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A Review Of Web Based Education In Schools

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Abstract

A variety of technologies are currently being used to deliver education on the Internet which include the use of the World Wide Web (WWW) for online lecture notes, newsgroups for collaborative discussions and class announcements, e-mail correspondence between students and teachers, interactive video over the Internet for remote participation in classes and discussions, and virtual reality for exploring three dimensional scenes. Web based learning allows students to learn at their own pace, access the information at a time that is convenient for them, and provides education to remote students that otherwise would not be able to travel to a classroom. In this competitive era the individual learning styles of students need to be matched with the appropriate technology available. The www supports the learning by providing students with the ability to connect to educational resources when it is convenient for them, and allowing students to explore the educational resources in an order that suits their needs. In a Web based learning environment the teacher no longer serves as the keeper of knowledge, instead the teacher acts as a tutor, facilitator, and resource to assist in the student's learning process. This paper reviews existing web based technologies and explains their implementations for education.

Key words: Collaborative Discussions Internet, World Wide Web

Introduction

The Internet or www is increasingly being used for the delivery of educational material. Web based learning allows students to learn at their own pace, access the information at a time that is convenient for them, and provides education to remote students that otherwise would not be able to travel to a classroom. Courses

available on the web are delivered as a formal course with regular meeting times and places while some courses are self-directed. In other words these courses have student centered approach which allow students to learn at a time and pace that is convenient to them. Various Internet sites offer education at no charge on various topics related to the curriculum pattern of the schools eg. SSC, CBSE or ICSE patterns. A variety of technologies are currently being used to deliver education on the Internet. These technologies include the use of the World Wide Web (WWW) for online lecture notes, newsgroups for collaborative discussions and class announcements, e-mail correspondence between students and instructors, interactive video over the net for remote participation in classes and discussions, and virtual reality for exploring three dimensional scenes. Multimedia is increasingly being used in online education to enhance the learning process. The important question now is ``Are web based learning methods effective?" This paper describes current examples of web based learning and analyzes the benefits and limitations to the student and the schools. Individual learning styles to support each style of learning are explained with appropriate examples. A summary of evaluations of these technologies is then given. The paper concludes with suggestions on how to choose appropriate technologies for web based education.

Education through the www

Education through the WWW means using World Wide Web as a resource for education. In traditional method, traditional resources such as textbooks are used. Now students can also use the extensive resources already available on the www. Class material and assignments are posted on the World Wide Web at a site open only to those students taking the course. Students submit assignments that can be posted to the Web for others in the class to view. The primary way students communicate with teaching faculty, administrative staff, and other students, is through e-mail. Students submit written assignments to teaching faculty through e-mail, and assignments are returned with comments and suggestions in the same fashion. Listservs allow students to discuss group projects with other members of the class, and to send questions or comments to teaching faculty or classmates. Using web based learning students can also study at home. For proper implementation of WBL students can be supplied with an advanced personal computer, a high-speed modem and a printer, set up by their parents in their home. Students interact with tutors by connecting to the Electronic Campus on Internet. Some students that are frequent travelers can use a notebook computer that allows them to continue studying anywhere. Courses materials are pre-loaded in the computer and consist of notes in hypertext, together with a suite of general Windows software for word-processing, graphics, analysis and

communication. Using WBL students can be engaged in live teleconferencing; closed and open discussion forums; and electronic mail (E-Mail) through which students can send their assignments to their tutors for marking, and receive them back with any relevant comments. An on-line library on the www is also available.

Benefits and limitations of Web -based education

Using WWW as a delivery medium of education provides various benefits and limitations to both the student and the schools.

Benefits of Web -based education

Some of the benefits of Web based courses to the student include:

- Flexibility to pursue education at personally convenient times.
- Ability to take time to compose thoughts contributed to class discussions on newsgroups or list serves (asynchronous communication).
- Ability to interact with classmates in different locations using real time text, audio, or video (synchronous communication).
- Reduction or elimination of travel cost to attend lectures.
- Wider range of students in a class (regional, national or global participation) resulting in a wider range of opinions and views shared in class discussions.
- Ability to progress in the course material at the student's own pace (self-paced learning) and in order of their own personal needs (non-linear learning).

Limitations of Web -based education

But this is not the case for all the students. All students are not suited for web-based education. As every coin has two sides, every technology has two sides.

Limitations of Web based courses for the student.

- Lack of motivation can lead students to drop out.
- The Internet/www methods of communication like email, newsgroups and listservs may be awkward to use for some students.
- Students may not be able to express themselves as well using the computer based communication methods as they would in either direct conversation with their teacher or in classroom discussions.
- Not all questions may be asked by the student when using computer mediated communications.

- Cost of computer equipment and communications infrastructure may limit the number of students that can afford a Web based course.
- Students will have a lack of technical support in their homes to use the software tools needed in the course.
- Poor technical support or tutorial help can lead to incorrect usage of software tools needed to do assignments.

Benefits and Limitations of web based courses to the school teachers

Benefits of web based education to the School teachers are:

- Lower cost in e-publication of course material compared to printing the same material.
- Faster methods for electronically revising and re-distributing course materials and documentation compared to print materials.
- Using the World Wide Web for delivering courses allows instructors to develop content a single platform, yet the content is accessible by students using a wide range of computing platforms and WWW browsers.
- Ability to re-use lecture materials by simply providing links to previous electronic course modules or externally stored resources materials on the Internet.
- Ability to automatically track student's online behavior.
- Ability to have automated registration and billing using commerce WWW servers.
- Larger number of students can take courses not limited to any geographical region.
- Potential source of new revenues.
- Automation of the student evaluations with online interactive quizzes.

Although there are various benefits of web based education, schools and teachers may still resist changing from their traditional methods of teaching to web based delivery.

Limitations of Web-based courses to the School teachers are:

- Relatively high cost of setting up reliable computer equipment and the technical support for that equipment.
- Requires investment of time to learn methods and procedures.
- Lack of incentives for teachers to learn and use new technology.
- Teachers that feel uncomfortable with technology may resist using new instructional methods.

- Lack of training for new technology may cause teachers from not learning new technologies and methods.
- Unreliability of equipment being used can cause problems in the delivery of courses over the World Wide Web, which can be reflected in poor student evaluation of such courses.
- The World Wide Web limits the expression of the content to current authoring features. Using extensions to the authoring language poses restrictions on the types of browsers that can be used to properly view the content.
- The bandwidth limitations can slow down the interactive multimedia applications needed for effective learning.
- Students typically have a wide range computing power on their personal machines which necessitates the development of lecture content in both high bandwidth and low bandwidth formats. This requires more time to develop and to maintain the content.

Innovative Learning styles in Schools

The World Wide Web has provided an opportunity to introduce new ways for supporting individual learning styles for students and created new paradigms for instruction. It has been argued that connecting schools to World Wide Web is not enough to change the quality of education, but rather what is needed is a change from emphasizing accumulation of knowledge, to new ways of communicating and assisting students to learn. Some of the changes occurring to education as a result of new technologies include:

1. A shift from classroom lectures to computer networked access to educational resources (enabled with hypermedia and the WWW).
2. A shift from student as a passive recipient of education to a self-directed student learning.
3. A shift from individual learning to team learning and group discussion.
4. A shift from homogenous and stable educational content to fast-changing content presented in a wide range of formats.

The www supports the learning by providing students with the ability to connect to educational resources when it is convenient for them, and allowing students to explore the educational resources in an order that suits their needs. In a Web based learning environment the teacher no longer serves as the keeper of knowledge, instead the teacher acts as a tutor, facilitator, and resource to assist in the student's learning process .Each student has individual method for learning which need to be recognized and supported with the appropriate learning technologies.

Some of the popular learning styles include:

1. **Visual Learning** - The ability of learning information using graphical images and 3D models of objects. Web technologies that support this type of learning include the World Wide Web and all its images, and 3D modeling languages such as VRML (Virtual Reality Modeling Language).
2. **Musical & Sound Learning** - The ability to use music and sound to understand educational material. Web technologies that support this type of learning include downloadable sound files on WWW and real time on-demand audio.
3. **Intra-Personal Learning** - The ability to learn by encouraging or requiring students to understand their own feelings, interests, goals, etc. Web technologies that support this type of learning are interactive questionnaires on WWW or downloadable multimedia applications known as applets.
4. **Inter-Personal Learning** - The ability to learn by discussing with others. Web technologies that support this type of learning include text, audio and video conferencing, e-mail, discussion mailing lists, newsgroups.
5. **Linguistic-Based Learning** - The ability to learn by understanding words and language and reading. Web technologies that support this type of learning include gopher, lynx a text-based WWW browser.
6. **Mathematics-Based Learning** - The ability to learn by understanding mathematics. Web technologies that support this type of learning include new formatting methods that can be used to display mathematical equations on the WWW.

Evaluating the effectiveness of learning technologies

For evaluating the effectiveness of any learning technology, any educational course could be evaluated with the following criteria

1. **Accessibility** – depends on
   - **a)** The type of bandwidth required to properly view the content.
   - **b)** The cost to access the system
   - **c)** Ease for students to install the appropriate hardware and software.
2. **Communication** - depends on
   - **a)** Effective communicate with the teacher or other class mates.
   - **b)** Evaluating limitations of communication medium chosen.
   - **c)** Effective feedback mechanism.
   - **d)** Finding isolated feeling within student.
3. **Content** - depends on
   - **a)** Types of content delivered through these technologies.

b) Use of interactivity and multimedia.

4. **Flexible** - depends on
   a) Easy to reuse previous educational modules.
   b) Flexibility for students to view the information at their own pace and in their own chosen order.

Major Problems with Web Based Learning

Some of the major problems with Web based learning are learning is the isolation that students feel from their teachers and ineffective methods for dialog.

	Interactive Medium	Strengths	Weaknesses
1	E-mail	The primary way to communicate with teachers, administrative staff, and other students. Students submit written assignments to teachers through e-mail, and assignments are returned with comments and suggestions in the same fashion.	Lacks the visual cues and facial expressions that convey messages of understanding, or lack of comprehension, of questions and responses between the student and instructor.
2	Group discussions	newsgroups provide students a chance to compose their thoughts,	lack some of the dynamics on classroom discussions and favour students that are comfortable with e-mail and newsgroups.
3	Interactive video	Low cost interactive video over the Internet provides students with some of the dynamics of a classroom discussion Interactive video has been used to deliver lectures to students, allow students to ask questions to the instructor remotely, and for class members to discuss topics.	but lack methods to moderate or facilitate discussions.
4	Real time interactive video	Real time interactive video solves many of the above problems	but raises the cost of the system to such a high level that it limits those that can

			access the system . Thus, type of interaction needed by the students will determine which technology is most suited.

Student also felt that smaller group video conferences were preferred over large classroom lectures transmitted to remote users. The most important concerns expressed by the students were the clarity and appropriateness of instructional material shared over the video link, and the ability of the instructor using them. Their conclusion was that the "effectiveness of a delivery system is unlikely to be constant over settings and applications''. Thus, the needs of the students and the course content should be key considerations in choosing a delivery method.

Conclusions

This research paper shows the importance of web based education. The main advantages to the student are the flexibility to pursue education at personally convenient times and to progress in the course material at the student's own pace. However, the feeling of isolation, lack of motivation, or lack of support and feedback can lead students to drop out. The main advantage of web based education for schools providing web based courses is the ability to reuse lecture materials, provide links to externally stored resources materials on the web. However, the development of web based courses takes an initial investment of time and money, and may not be well suited to all existing instructors. A review of technologies and student learning styles showed that no one technology is suited for all students and all courses. Technologies should be chosen to support the types of students expected and their learning styles. The chosen technologies should also support the type of content to be shared with students and the expected learning outcomes. In the future, access to educational resources on the Internet may be seriously affected by the cost of Internet access, and the cost of the computer hardware and software needed to access the Internet. New improvements to hardware and software may create more effective learning environments but the cost of such systems may limit those that can have access to it. In some cases those that need the education the most are those who are least able to afford it.

References

[1] Robert M. Bender, "Creating Communities on the Internet: Electronic Discussion List in the Classroom'', Computers in Libraries, Vol. 15, No.5, May 1995, pp. 38-43.
[2] N. Butcher. "The concept of Open Learning in South Africa'', Open Learning and Educational Technology, Vol. 25, pp. 197-204.
[3] Jill H. Elsworth, Education on the Internet, Sams Publishing, 1994.
[4] Remy Evard. "Collaborative Networked Communication: MUDs as System Tools'', Proceedings of the Seventh Systems Administration Conference (LISA VII), Monterrey, CA, November 1993, pp. 1-8.
[5] B.C. Hansford and R.A. Baker "Evaluation of Cross-Campus Interactive Video Teaching Trial'', Distance Education, Vol. 11, No. 2, 1990, pp. 287-307.
[6] Starr Roxanne Hiltz, "Evaluating the Virtual Classroom'', In Online Education - Perspectives on a New Environment, Edited by Linda M. Harasim, New York, NY: Praeger, 1990, pp. 133-183.
[7] Gary Kearsley, William Lynch, and David Wizer. "The Effectiveness and Impact of Online Learning in Graduate Education'', Educational Technology, November-December 1995, pp. 37-42.
[8] Gary Marchionini and Hermann Maurer. "The Roles of Digital Libraries in Teaching and Learning'', Communication of the ACM, April 1995, Vol. 38, No. 4, pp. 67-75.
[9] Leigh Maxwell. "Integrating Open Learning and Distance Education'', Educational Technology, November-December 1995, pp. 43-48.
[10] Andy Reinhardt. "New Ways to Learn'', Byte, March 1995, pp. 50- 72.
[11] Mary Lynn Rice-Lively. "Wired Warp and Woof: An Ethnographic Study of a Networking Class'', Internet Research, Vol. 4, No. 4 (Winter), pp. 20-35.
[12] Elliot Soloway, "Beware, Techies, Bearing Gifts'', Communication of the ACM, January 1995, Vol. 38, No. 1, pp. 17-24.
[13] Kallen Tsikalas. "Internet-based Learning? Mostly students use the Net to socialize'', Electronic Learning, Vol. 14, No. 7, April 1995, pg. 14.
[14] Rosemary H. Wild and Mary Anne Winniford, "Remote Collaboration Among Students Using E-mail'', Computers and Education, Vol. 21, No. 3, Great Britain: Pergamon Press Ltd., pp. 193-203.
[15] Linda L. Woolcot. "The Distance Teacher as Reflective Practioner'', Educational Technology, Vol. 35, No. 1, January/February, pp. 39-43.