

xLearning for Efficient Delivery of On-Line Content

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Abstract- Widespread use of portable and mobile devices requires drastic changes in the ways the universities deliver a courseware. The new University 2.0 incorporates courseware and services enabled by emerging Internet technologies being developed for every device in use today. This paper provides insight and guidelines for integrating these new technologies for making xLearning more efficient and relevant. New ways of teaching and learning requires a shift in system design in context of a subject domain for teaching and learning in a virtual environment, also known as the new University 2.0.

Keywords- Blogs, Delivery Methods, Google Docs, IM, iTune-U, University 2.0 and Wikis, xLearning

I. INTRODUCTION

In recent years lots of progress has been achieved in on-line education. Many eLearning programs are now setup for a virtual learning environment (VLE). There is much evidence in universities in ASEAN to characterize online learning as having come of age. It is a well known fact that in last decade using online technologies is more of an expectation than a novelty for today's university students in ASEAN. According to Wordstat.com about 42% of the users of Internet reside in Asia.

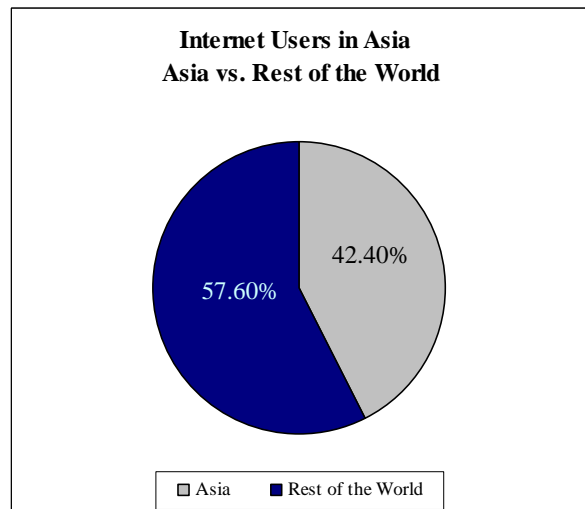


Fig. 1 Internet Users in Asia

It is evident that the Internet has also become an integral part of university education in terms of accessing learning resources, communicating with faculty or classmates, and its overall usage. Likewise, eLearning courses are also becoming integral part of a university degree program at all levels. However, providing good learning experiences in a VLE poses new challenges. It requires different strategies about using the on-line media as well as the content and technical experts to properly guide course development process. This paper describes a strategic action plan for effective delivery of on-line learning.

According to Biggs (1999) current teaching practices certainly does not acknowledge that learning, for most students, is a process that is not so much about "what the instructor does" but is about "what the student does [1]?"

II. xLEARNING- A NEW LEARNING PARADIGM

In the last decade F2F learning has been changed. It is gradually being replaced by eLearning, mLearning and Goolearning and with many more delivery methods and means [2]. Today one can use any device to connect to the Internet and access any information or dive into a knowledge repository residing in the web. The “x” in xLearning signifies any device ranging from a PC, laptop and a notebook to a mobile phone. Besides a device, another thing that is needed is connectivity. A device can provide a user interface ranging from a small size screen of a smart phone (e.g. iPhone) or a larger display in a PC or a laptop. The relevance of xLearning in higher education cannot be doubted or debated anymore. Today the students learn continuously from their environment and the Internet has become an integral part of daily living and some way or the other deeply touch their lives on a daily basis. xLearning has tremendous capability to remove asymmetry that has been a part of traditional F2F instruction. The most relevant feature of xLearning in colleges or universities is that it brings engagement through technology. xLearning can bring information and data in various formats for a wide variety of devices and can be easily interpreted with click of a mouse.

2.1 New Outlook for xLearning

xLearning requires system design that can support learning through a variety of devices that connect to the Internet. It is essential and important to understand that xLearning is not just complimentary or a stand alone solution. It addresses learning through any device used by a student. xLearning in higher education can bring high levels of interactivity and engage students in an active learning process suited to their needs and abilities, hence, giving them an immersive learning experience through their own Informal Learning Environment (ILE).

A new premise for xLearning requires that an organization- be it a corporation, university or any other entity- should facilitate two discrete but related virtual environments on behalf of its users [3].

1. An Informal Learning Environment (ILE) which supports the learning process; and
2. A Formal Learning Environment (FLE) which manages that learning.

The ILE will contain self-paced, self-directed, unmeasured learning resources such as readings, video clips, podcasts and discussion forums. The ILE might be called a learning portal, a learning centre, or some other friendly label such as PLE. An ILE is a scalable and flexible learning environment. If we view each resource within that environment as a learning object (LO), we can appreciate how easy it is to add new content, update old content, and remove obsolete content.

In contrast, the FLE will contain administrative tools such as enrolment lists, formal assessments, grades and transcripts. The FLE might be called as VLE, LMS, or some other label. Both the ILE and the FLE can be hosted on the same platform, but I think the front end of each need to be demarcated in order to psychologically separate the “learning” from its administration.

Basically a ILE is an integration of more flexible, comprehensive and dynamic communication technology (2-D/3D) used for education purposes. It is also referred as a hardware-software system designed to support teaching and learning via the Internet. A good example of a successful multi-user ILE environment is Second life (SL), an open-source online virtual world that was introduced in 2003. The opportunities created by Second Life (SL) and tools such as Google Documents, Maps, Skymap, Blogs, Sites and New Google Earth adds a completely new dimension to accessing information and gaining and sharing knowledge. It is dimension that exists in the public domain, not in a LMS.

III. NEW SYSTEM DESIGN FOR xLEARNING

Usability refers to the ease with which a User Interface (UI) can be used by its intended audience to achieve defined goals. Good usability incorporates many factors: design, functionality, structure, information architecture, and more.

According to two researchers Brill and Park at Virginia Tech the application of a variety of technologies for learning and teaching is being influenced by two significant forces: the *realm of technological innovation* (especially, today, in regard to hardware, software and Internet technologies and the *realm of learning theory* [4].

In the last five years or more the *realm of technology* has evolved at a very fast pace. The new and emerging technologies are not only essential but also shaping on-line education and training. Selecting and using the right technologies is very essential for successful learning. Instead of the emphasis being on teaching, greater significance should be given to the delivery process. In on-line learning environments the instructors act more as facilitators than as a primary source of knowledge. Students select the tools in accordance with the design and delivery options made available to them. Few important trends for effective delivery of on-line learning evolution are described below.

As a piece of guidance these writers suggest a simple catalog of components and services that could be integrated for an efficient on-line xLearning process. The success factors should be based on- *Domain, Design* and *Deliver*, a 3-step process for xLearning. These three steps are discussed in brief.



Fig. 2 Portable Devices for xLearning

3.1. Domain- Selecting Subject Domains Suitable For xLearning

In consideration of the technological trajectory, learning has evolved from textbooks to television to computers, and now to the Internet using portable and smart mobile digital devices, in a relatively very short period of time. Developments in ways of knowing and ways of learning have evolved against a backdrop of society's evolution from an Industrial and Information Age to the current Interaction Age dominated by new and emergent technologies.

Hence it is important that the subject domain selected for xLearning should be considered in all aspects of its complexity and organization. For example, offering a ICT topic that requires lots of real time hands-on work may not be suitable for xLearning. Similarly, teaching engineering or selected medical topics that require extensive lab work may not be fully suitable for a VLE. It does not mean, that the theoretical portions of such difficult areas can not be offered via xLearning. Thoughtful consideration should be given to the main objectives of a eLearning or eTraining courseware. Many skills can only be acquired with hands-on work and personal experiences.

Connectivist learning theories reminds us that the learner cannot possibly take in all knowledge provided on-line, and it changes too quickly anyway. This perspective demands a realistic approach to instructional design that doesn't rely on just accessing content on-line. Therefore it is necessary to supplement on-line content with further learning resources, not only to assist the learner to broaden and deepen their knowledge, but also to keep it up to date. Some measure such as avoiding a mere listing of hyperlinks: instead, provide explanations to help the learner recognize meaningful patterns among them. Create a social bookmarking account and encourage social networking (both online and F2F). Above all develop an Independent Learning Environment (ILE) to centralize all the resources. xLearning should encourage the learner to integrate the ILE into a broader Personal Learning Environment (PLE).

3.2 Design- Separation of LMS and PLEs

Large numbers of organizations using an LMS are frustrated because other areas of software and technology seem to have progressed at a much more rapid pace in terms of usability and flexibility. There may be a future for the LMS, but only for the vendors who are able to see the changes on the horizon and adapt before it's too late. It may disappear in the cloud.

The *realm of learning theory* for today's students using laptops and mobile phones also needs a revision. A good curriculum design is essential for making a learning experience better. It is also in a way of making sure that the main objectives of a courseware are successfully achieved. New PLE design should provide access to a wide range of resources for supporting learning.

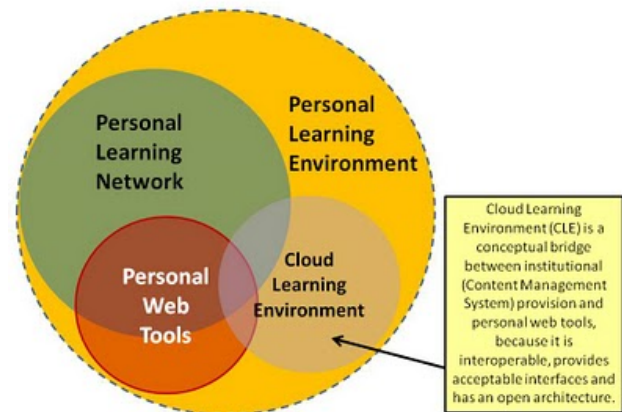


Fig. 3 Personal Learning Environments (PLEs)

The new Personal Learning Environments (PLEs) do exactly what they say on the can—they are personal to each user, created by them, owned by them, used by them within their lifelong learning. Originally, a counterpoint to the traditional LMS (LMS or VLE), PLEs are becoming more and more relevant. In some way, they incorporate few elements of Social Networks. It is the personal view of this writer that students own and create their PLE but that the LMS also has something to offer them, even though it is highly inadequate in its current form. Some researchers argue that many students tend to avoid using the LMS because they either find it difficult to use, or irrelevant to their daily learning needs [5]. It is a clash of concepts, no bridge seems possible, and the problem appears to be intractable. Therefore solutions such as cloud computing is becoming more relevant.

Another new dimension is the growth of Social Networking sites. Facebook, MySpace, Twitter and host of such similar services are also becoming primary source for information and knowledge sharing. They are also becoming an integral part of PLEs framework. Many web services such as Wikipedia, My Space, Twitter, You-Tube, and LinkedIn have transformed the way we share and consume information. Apple products such as iPhone, iPad and iTune-U are also changing the channels of distribution

of all kinds of data formats including university courses.

3.3. Delivery-Trends and Technologies for xLearning

There are some in the xLearning world who firmly believe that there's nothing most online courses do that a PDF file cannot do. In reality, a PDFs display structured text and pretty graphics and pictures. Just like a typical online course, without the fancy software or special skills. If we dispense with LMS in favor of PDFs, how can we incorporate interactivity into the xLearning experience?

This is where the concepts of Informal Learning Environment (ILE) become important. Occupying a place on the continuum somewhere between a VLE and a LMS, an ILE is an informal learning environment that a facilitator manages on behalf of a group of learners. Essentially, an ILE is a space (like a website or intranet site), the site may host some of those resources and point to others that exist elsewhere. So all the PDFs files can go in there, but so too can the audio clips, videos, puzzle, games, quizzes and simulations. Do not forget podcasts, RSS feeds, slideshows, pictures, graphics, animations, articles and real-life case studies. Not to mention blogs, wikis, discussion forums and social bookmarks that centralizes relevant learning resources in a particular domain.

For a university student one of the critical elements of xLearning is on-line access to all the materials needed for their work. A good courseware design should address accessibility issues. It is extremely important that all components of a courseware be available on all devices for easy access on-line. The courseware for xLearning should also provide on-line access facility for organizing the students' work in the form of ePortfolios. This will help students to track their work progress



Fig. 4 Cloud computing for xLearning.

IV. CONCLUSION

xLearning requires harnessing the power of range of technologies. New technologies solutions such as Cloud computing and Social Networks can not only expand learning facilities but also provide for rich interaction in ILE. This new framework made possible by cloud computing has a potential to increase student motivation for learning and lead to better results.

A general recommendation would be to refining on-line content for xLearning, starting with a very efficient content development and delivery process using a select set of Web 2.0 technologies. These are also the success factors of new University 2.0.

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