important to ODL learners who are mainly working adults as adult education must make provision for individual differences in style, time, place and pace of learning (Lindeman, 1989).

Encourage exploratory learning
Concepts can be explored at the learners' own pace as they toggle pages and check out learning objects, often changing variables to find out how something works, or learning step-by-step how a mathematical equation is solved.

Respect different learning styles
Html modules should make use of varied learning objects and hyperlinks which can offer learners access to the same content in multiple formats, thus catering to different learning styles and preferences.

State learning outcomes
The learning outcomes must be clearly spelt out as learners can easily get sidetracked by the varied learning objects, simulations, animations and other interactive elements.

Communicates high expectations
Html modules need to provide challenging tasks and activities of differing levels of difficulty so that learners will be motivated to strive for higher cognitive levels. Both synchronous and asynchronous communication tools can be used to convey and reinforce high expectations.

Promote interaction and interactivity
Gilbert and Moore (1998) used the terms "interaction" and interactivity" interchangeably but Wagner (1997) drew a sharp distinction between them. She defined interaction as an interplay and exchange in which individuals and groups influence each other but interactivity as emerging from "descriptions of technological capability for establishing connections from point-to-point … in real time." In other words, interaction focuses more on people's behaviour whilst interactivity deals with the characteristics of technology systems.

Although some researchers have voiced doubts about whether ODL can offer the same degree of interaction found in conventional learning environments, others believe that with proper instructional design, ODL programmes can be even more interactive than conventional ones (Horn, 1994; Hirumi & Bermudez,1996).

Take science modules, for instance. Science modules often use simulations to involve learners in actively constructing knowledge via "conducting" experiments which are too expensive or risky to carry out in real life. In this way, learners are more likely to gain a clearer understanding of a real system, process or phenomenon as they explore concepts, test hypotheses and discover explanations (Hwang & Esquembre, 2003). However, this kind of understanding is difficult to arrive at with print modules alone as these are not multi-dimensional.

Besides the element of interactivity, good html modules should also embed a functionality that facilitates interaction or communication among learners, other learners and tutors. This interaction can be synchronous or asynchronous, and may take the form of discussion forums, dedicated chats or net meetings. These features will encourage the

sharing of ideas as well as nurture a sense of bonding among learners, leading to a feeling of *esprit de corps* that provides learners with emotional support. In short, good html modules should develop reciprocity and encourage cooperation amongst learners.

Incorporate new media technologies and social networking tools
Html modules can make learning come alive by incorporating new media technologies like video clips and podcasts, and social networking tools like Facebook and Twitter. The sense of empowerment that comes with feeling connected via new media technologies is exhilarating and will score brownie points with learners.

Active learning
The use of colourful and interesting images, graphics, animation and interactive elements like educational games makes learning via html modules a powerful, stimulating as well as fun-filled experience. Links to multimedia tools, computer simulations, statistical and music software will mean that learners are actively engaged in creating and making sense of things.

Assessment on demand
Html modules should enable learners to engage in self-assessment using computer-generated interactive questions. Questions can be in the form of interactive quizzes, multiple choice questions, "yes-no" or "true-false" statements. The assessment may be formative or summative, but it should always be readily available, self-paced, self-accessed and self-assessed.

Immediate feedback and reinforcement
Good html modules offer immediate feedback to assessment at critical points in the learning process, thereby motivating learners and reinforcing learning. This also gives learners control over their learning as it allows them to decide when to move on to the next learning block.

Tracking system
Good html modules should have an in-built system that enables them to track and record learners' assessment performances as well as generate assessment reports on demand. This helps to keep learners informed of their progress and allows them to compare their results and performance with that of their peers.

Helpdesk and learner support
To reduce learner frustration accruing from problems related to course content, bandwidth or download demands, html modules should be backed by a helpdesk which provides learner support and makes them feel part of an online community.

Challenges and the way forward

Researchers like Khoo and Idrus (2004) have highlighted the fact that concern for quality in higher education seems to be at an all-time high. Many believe that customer perception of quality is essential to the survival of educational institutions and only those that offer quality products and services will survive and prosper in future (Jenkins, 1991).

This is only to be expected, given the financial turmoil of the 1990s which has resulted in an economic outlook filled with uncertainty. Education providers today need to be more prudent in their spending, more customer-oriented and more industry-driven. Added to this, there are other challenges brought on by globalization, such as the massification of higher education programmes, internationalization and diversification.

OUM has taken a multi-pronged approach towards meeting these challenges. Besides coming up with industry-driven programmes, it has also focused on ways to make learning even more learner-centred than before, coming up with new e-learning initiatives, including e-GATE (to hone learners' proficiency in English), the Math Resource Centre, shared, online Open Educational Resources (OER) and even a mobile learning-via-text messaging project. The production of html modules is another of these e-learning initiatives.

There are problems, of course. These include differing levels of technology preparedness (Malaysia is still a developing country and there is a digital divide between urban-rural, haves and have-nots), inadequate broadband width, the frustration learners feel when they lag behind, and differences in mindsets of tutors and facilitators regarding the type of learning best suited to ODL environments (Woo & Lim, 2009).

Despite these problems, however, logistic and cost considerations suggest that html modules are likely to play an increasingly important role in the future. Just as today's younger generation of avid readers are turning to e-books as a lifestyle practice, so too, are today's adult learners, especially those juggling studies, family and career, embracing e-modules as a matter of convenience. It is not clear whether html modules will, one day, make print modules redundant. However, they are definitely a viable complement to print modules. There is thus much to be gained from seriously considering experimenting with quality html modules to offer learners a better quality learning experience.

Conclusion

To conclude, this paper highlights the need for ODL institutions to come up with new e-learning initiatives in order to offer learners a more fulfilling learning experience. This may go a long way towards helping such institutions stay relevant in an increasingly competitive market. The introduction of html modules is discussed as a viable complement to, and maybe even a replacement for print modules.

To be truly effective, however, such modules need to meet certain standards and be able to achieve objectives not inherently possible with print modules. The first batch of OUM's html modules, uploaded in May 2010, is used as a test point for discussion. A

taxonomy of best belief practices, which translates into characteristics that all good html modules should have, is outlined. It is hoped that this will not only provide guidelines for carrying out a formative evaluation of the e-learning initiative but will also provide useful pointers for improving the html modules.

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