MODELS OF E-LEARNING

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Abstract: The dawn of Internet has impacted every field of knowledge. Higher education has also changed its face in this virtual world. E-learning is adopted by many in teaching and learning. This paper gives overview of various e-learning models developed.

Key Terms: E-learning, online learning, Computer Based Learning

Introduction

Basically e-learning is the online delivery of information, communication, education, and training. E-learning can be in offline form also like CD, DVD, etc. E-Learning provides new set of tools that can add value to all the traditional learning modes- classroom experiences, textbook study, CD-ROM, and traditional computer based training. It is characterized by speed, technological transformation, and mediated human interaction. (Sahu & Singhal, 2002) E-Learning means the easy use of information and communication technology, including the Internet, to learn and teach.(Raja Sekhar, 2005). E-learning (**Electronic learning** or **e-Learning)** is a general term used to refer a form of learning in which the instructor and student are separated by space or time where the gap between the two is bridged through the use of online technologies. Various authors referred the term e-learning in a various ways, such as, online learning, Computer Based Learning (CBL), Web Based Training (WBT), Online Resource-Based Learning (ORBL), Networked Collaborative Learning (NCL), Computer Supported Collaborative Learning (CSCL) (Lobo & Bhandi, 2006)

Sahu and Singhal (2002) believed that e-learning would not replace the classroom setting, but would enhance it, taking advantage of new content and delivery technologies to enable learning.

The objectives of e-Learning:_

- It provides access to hardware, software and information and communication networks
- To simplify access to quality education and training for all

- To increase the cooperation between teachers, trainers and managers involved in establishing a "Educational zone";
- To collect and share information on the best practices based on the use of information and communication technology for learning;
- To improve innovation, know-how and expertise (Raja Sekhar, 2005)

Models and Frameworks of e-learning :

In Pedagogy, the main focus is on learning processes. There are theories of learning, but no theories of teaching, only models. A Theory explains, provides a coherent and stable organization of the elements involved. A model is a theory oriented on a problematic issue and re-framed for solving a problem. (Bélisle, 2008)

A first step in theory building often consists of the construction of a model in which the major variables are displayed and the relationships among the variables are schematized. (Sahu & Singhal, 2002) There are really no models of e-learning *per se-* only e-enhancement of models of learning. Models of e-learning describe where technology plays a specific role in supporting learning. These can be described both at the level of pedagogical principles and at the level of detailed practice in implementing those principles. (Mayes & Freitas, 2004). Like any pedagogy, e-learning is based on assumptions about achieving learning outcomes. The report has discussed various theories and Models of e-learning.

In 2001, Serdiukov (as cited in Parker, n.d.) suggested learning model i.e. Teacher-Computer-Student model, which consists of some components of technology-enhanced e-learning. The Teacher-Computer-Student model has some advantages because it allows interaction in terms of Student-Computer, Student-Teacher and Teacher-Computer. Sahu & Singhal (2002) have also viewed different collaborations as

- **Teacher-Teacher collaboration**
- **Teacher-student collaboration**
- **Student-student collaboration**,

Parker has analyzed the Teacher-Computer-Student model, where Student is renamed as Learners, Teacher is Facilitator and Computer is replaced as E-Learning Technologies. Parker has discussed their role in e-learning as follows.

The Learner :

Proficiency in computer-based multimedia is an important skill to students who use the Internet on a fairly regular basis. Technology literacy is one of the foundation blocks of

technology-enhanced e-learning. Students still require lots support from their lecturers. In an online environment there are several channels of communication such as student-content, student-to student, student-to instructor, student-to-other-hypermedia content and student-to-other instructors.

The Facilitator :

The teacher is an important mediator in the process of constructive academic learning. But it is problematic that not all lecturers have the knowledge and skill of the use of technology. Educators have to learn many skills in order to maintain their competency as educators. The facilitator should be able to identify the areas where the learner needs motivation and be able to provide structured and incidental resources, instruction, direction, feedback and support to assist the learning process.

E-learning Technologies :

According to Serdiukov technologies are divided into two parts. The first being computer technology, which offers computer-based courses, computerized tests, word processors, graphics software, spreadsheets, databases and presentation software to the learning process. The second part is telecommunications technology, which offers distance courses, distributed educational resources, e-mail, and videoconferencing, bulletin boards, whiteboards and chat rooms. Text is likely the most common used media types on the web. Audio or video also primary multimedia components assist brining about richer course content. Email and instant messaging are technologies that are useful within the online technologies architecture. Educators need to be aware that technology should be used to enhance the learning process, rather than replicating the current practice. (Parker, n.d.)

Salman (2002) discussed E-tivities, a frameworks for enhancing active and participative online learning by individuals and groups. His five part framework of e-learning is represented in Figure 2 as:

1. <u>Access and Motivation</u> (These are prerequisite competencies for online participants)

2. <u>Online Socialization</u> (Participants establish online identities and networking with other participants)

3. <u>Information Exchange</u> (Participants exchange information with the e-moderator and with one another

4. <u>Knowledge Construction</u> (Course-related discussion occur, interaction becomes more collaborative & fruitful)

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5.   Development (Participants reflect and examine benefits from the system of interactions that help them achieve personal or course-related goals, explore how to integrate computer-mediated communication into other learning.)
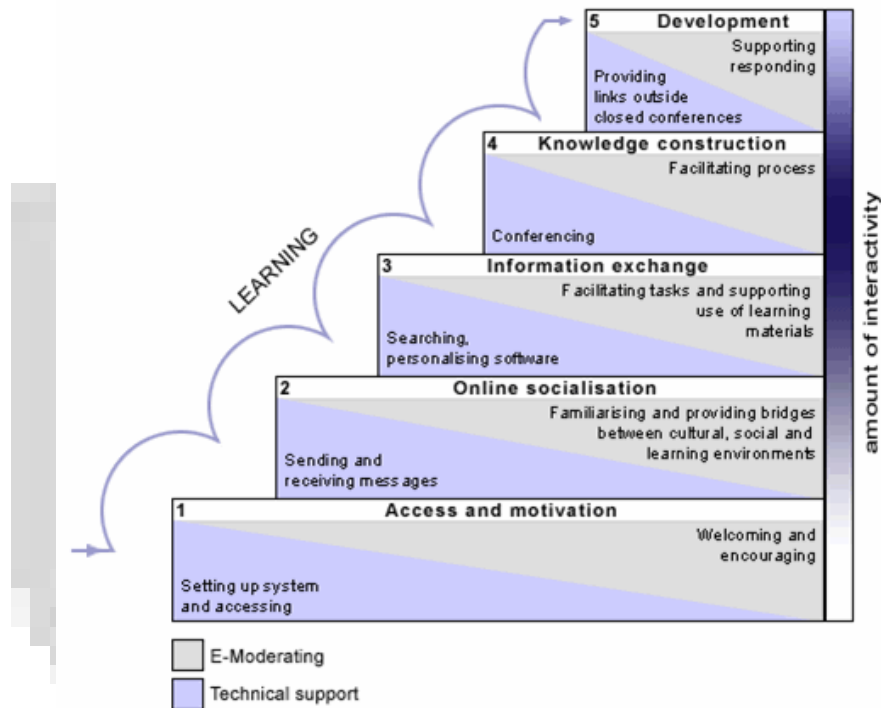

Figure 2 Gilly Salmon's model of e-learning (Salman, 2002)

Salmon strongly stated to keep down the costs of setting up e-tivities as:

1)   Make clear decisions about roles and numbers of e-moderators that are needed and the participant: e-moderator ratio.

2)   Encourage e-moderators to work in small teams, covering for and supporting each other

3)   Double the impact of trained and experienced e-moderators by encouraging them to e-moderate 2 or 3 groups of participants at any time.

4)   Keep e-moderator support to participants focused and specify what you expect them to do and when – if necessary publish total number of hours per week or month available to participants.

5)   Establish early on how much e-moderators should expect to do, and what are reasonable expectations on the part of participants

6)   Ensure that e-moderators are trained in designing, developing and running efficient and effective e-tivities. Train e-moderators in advance of starting work with their participants.

7) Train e-moderators online, rather than face to face.

8) Train e-moderators using the online platform itself, thus creating confidence in the platform as well as creating an e-moderating skill base.

9) Ensure that e-moderators can up and download messages offline if they wish.

10) Train them how to use your software or platform software to best advantage to save time.

11) Set up good helpdesk and online support systems, preferably 24 hours, and encourage competent participants to support others, leaving more of your e-moderators' online time for learning related e-moderating.

12) Use existing resources and knowledge constructed online as much as possible rather than develop materials and/or pay for expensive third party materials.

13) Develop systems for reuse, recycling and sharing of e-tivities instructions.

14) Build up economies of scale as rapidly as possible – choose only systems and approaches that can be expanded cheaply.

The Concord Consortium e-Learning Model for Online Courses

The Concord Consortium, a non-profit research and development organization, founded in 1994 by Robert Tinker has researched, designed, taught, and trained others to design and teach online The Concord Model follows nine key characteristics in delivering quality e-Learning: Asynchronous collaboration, Explicit schedules, Expert facilitation, Inquiry pedagogy, Community building, Limited enrollment, High-quality materials, Purposeful virtual spaces, Ongoing assessment(The Concord Consortium, 2002).

The Layered Services Framework

As with other approaches to e-learning frameworks, the starting point is the abstraction of service layers. Four layers of the framework identified as.

User Agents interact with users directly, such as portals, learning delivery systems, authoring tools, administration interfaces and so on. User Agents based on this framework can be either very small as well as focused or span many processes to provide a coherent workflow.

Application Services provide functionality required by user agents, such as retrieving learner information, or storing content in a repository. Application Services may be implemented so that they have some sort of user interface, but the key requirement for an application service is that it exposes its functionality for reuse by any number of user agents or other application services, and that it implements a standard interface to support this reuse.

<u>Common Services</u> provide lower-level functionality which is not education specific, such as authentication and authorization services, but upon which application services and user agents depend. Common Services are: User Messaging, Authentication, Authorization, Hierarchy, DRM, Terms/Conditions, Logging, Identifier, Filing, Workflow, Search, A Technical Framework to Support e-Learning , Service Registry, Re-solver, Institutional Profile, Metadata Registry.

<u>Infrastructure</u> is the underlying network, storage, and processing capability provided for an implementation. This is assumed by the framework, but not defined. (Wilson, Olivier, Jeyes, & Powell, 2003)

The model illustrated in Figure 4 has the two major human actors, learners and teachers, and their interactions with each other and with content. Learners can of course interact directly with content that they find in multiple formats, and especially on the Web; however, many choose to have their learning sequenced, directed, and evaluated with the assistance of a teacher. The interaction can be net-based synchronous and asynchronous. However it binds learners in time, forcing regular sessions or at least group-paced learning. Such community models are expensive, as they suffer from an inability to scale to large numbers of learners. Structured learning tools associated with independent learning. Common tools used in this mode include computer-assisted tutorials, drills, and simulations. Virtual labs, in which students complete simulations of lab experiments, and sophisticated search and retrieval tools are also becoming common instruments for individual learning. Printed texts (now often distributed and read online) have long been used to convey teacher interpretations and insights in independent study. Although it is an independent study, student is not alone.
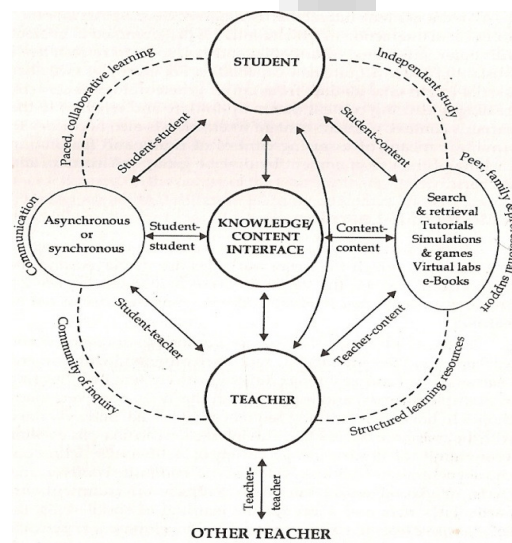

Figure 4: A model of online learning showing types of interaction (Singh & Sharma, 2005)

Online learning framework should be based upon a good understanding of an institutional core business and values, of the nature of the intended student market, and of the needs of the curriculum. Ideal online learning framework is given in Figure 5. The learning outcomes (i) are translated into course content, resources and an approach to the teaching and learning process that will enable a student to achieve those outcomes. Once these basic parameters have been thought through, the courseware development team (ii) will share the responsibility of translating the theory and intentions into courseware and online learning functions to be delivered by the learning management systems (LMS) (iii), which interfaces with the library and other digital resources (iv), related services (v), and the student information system (SIS) (vi), through a secure server (vii) that can authenticate the student login. From students' point of view, they will connect to the LMS and the related services through a user-friendly user's portal (viii), so that, with a single login, they can have access to their courses and can be linked to all related resources and services.
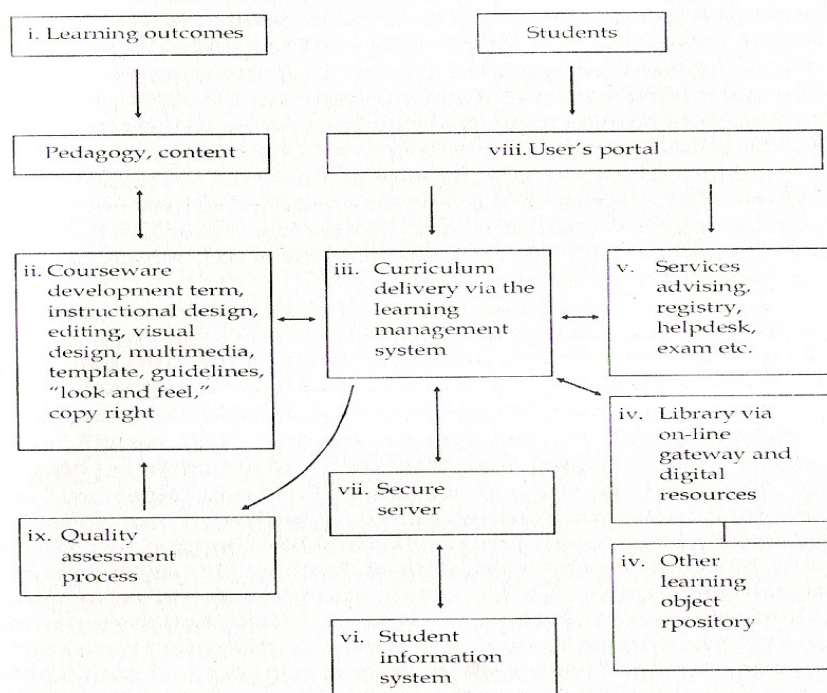

Figure 5 Framework of E-learning (Singh & Sharma, 2005)

Finally, to ensure ongoing improvement, an evaluation process for the effectiveness of the system, based on achievement of the learning outcomes and student's feedback is in place, in the form of an independent quality assessment process (ix), which also feeds back into the development cycle (Singh & Sharma, 2005).

Mayes and Freitas (2004) have concluded after surveying various models and theories of e-learning that the e-learning approaches are derived from the three pedagogical perspectives: instructional systems design, constructivist, and communities of practice. It is also unclear exactly what counts as an e-learning model. Basically the model should answer following four questions:

1) Is the model characterized by an analysis of the learning outcomes into subject matter units?

2) Is the model characterized by active ownership of the learning and teaching activities by the learners, producing task outcomes for feedback from tutors or peers?

3) Is the model characterized by active discussion across groups of learners?

4) Is the model characterized by a focus on the development of real-world practice?

Bélisle (2008) has raised hidden pedagogical challenges in an e-learning environment. One of the serious issues is authorship, copying and plagiarism. Other issues were evaluation of individual student in collaborative learning and reflective critical thinking.

A model of e-learning would need to demonstrate on what pedagogic principles the added value of the "e" is operating. In addition to the above model, Mayes and Freitas (2004) have summarized all the e- learning models and positioned them in pedagogical space.

To conclude, these above models developed by various experts are guidelines for the instructors as well as for learners. Developers need to study these models to understand the working of e-learning which in turn help them to design e-course work and build infrastructure accordingly. It is guaranteed that series of upcoming gazettes and tools would build e-environment in higher education soon.

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