

# Technology-Based Models

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## INTRODUCTION

Asynchronous Learning Networks (ALNs) are based upon communication between people that does not occur simultaneously. The most familiar examples of ALNs are self-paced classes offered by colleges and universities through distance learning programs, e-mail messages exchanged with a mentor and posted messages sent to a discussion group concerning a course topic. The advantages of an ALN are those of convenience, accessibility and self-paced instruction for the student. The disadvantages are that students may feel isolated or are unmotivated due to the lack of human interaction, immediate responses on a student's performance are not provided, and training adjustments must wait until an evaluation is completed by the instructor (Patron, 2004).

To design, implement and maintain an effective ALN, consideration must be given to various tools that must be included as part of the overall system. Some elements that must be considered are the use of authoring and collaborative tools, weblogs, Knowledge Management Systems (KMS), Learning Content Management Systems (LCMS), Learning Management Systems (LMS), and Really Simple Syndication (RSS feeds).

## AUTHORING TOOLS

*"The authoring tool is a software program with standard user interface elements, and as such, must be designed according to relevant user interface accessibility guidelines. When custom interface components are created, it is essential that they be accessible through the standard access mechanisms for the relevant platform so that assistive technologies can be used with them.*

*"Authoring tools must also ensure that the author can navigate a document efficiently while editing, regardless of disability. Authors who use screen readers, refreshable Braille displays or screen magnifiers can make limited use (if at all) of graphical artifacts that communicate the structure of the document and act as signposts when traversing it. Authors who cannot use a mouse (e.g., people with physical disabilities or who are blind) must use the slow and tiring process of moving one step at a time*

*through the document to access the desired content, unless more efficient navigation methods are available. Authoring tools should, therefore, provide an editing view that conveys a sense of the overall structure and allows structured navigation."* (W3C, 2004)

## BLOGS

A weblog, or "blog," is a frequent, chronological publication of personal thoughts and Web links. It often is a mixture of what is happening in a person's life and what is happening on the Web, a kind of hybrid diary/guide site, although there are as many unique types of blogs as there are people (Webhosting Glossary, 2004).

Though individuals publish many online blogs, there recently has been a growing interest in the educational community in the use of blogs as another method of communicating between instructors and students. Blogs may be used for posting assignments, lecture notes, syllabi and other relevant course documents, as well as for promoting communication among students and the instructor.

## COLLABORATIVE TOOLS

Electronic mail (e-mail) is a powerful collaboration tool suitable for complex writing and problem-solving tasks. A disadvantage to e-mail is its lack of organization and the likelihood of information overload occurring when multiple topics or large groups are involved. In spite of its limitations, e-mail is an excellent choice for communicating private information and for short collaborative projects involving small group sizes (Clark, 2000).

Another collaborative online tool is that of the public conference, which can be used for both instructor-student and student-student collaboration. Many public conferences have mechanisms to track what items are unread and allow reading in various orders. Some also allow reading a thread as a whole rather than just the latest addition to the thread. This permits creating logical order from asynchronous contributions to multiple threads (Clark, 2000).

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One disadvantage with public conferences occurs when a class breaks into groups to complete assignments. The posting of all the groups' information into one shared area permits plagiarism, makes keeping topics separate difficult and causes information overload. A private conference is a workable solution to this dilemma.

*"A private conference usually has the same organizational capabilities as the public conference, but has a membership limited to the subset of the class specific to the current project. By using several private conferences, students can work on multiple projects with various other students while maintaining organization, privacy and limiting information overload. By using private conferences to discuss topics during critical course periods, students can assume a higher degree of control over their learning experience."* (Clark, 2000)

Other collaborative tools that allow for shared document capabilities are Lotus Notes and Microsoft Outlook. These tools allow the author of a document to permit others to make changes to the document, and also to create a shared work without the constant transfer of the document between participants and the logistical challenges associated with it.

With the right software and an emphasis on collaborative rather than individual learning, it is possible to facilitate a strong sense of community in an ALN. Other methods of collaborative tools and learning are postings of public introductions and basic biographies by the instructors and students, implementation of an ongoing online discussion based on a specific topic, implementation of group projects and/or online debates, assignment of group papers, group tests, group stories, role playing and group activities (Clark, 2000).

## KMS AND KNOWLEDGE NEGOTIATION

*"According to Webster's Dictionary, knowledge is the fact or condition of knowing something with familiarity gained through experience or association. Knowledge may be described as a set of models that describe various properties and behaviors within a domain. Knowledge may be recorded in an individual brain or stored in organizational processes, products, facilities, systems and documents."* (Graduate School of Business, University of Texas at Austin, 1998)

Knowledge management is the:

*"systematic process of finding, selecting, organizing, distilling and presenting information in a way that improves... comprehension in a specific area of interest. Knowledge management helps ... to gain insight and understanding from ... experience."* (Graduate School of Business, University of Texas at Austin, 1998)

Specific knowledge management activities help maintain focus on:

*"acquiring, storing and utilizing knowledge for such things as problem solving, dynamic learning, strategic planning and decision making. It also protects intellectual assets from decay, adds to firm intelligence and provides increased flexibility."* (Graduate School of Business, University of Texas at Austin, 1998)

To determine what knowledge must be managed, it is important to answer two important questions: What are our knowledge assets? and How should we manage those assets to ensure a maximum return on them?

Answers to these questions depend upon the culture and needs of the educational institution. "Effective management of knowledge focuses on solutions that encompass the entire system: organization, people and technology. Computers and communications systems are good at capturing, transforming and distributing highly structured knowledge that changes rapidly" (Graduate School of Business, University of Texas at Austin, 1998).

Currently, research is ongoing as to the validity of the use of knowledge management techniques in the field of higher education, as well as its application to the ALN environment.

*"The negotiation of what is to count as shared knowledge is an essential aspect of cooperative knowledge work and collaborative learning. When the interaction that creates this knowledge does not take place face to face, computer support in asynchronous learning networks can play an important role."* (Stahl, 2003)

*"The approach to knowledge negotiation support is integrated within a set of software components designed for collaborative learning, including virtual learning spaces, perspectives, community roles, knowledge building, thinking types and concept maps. Specifically, knowledge negotiation is implemented to control the publication and transfer of ideas, documents, drawings and other artifacts or sets of items from a small project group perspective into the perspective of a larger community of learners in a course."*

*"Knowledge negotiation focuses on evolving a group knowledge artifact to a mutually acceptable status for*

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