Video conferencing: An Efficient E-Learning Tool for Distance Education

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ABSTRACT: Today world is making rapid progress on the path, towards the utilization of technical applications in the field of education. This is particularly true in the area of distance education, as the possibilities of its realization and growth have multiplied in ways not possible in the past. Video conferencing is a two-way connection between the teacher and the students at two or more locations through audio and video equipment. Out of all the available distance teaching technologies, video conferencing is very similar to the formal classroom teaching and therefore includes a very important element of teaching-learning process. However, there are a few key differences in the teaching and learning process that require attention for faculty and students to use video conferencing successfully. This paper studies the elements of distance education and role of e-learning (particularly the video conferencing) in benefiting the students via distance education.

KEYWORDS: Formal Education, Distance learning, online learning, e-Learning, Videoconferencing.

1 INTRODUCTION

History of distance education is almost two centuries old [1]. During this time period the learning and communication techniques have changed significantly. It started with the basic correspondence through postal service and has come a long way with the application of the different electronic tools, which are now available due to the rise of internet. One such form is online learning. First ever access to online learning dates back to 1980's. Another term used for online learning is 'e-Learning'. E-learning is a standard abbreviation for electronic learning. This term has become more popular now. But the origin of this term is not known [2]. E-learning is defined as "learning that is delivered, enabled or mediated using electronic technology for the explicit purpose of training in organizations" [3].

2 BENEFITS OF DISTANCE EDUCATION

With the increasing demand of education, distance education seeks to assist in the achievement of equivalence of educational opportunities to all. Distance learning is a wonderful media to expand access of education and training. Its flexible scheduling structure lessens the effects of the many time-constraints imposed by personal responsibilities and commitments. It is beneficial even for those, whose circumstances do not permit them to enroll in traditional classroom-based learning or those whose personal, economic or social circumstances prevented them from access to education. [4]

Distance education may be an alternative to the students who cannot afford formal education due to economic constraints. Distance education can provide some relief to students as it is a more cost-effective form of learning, and so can sometimes save students a significant amount of money as opposed to traditional education [5].

Distance learning may enable students who are unable to attend a traditional school setting, due to disability or illness such as decreased mobility and immune system suppression, to get a good education [6]

Distance education may provide equal access regardless of socio-economic status or income, area of residence, gender, race, age, or cost per student [7]. Distance learning may also offer an opportunity for adolescents that are no longer

permitted in the formal education system due to behavior disorders. In this way these students having no other academic opportunities, may continue their education from their homes and earn their diplomas, offering them another chance to be an integral part of society.

Distance education can also help in fulfilling the requirements of the national development plans. It can prepare trained and qualified human resources by increasing the opportunities for continuous education. It can be used for training and professional development for those who are working and have no time for pursuing a regular course. [8].

3   THE NATURE OF E-LEARNING

E-Learning is the use of electronic media and information & communication technologies (ICT) in education. Various audio-visual materials, search engines, electronic libraries, text, images, animation, and streaming video, and websites are used to accomplish teaching-learning process in the classroom or at a distance.[9]

This type of education is basically delivered through the medium of the World Wide Web. Using this technique, educational institutions can make their programs and materials available on their website in such a manner that students can easily access and interact with them through closed or shared networks, the internet or through use of e-mail and online discussion groups. The two parties participating in the educational process interact through these media to achieve specific educational objectives.

4   SYNCHRONOUS AND ASYNCHRONOUS E-LEARNING

E-learning may either be synchronous or asynchronous. Synchronous learning occurs in real-time in which all participants interact at the same time. Asynchronous learning is self-paced. It allows participants to engage in the exchange of ideas or information without the dependency of other participants' involvement at the same time.

Synchronous learning involves the exchange of ideas and information with one or more participants during the same period of time. A face-to-face discussion is an example of synchronous communications. In e-learning environments, examples of synchronous communications include online real-time live teacher instruction and feedback, Skype conversations, or chat rooms or virtual classrooms where everyone is online and working collaboratively at the same time. Synchronous e-learning environments are characterized by different types of interactions through chats, real-time audio, application sharing, whiteboards, web casting, video teleconferencing, and so on, which imposes additional considerations concerning usability and its evaluation

In asynchronous online courses, students can learn at their own pace. It works on the idea 'learning anytime, anywhere'. Asynchronous learning may use technologies such as email, blogs and discussion boards, as well as web-supported textbooks, hypertext documents, audio-video courses, and social networking. [10]

Asynchronous learning is particularly beneficial for students who are slow learners or have health problems or have child care responsibilities and cannot attend a course regularly by leaving homes. In this environment students have lower stress to complete their work and has flexible timeframe. If student need to listen to a lecture as many times as they wish. They can think about a question taking their own time without any peer pressure.

Students also have access to an incredible variety of enrichment courses in online learning, and can participate in college courses, internships, sports, or work and still graduate with their class. Both the asynchronous and synchronous methods rely heavily on self-motivation, self-discipline, and the ability to communicate in writing effectively. [11]

5   VIDEOCONFERENCING

Video conferencing is revolutionizing the way of connecting to the participants by giving the benefits of a face-to-face meeting even when participants are miles apart. A video-conference is a live video connection between people in separate locations for the purpose of communication or interaction. Video-conferencing allows people to communicate visually from anywhere in the world. Uses of video-conferencing include:

- Distance Learning
- Sharing lectures with students at other universities
- Job Interviews
- Giving and receiving lectures/presentations from remotely located sites from around the world
- Conducting meetings between research groups and academics based at different universities

5.1 COMPONENTS REQUIRED FOR VIDEOCONFERENCING

Components required for system include:

- Video input : Video camera or webcam
- Video output: Computer monitor, television or projector.
- Audio input: Microphones, CD/DVD player, cassette player, or any other source of PreAmp audio outlet.
- Audio output: Usually loudspeakers associated with the display device or telephone.
- Computer: A data processing unit that ties together the other components, does the compressing and decompressing, and initiates and maintains the data linkage via the network. [12]

5.2 VIDEO-CONFERENCING AND DISTANCE EDUCATION

Video conferencing systems are often used for distance learning, linking distant teachers and learners for instruction delivery. Some of the ways the technology is used for achieving this goal, bringing benefits to teachers, administrators and students, include the following: [13]

- Students can easily enroll themselves in the subjects which are not offered at their institution.
- Video conferencing can assist educational institutions to offer classes during off-hours so that the students who cannot attend traditional classes can be benefited.
- Different institutions can work as a team to offer employee training or certification.
- Teachers can team-up with other teachers and institutions and can share their subject matter expertise or unique approach to a topic. This real-world contact can heighten interest, improving motivation and retention
- "Master teachers" in particular subjects can be made available to a larger audience of students of wider geographic reaches.
- Students can meet with tutors for enrichment, remediation, or a helpful bit of personal attention. This is a good way for businesses to support schools.
- Students can communicate with video pen pals across the globe. This is a cost effective way to experience diverse cultures and ways of life. This can lead in enhancing trust and universal brotherhood.
- Schools known for outstanding courses or projects can model those projects for other schools and thus can easily work toward the betterment of society.

Video conferencing can facilitate distributed cooperative learning, where groups at distant sites take on a learning task and teach remote peers.

6 CONCLUSION

In small states and developing countries like India, for widening access to education, the cost- effectiveness of the delivery method takes on great importance. Distance education can be more cost-effective than traditional education. The implementation of the distance education platform ensures an average cost per student lower than that in conventional systems. Though a broadband satellite connection with studio-quality equipment to produce an excellent full-motion video connection with the required equipment and transmission is expensive and is not always affordable. But still in developing countries where quality educational institutions are still not available in the remote areas and drop-out rates are quite large; cost-effectiveness of video conferencing can be justified by considering the fact that masses can be reached out at a time at more than one site. This way drop-out rates can be reduced and students can interact with the expert teachers even at the remote areas. Also, the students engaged in e-learning activities will be able to construct their own knowledge through self directed learning. Eventually performance of the students may increase by implementation of e-learning at various places. The students can be benefited by using advanced e–learning technologies even after the lecture classes via E-learning portal through intranet facilities [14]. Thus, Video conferencing provides a viable alternative for the delivery of distance education not only for larger countries, but also for smaller states. A lot of care should be taken in the implementation process to optimally utilize both the equipments and the transmission media.

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