Sustaining Instructional Design Strategies to Enhance E-learning Among Learners at Open University Malaysia

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Abstract: The OU Malaysia views the use of advance technologies, especially e-learning as important as the University espouses a life-long learning culture with the intention to produce knowledge workers. This paper will showcase how the implementation of e-learning efforts in OU Malaysia through three methodologies: providing basic information, providing multimedia content and conducting online interactions. These efforts are in use to cater the different needs and expectations of the learners. This paper also explores on the various attributes in WebCT that are exploited to create a culture of e-learning. The e-learning design process, the adoption of the constructivist and objectivist approaches and the attributes of motivation are further described in this paper to sustain the instructional design strategies to enhance e-learning among learners at OU Malaysia.

Introduction

OU Malaysia was officially established on 10 August 2000 and our first program was offered in August of 2001. Our mission is to provide flexible, easily accessible and affordable life long learning opportunities to open and distant learners. Currently OU Malaysia has 12 undergraduate and diploma programs offered through five schools, that is School of Business & Management, Information Technology & Multimedia Communications, Education & Humanities, Science & Foundation Studies and Engineering. To support our learners we have thus far produced an estimate of 60 print-based modules and four sets of multimedia courseware (on CD ROM) and another four sets of multimedia clips for the web. To cater for all this needs, the Centre for Instructional Design and Technology was set up on January 1 2002. Its main responsibility is to assist the schools develop open and distance learning materials that are used in their programs. The center has been given the task to create more e-learning materials. Thus to start the discussion on our paper, we will look at a definition of e-learning that will help keep us focused on our e-learning efforts.

According to Rosenberg (2001), e-learning refers to the use of Internet technologies to deliver a broad array of solutions that enhance knowledge and performance. It combines both the online and knowledge management attributes. Some of the success factors for e-learning includes creation of a learning culture, receiving support of leaders, creating a nurturing environment, sustaining change throughout the organization, having formal instruction but goes beyond it, is happening all the time, has intellectual capital build-up and the individual and organizational performance is increased. In creating and exhorting the e-learning culture, the instructional design (ID) process employed must be sustained throughout the learning continuum. Instructional Design according to Reigeluth (1985) is 'the process of deciding which methods of instruction is best for bringing about desired changes in student knowledge and skills for a specific student population'.

E-Learning Efforts at OU Malaysia

E-Learning efforts at OU Malaysia are implemented through 3 methodologies: a) providing basic information about the course that is being offered, b) providing multimedia content and c) conducting online interactions. The purpose of this variety is to cater for as much individuality as possible in terms of learning styles, aptitudes and time constraints. WebCT is the learning system that has been adopted by OU Malaysia and most of the e content is uploaded into the WebCT.

Providing Basic Information

Basic information consists of putting up course information such as syllabus, course objectives, readings, relevant websites and announcements. In OU Malaysia, e-executives carry out this function for those courses where

faculty is not permanently with us. For those faculty which are permanently with OU Malaysia, they upload the information on their own.

Providing Multimedia Content

Multimedia content consists of two types: courseware and stand-alone multimedia clips. Courseware is created for those subjects that are difficult to understand and need a lot more e-support. The courseware is normally loaded onto CDROM. With courseware, the learner is allowed to practice a lot more and feedback is given to help the learner attain learning objectives. Courseware also consists of problem-solving strategies whereby the learner is able to immediately check his/her understanding. Stand-alone clips are normally loaded into the WebCT and the purpose of the stand-alone multimedia clips is to allow the learner to view/listen to it and then discuss the issue related to the clip using the online discussion board in WebCT. A team of experts consisting of multimedia programmers, graphics artist, animators and audio and video specialist creates the multimedia content. The content is first visualized and designed by a team of instructional designers and subject-matter experts. In the process of developing courseware, Gagne's Nine Events of Instruction are adopted by OU Malaysia. Gagne (1992) suggests that learning tasks for intellectual skills can be organized in a hierarchy according to complexity: stimulus recognition, response generation, procedure following, use of terminology, discriminations, concept formation, rule application, and problem solving. The primary significance of the hierarchy is to identify prerequisites that should be completed to facilitate learning at each level. Prerequisites are identified by doing a task analysis of a learning task. Learning hierarchies provide a basis for the sequencing of instruction.

Conducting Online Interactions

Online interactions are crucial in e-Learning efforts especially for open and distance learners as these interactions allow them to discuss shared experiences, which may otherwise be lacking. Online interactions are conducted via the WebCT learning system. Two of the most popular interactions are the email system and the online discussion board. The online moderator is the face-to-face tutor who meets the students once a fortnight at OU Malaysia's selected learning centers. Each online moderator has between 20-25 students. The online moderator has two important roles to play. One, is to answer student queries related to content. For this the students are advised to use the email. The other role is to moderate online discussions related to the content under study. As each subject is divided into 5 study units, the discussion is designed in such a way that, every two weeks, there is a discussion on one of the units. In this way, issues related to the subject is covered quite adequately.

According to the official WebCT website, WebCT has five attributes which can be applied to the innovation of technology in our university. The attributes are relative advantage, compatibility, complexity, trialability, and observability. The table below describes the five attributes. These attributes also contribute to sustaining of instructional strategies to enhance e-learning among learners in OU Malaysia and are elaborated in the section below.

Attribute	WebCT as innovation
Relative Advantage	• Automated marking of tests (multiple choice, short answer, matching and calculated questions) • Easy course administration • Communication (synchoronous and asynchoronous) between lecturer-students and students-students
Compatibility	WebCT is used for both residential (via the Intranet) and distance (via the Web education)
Complexity	WebCT is very user friendly and lecturers/tutors find it easy to use
Trialability	Lecturers/tutors can choose which WebCT functions they want to use, e.g. • Provide access for students to the current teaching material, study guides in the form of text • Communication via the Bulletin Board, E-mail, Chat rooms, • Testing which is graded by the computer and the grades are statistically processed • Course management, e.g. the student class list, student tracking
Observability	• Any function which the lecturer/tutor wants to use, is

	immediately available to view

Table 1: WebCT attributes that sustain instructional design strategies.

E-learning Design Process

According to Shank (2002), the key step in the e-learning design process is the creation of the plan for "interaction design". A series of criterion are considered before embarking on the plan: a) To determine what kind of courseware to create in the first place b) The size of the content to be developed c) The kinds of activities it should cover d) The kinds of coaching and support should it include.

The steps taken to determine concretely what needs to be taught with the solution being expressed in a specific work product are specification of teaching points, design theme, project timeline, prototype, production plan, implementation review, and functional specification.

The first activity is to gather data on what the specific need is. To get teaching points, experts and practitioners are interviewed. Teaching points are a refinement of information gathered during weeks of research and interviews. The goals of the course are to be described, and written documentation must be examined. In order to make an impact on performance when teaching, one needs to identify impact behaviors that will have the greatest effect on learners' performance and success on the job.

In determining a design theme the development team essentially chooses certain design architectures and past project experience as a style of interaction to use. A general approach 'hypothesis-driven investigation' is then adapted to assist in the designing of theme. This also involves in the planning out and dividing the design into tasks or activities and the time spent for each activities or tasks.

Before a task is designed it is structured by choosing a sample problem which is taken from a book. A learner's input is taken into the design process by having some learners work the problem using the books with the involvement of the tutors. A graphical representation of a design is done at this stage. A simple checklist is created in the forms of bulleted lists as a specific sense of how the core task is to be structured in the content.

At the production stage it describes what to be taught and how we plan to teach it. There are several decisions yet to be made as the design is structured - How will the details of the interaction be staged? What specific materials will be required to implement the interaction? How will the specific decisions the user makes be structured? How will the user be led to generalize from the specific scenario to the overall task?

After decisions have been made a walkthrough using a simple template is created. This creation is actively done by the design team members, to subject matter experts and in some cases, a representative of the user group. The design team and subject matter experts at the implementation review stage pose several review questions such as: a) Will this be an effective design? and b) How much effort will it take to create?

The final step of the e-learning instructional design process is to convert the walkthroughs into an overall learning system to the users. This also involves getting feedback from the learners and deciding on the solutions to the feedback. Adjustments are then made to improve and also to make the development of e content a cost-benefit content.

Sustaining the Instructional Design

Instructional design of e-learning is sustained by adopting a constructivist as well as an objectivist approach to learning. This is crucial as open and distance learners at OU Malaysia come from various backgrounds, experiences, and learning abilities. Constructivist learning strategies will suit the more advance learners, those who are in-charge of their learning and are ready to move forward. On the other hand, students who need to be lead, coached and monitored closely, may use the multimedia courseware to help them attain their learning needs according to their styles. These students may also use more of the emailing system to take advantage of the one-to-one coaching. However, this does not mean that they stay completely away from the online discussions. In fact online moderators are trained to identify learners who are not very active and coerce them to join the discussions. Instructional design of e-learning is also sustained when students are encouraged to contribute discussion topics for online discussion. In this manner, the student curricula is also met.

In a more physical sense, instructional design of e-Learning is sustained by providing students with computer facilities at OU Malaysia's learning centers. This is especially crucial in remote areas especially on the Borneo Island where students do not have ready access to Internet and computers.

According to Moshinskie (cf Rossett, 2002), organizations implementing e-learning projects are facing high attrition rates. During the online course, several strategies can be adapted to create and maintain motivation. These

include a) maintain a conducive environment – is related to how learner is influenced by environment factors, people support, learning design strategy, and technology accessibility, b) proper chunk of information – this includes review of pre-requisites, an overview of objectives, interactive presentation of materials, job-related exercise, and a summary, c) build on the familiar- interest is build on by incorporate learners' beliefs and examples, d) vary the stimulus – vary information presentation by using audio, video, and animations, e) provide human touch – chat rooms, email, electronic office hours, video streaming and online mentoring can supply the human touch not only from tutors, also from fellow learners.

Future Plans

With the increased number of students using the WebCT, OU Malaysia has set an incredible pressure on the infrastructure, and more specifically on the availability of computers for our remote students. With the growing number of our Learner Support Centers in Malaysia it is hoped that the involvement of learners with technology will immensely improve their knowledge acquiring capabilities. This will ensure the implementation of WebCT or alternative learning system as part of a broader strategy to guarantee the creation of an e-learning environment. What we are therefore seeing as emerging is an integrated approach to sustaining instructional design strategies to enhance rich e-learning experiences in the flexible and affordable environment.

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