

Developing E-learning Courseware/E-Modules for a Medical, Dentistry and Pharmacy University in Africa (Mozambique)

Abstract: This paper describes the social constructionist efforts of graduate students from a minority urban University in Los Angeles, enrolled in an e-learning class, in developing E-Learning courses/modules for a medical, pharmacy and dentistry University in Africa. The paper further provides an account of experiences, and lessons learned in the design, development, of the e-modules and their challenges in integrating open source software. The paper further discusses the instructor's and students' perspectives related to the role of E-learning and future implications in the light of current trends in e-learning and globalization.

Introduction

The last decade has seen a wave of technologies that have revolutionized the pedagogy of e-learning. With faster processing computers and high speed internet connections, the world seems to be getting flatter with modes of communication becoming transparent and seamless. The first group of people to exploit the power of e-learning has been the corporate world followed by the scientific and research community and slowly by Universities of higher education. Teaching and Learning is no longer confined to a classroom or a place. With the sudden surge in the online and mobile technologies of the last decade, teaching and learning is not only on-demand but has also become mobile. Technologies like PDA's, i-pods, wireless laptops, mp3 players are ubiquitous and people are now able to learn while at a café, during lunch breaks, waiting at airports, and while traveling. Further, several of these multimedia technologies are merging with each other and/or can be used in conjunction with each other, and they have revolutionized the pedagogy of e-learning. This paper describes the collaborative efforts of 20 graduate students enrolled in an E-Learning class (from a minority institution in Los Angeles) in the design and development of E-Learning courses for a University in Mozambique. The paper further discusses the instructor's and students' perspectives related to the role of E-Learning and future implications in the light of current trends in E-Learning and globalization.

Overview of E-Learning

What is E-learning?

According to Clark and Mayer (2008), E-Learning is defined as instruction delivered on a computer by way of CD-ROM, Internet, or intranet with the following objectives:

- Includes content relevant to the learning objectives
- Uses instructional methods such as examples and practice to help learning
- Uses media elements such as words and pictures to deliver the content and methods
- May be instructor-led (synchronous e-learning) or designed for self-paced individual study (asynchronous e-learning)
- Builds new knowledge and skills linked to individual learning goals or to improve organizational performance

Guri-Rosenblit defined E-Learning as, "a relatively new phenomenon and relates to the use of electronic media for a variety of learning purposes that range from add-on functions in conventional classrooms to full substitution for the face-to-face meetings by online encounters" (2005, p. 469). Clark and Mayer (2008) stated that the three main purposes of e-learning are "to inform workers, to teach procedural tasks, and to teach far-transfer or strategic tasks" (p 382). These goals can be accomplished through features of e-learning like providing practice with feedback, social software and collaboration, tailored instruction, and simulations and games (Clark & Mayer, 2008).

E-Learning Vs Distance Learning

Distance Learning is learning that occurs when the instructor and the students never physically meet. Distance Learning and E-Learning both use information communication technologies (ICT). Although both use ICT, they differ in the way that they use them. Distance Learning uses ICT for all means of communication with students, whereas E-Learning can use ICT to supplement traditional face-to-face instruction.

Instructional Setting

The IT program at minority Urban University in Los Angeles, provides two Master's options, 1) New Media Design and Production and 2) Computer Education and Leadership. The E-Learning class was offered as an elective. All twenty three students' taking the E-Learning class came from different work backgrounds, such as school teachers, community college professors, computer programmers, private business owners, and linguists. All students were novices in the area of E-Learning. The instructor area of specialization is Distance Education however, this was the first time the course was being taught at the University

E-Learning Course Design, Development and Implementation

This section describes a collaborative design, development, and implementation of E-Learning course within the Instructional Design and Technology (IDT) curriculum via a hybrid learning environment. The hybrid learning environment included collaborations via a blend of both online and face to face interactions. The following paragraphs describe the role of key players in the community of learners: the content experts, instructor and students in the course development and learning process. Students and instructor's perspectives and strategies used for creating an effective collaborative learning environment are also discussed in light of current trends in E-Learning.

Content Development

Course Objectives and Materials Used

The theoretical foundations and rationale for the E-Learning class was based on the literature on social constructionist philosophy. A major focus of social constructionism is to uncover the ways in which individuals and groups participate in the creation of their perceived social reality, which this case was e-learning in the context of solving global issues. Socially constructed reality is seen as an ongoing, dynamic process; reality is reproduced by people acting on their interpretations and their knowledge of it (Berger & Luckman, 1967). Social constructionism sometimes can be seen as a source of the postmodern movement, and has been very influential in the field of humanities and cultural studies. The postmodern approach within the social constructionist strand in this class stressed on the on-going dynamic dialectical interaction among students in co-creation of their own class curriculum and apply their knowledge and experience into a final culminating project of creating E-Learning curriculum for medical, pharmacy and dentistry University in Africa. The primary goal of this class was to allow students to take ownership of their own learning, go through the trials and tribulations as an e-learner, before they take upon the role of e-designers and developers.

The main textbook used in the class was, 1) E-Learning and the Science of Instruction (Second edition, 2008) by Ruth Colvin Clark and Richard E. Mayer. Several other resources and free e-learning books were also used as class readings. The class syllabus allowed for learning process that was student directed, via several open-ended projects and activities. The class assignments included online seminar presentations, writing papers, critiquing an E-Learning program, teaching an E-Learning authoring tool via web, podcasting an interview with an E-Learning expert and the final project related to developing an e-learning courseware for the African University. The class structure was semi-structured and focused on student led E-Learning process as the primary instructional strategy. The content of the class was designed and developed by students via their group online presentations and creation of e-modules on authoring tools, articles related to e-learning, glossary of terms used in e-learning, best practice examples etc. Since the students were novices, the some of the topics were assigned to the students by the instructor. However students were given freedom to explore each of the topics and share their expertise and contribute multiple perspectives in class based on the real world examples. The topics were based on two building blocks of E-learning process: E-learning Authoring Tools and E-Learning Pedagogy and Theories.

Context of the collaboration with the University in Africa (University of Unilurio)

In the summer of 2007, the instructor of this class, volunteered in Mozambique to conduct workshops on technology integration and digital repositories for a newly formed University in Mozambique (University of Unilurio). University of Unilurio was only 2 weeks old with 200 students enrolled in medical, pharmacy and dentistry colleges. The Vice- Chancellor expressed a need for increasing the enrollment via offering E-Learning courses and also incorporating blended learning environment into the curriculum. An informal needs assessment was conducted by interviewing faculty and several areas for technology integration were identified. One of the primary need expressed by the faculty were to infuse e-learning modules, use of simulations, visualizations and web based instruction into their curriculum. With this background, the E-Learning class was a pilot initiative by the Urban University in Los Angeles to collaborate with University of Unilurio. The goal was to utilize existing skills and technologies at the Urban University to support the faculty in Mozambique.

Content Management

The course was taught over 11 weeks with a blending learning format of face to face and online meetings via web conferencing tools like WebCt chat, Mebeam, Skype. WebCT, a class Wiki and open source Learning Management System (LMS) "Moodle" were used as course management and collaborative tool. The WebCT default interface was redesigned by the instructor to make it user friendly and accessible for the students. The WebCT included 11 weekly modules with detailed description of the weekly activities, classroom activities, resources, rubrics, seminar instructions and protocol for conducting the seminar. A class Wiki was developed by students' to collaborate on various projects, research papers, and weekly reflections and to post their completed assignments. The class Wiki eventually took over the class WebCT and became the primary tool for collaboration and communication. The class Wiki also served as a container for all the materials that students were generating for their own class as well as for the curriculum in Africa (which was their final project). Several articles and research related to E-Learning were posted on class Wiki and WebCT as resources for students. Some of the articles were contributed by students.

Of the several topics assigned by the University in Mozambique, based on the class time frame, the three areas in which students developed E-Learning course modules were: 1) Teaching English as a second language to Medical, Dentistry and Pharmacy students 2) Technology integration and use (like basic computer applications, Web 2.0 and other tools to both faculty and students from the Medical, Dentistry and Pharmacy college 3) Introduction to research design and applied statistics to both faculty and students from Medical, Pharmacy and Dentistry college. Finally all the materials related to E-Learning courses/e-modules, simulations, video based tutorials etc developed by the students were all hosted on a Moodle site created by two graduate students in the class. Because of the lack of access to any commercial LMS, an open source like Moodle was selected for this purpose. This Moodle site will serve as a part of an ongoing course development and collaboration between the two institutions in Los Angeles and Africa.

Course Implementation

During the first 4 weeks of the class, students were very skeptical about several issues related to use of different technologies like Wiki's, Blogs, Web conferencing, WebCT etc as many of them were new to an online learning environment. Most of them were frustrated with the intense textbook readings. However, once the class Wiki was established, students started to experiment and play with the different features. By the end of the 5th week of the class, 80% of the class felt a little comfortable. However, the challenging part was accessing class WebCT and Wiki regularly and keeping up with the discussion postings and assignments.

The class atmosphere slowly transformed as students formed groups with common interests and skills. Student's were interacting, questioning, and leading discussions on E-Learning topics and extending it to the current issues like globalization, multiculturalism, out-sourcing, distributed learning, online blogs and practical problems related to E-Learning. This was the most enriching experience both for the students and the instructor with multiple perspectives on the several issues shared and discussed in the class. The most interesting development as the class progressed was the transformation of the novice students into becoming experts and leading the E-Learning course. The instructor served as a facilitator and a co-learner for this entire class. The instructor spend a lot of time engaged in observing and taking notes of the class dynamics and their associated with different learning tools implemented in this class and providing scaffolding whenever needed.

Role of E-Learning and Future Implications

The E-Learning class (under the old title of EDIT 565: Distance Education) was taught at the University in spring 2008 as a pilot class. The distance education class on the course catalog was revived as an E-Learning class. The following is a preliminary report of content analysis of students' WebCT and Wiki chats, discussions, classroom observations, student reflections, written reports and feedback. The quantitative and qualitative data will be collected at the end of May 2008 and detailed analysis will be presented at the conference contingent upon the acceptance of this paper.

Students' Perspectives

The students contributed immensely to the E-Learning course curriculum and the class structure. The E-Learning class exposed them to the many facets of applying E-Learning and theories to create learning environment for a variety of settings. Some of the comments made by the students about the class are:

"Another aspect of e-learning is the phenomenal appreciation I have gained as a learner for specific, detailed directions and increased appreciation for face to face meetings. When posting on-line directions, our professor writes with such clarity to allow us to explore and create new meaning on our own. At the same time, the struggles I have at home to complete individual tasks is softened with the knowledge that I will be able to receive individualized assistance at our next face to face. The hybrid course allows a safe space to learn with embedded opportunities to learn by trial and error at home and school".

"I think we are also starting to get used to the course - it forces us to become more independent learners and is good practice for thinking about how we will deal with issues in our own classes, should we decide to deliver some of our classes wholly or partly by e-learning. Perhaps by remembering the anchors we clung to on the first sessions (for me it was my TESOL team) and how we have managed to communicate effectively rather more remotely than we are used to, we shall be able to reassure and support our own students through their first e-learning experiences also. The technology for most of us - the packets, frames, cells, IP, bits, bites, routers, servers, and compressors are relatively simple concepts that are easily understood. The most difficult parts are the human interfaces, time-management, relationship management and effective non face-2-face communications - but then I suppose these are the same issues in teaching no matter which medium is used. Thus far, I am enjoying the experience!"

Another student mentioned "E-learning can be extremely effective for fast-paced learners and learners with short attention spans. Students can access and leave the class as needed. It is more stimulating for students who think "chalk and talk" teaching is boring. It can also be good for students who need more processing time. An e-learning environment gives a student the time to think and it also can be set up to give students practice opportunities. This is important because I think it is important that students learn something even if they don't understand something the first time. I see now that my West Los Angeles Community College experience was distance learning using an e-learning environment and my experience with this class was e-learning in addition to a traditional class setting."

Until now, "e-learning" has sounded like a marketing term. Along with eBay, iPods, and iPhones, "e-learning" has the ring of Madison Avenue getting excited about the next *big thing* in technology. Of course the "learning" part kills a lot of the sex appeal, but that leading "e" is pure gold. I would not be surprised if Apple Computer already has the copyright for "ilearning.... The class text does present a great number of specific e-learning methodologies, which reveal, in near-recipe format, how to implement learning with technology. This includes management of cognitive load, personalized learning pathways, and evaluation that guides the student into greater comprehension. Again, this paints a very different picture than the initial marketing angle thoughts I started with when considering e-learning. It has become second nature to think in terms of methodologies, needs, cognitive theories and the like when referring to the singular term "e-learning". It is also more exciting to think that this single term relates to such studies as psychology, sociology and neuroscience, as well as education and computer science..... Finally, e-learning is on the leading edge of education worldwide. It is too early for historians to put all of it in perspective, but no one can doubt that e-learning is just too rich to remain in a minority position of teaching modalities. I predict e-learning will be adopted slowly at first. During that time it will also be greatly improved. People will not stop being social no matter how many ways we can provide computer technology, so I foresee a future of blended e-learning and face-to-face learning. I also see changes in how we learn, what we learn, how we see the world, and ultimately how we remake the world with our new ideas. e-learning is here to stay (and grow)".

“When I first enrolled in EDIT 565, I felt confident that I could handle the task of creating an e-learning lesson. After reading Chapters 1 and 2 in Clark & Mayer, I feel as though I can create a lesson but making it work as an e-learning lesson I am not so sure. All of the information about how the brain works to acquire new material and commit it to long term memory, I am fairly familiar with since this is what I learned in my credential program. I try to apply these techniques in my everyday teaching. The doubt comes in with making it adequate for e-learning and not making the lesson too overwhelming so that the learning becomes so overburdened with material or graphics that the meaning is lost in the lesson. I feel confident enough to learn all of the software and applications we need for this class but I am hoping that my confidence comes back that I can create a lesson that is meaningful and promotes the learning that I intended it to. I really enjoy learning new methods of presenting material. I am really excited about the University of Africa project and excited that this experience will give me more ways to develop lessons for my high school math students”.

“I wondered how learning about e-learning was going to take place. I wondered, how you can teach e-learning. I have taken other computer courses that have been all theory and thought I understood most of what was going on it would have been beneficial to me to see the applications. I think that is what I am getting from this class because we get the theories, but also the practice. As we are taking this class we are seeing what works and what does not. We are putting the theories we are learning to use and there is no better way to learn. The way in which the class can communicate with each other seems also to work out very well. I have taken other online courses and have not seen the communication that is on the same level as that in which is going on here. I feel classes conducted in these manner students are more involved. I think that I have put a lot of time into this class, more than in a traditional classroom. But I do not feel like it is something that can not be done. I don't feel overwhelmed; in fact I enjoy the trial and error of using a Wiki and being able to post my assignment. In this class I am actively working when I am “in class”. I am not sitting there having a professor lecture at me for three hours”.

“My questions - will I be able to keep up with the technological advances before me? Is it my fate to walk into the realm of the Jettisons? Is resistance pertinent or beneficial? Actually, I am in the frustration phase of learning, which means I am growing. The designers and officials of pbwiki are supportive and encouraging. They offer webinars to people like me so that I can learn how to protect my children, how to use a wiki efficiently and for purposes that benefit students or whomever. I am learning how to use e-learning authoring tools and although my mental muscles ache from the strenuous workouts Dr. J organized, I hold to the hope that I will be better and more fluent in e-learning by the end of this quarter...and I will make it

Meaningful communication and interactions also played a key role in building a learning community of students most of whom said that they collaborated and worked virtually with each other more than they would have in a face to face classroom. Students' artifacts in the form of their class Wiki, research papers, seminar presentations, podcasts, blogs, their personal Wiki's, videos, and finally the E-Learning course ware/e-modules for Africa will be showcased at the conference presentation.

Instructor's Perspectives

The preliminary analysis of the pilot E-Learning class has provided empirical evidence that integration of E-Learning competencies are vital to any IDT program that would like to provide avenues to their students to practice in a variety of settings, where blended and online learning are becoming primary mode of education. The student lead social constructionist approach, allowed the students' to explore their own understanding of E-Learning and promote critical thinking and reflective inquiry. The instructor had relinquished all authority as the class teacher by 5th week and letting students take over the rest of the class learning process and structure.

The instructor tried to focus on making all the content and resources available to the students and exposed them to a plethora of E-Learning tools for the students to explore. The instructor concurs with one of the student comments about “sticky content and the value of "sticky content" on websites and how this type of content can affect the frequency of web visits and the duration of the visit. It's a phrase that has been going round marketing circles for a long time but is rarely applied to learning & teaching websites. 'Sticky' refers to the propensity of the learner to return to the website and to remain on it for longer and the longer a student remains, the higher the probability of learning something new. The 'stickier' the website of course the more often the student will want to log on and herein lies the trick that has for long been used in online marketing campaigns, especially for toiletries and cosmetics. To achieve this effect, the website must tell the student something new each time they log on and the information must be of more value to them than the time they lose in logging on. For example, most of us use online banking and the reason we log on frequently is that the information is very valuable and affects our daily lives. We may already know the contents and just seek reassurance. The point is that students need reassurance, encouragement, motivation, incentives and rewards probably more than most

people. Previous research (Geddes, 2006, p. 9) has shown that feedback from their teacher is the highest motivating factor in the completion of homework. Knowing this information can help us dimension the contents of a website and add the value that students or patients for that matter, really need. It can also make for a very successful, and 'sticky' website.

Although the WebCT content website was improvised by the instructor following the “sticky content” philosophy, not all students were active as frequently in posting their reflections, discussion messages. One of the reasons could be that the class WebCT was integrated with a student created Wiki that did not have a user-friendly interface which could have been improved by integrating Wiki within the WebCT.

Since the class is still in progress, more perspectives and lessons learned will be shared after all the data has been collected and analyzed. The crucial part of the class is final project on developing e-learning courseware/modules for the University in Africa.

The instructor attempted to apply what Giroux (2006) mentioned in one of his article on higher education, “Higher education is one of the few places where scholars can be educated for life in a global democracy by becoming multi-literate in ways that not only allow them access to new information and technologies but also enable them to be border crossers capable of engaging, learning from, understanding, and being tolerant of and responsible to matters of inclusiveness, meaningful difference, and otherness”. The presenter of this paper welcomes ideas and suggestions to improve this class and any practical recommendations that will allow this E-Learning class to improve in future.

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