Prospects of Distance Education in Developing Countries

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Abstract

The limited resources and relatively dense population in developing countries is an obstacle for the availability of on-campus education for the whole population. Distance education is relatively a better solution to overcome this problem. In this paper, we explore interactive and relatively cheaper resources for high-class distance education system, suitable for developing nations. We have supported our work with few case studies of distance education programs in developing countries. The state-of-the-art web-based education system is also discussed and its prospects in developing countries is presented.

Keywords

Distance education, Web based education, Multimedia based education

[1] INTRODUCTION

Traditional means of education are not sufficient to meet the needs of relatively large populations, in terms of resources, even in developed countries. In most of the developing countries, education for all, at least past the primary level, looks like an unrealistic dream if conventional strategies are pursued [1]. Relatively dense population in developing countries increasingly encourages the need to explore alternative solutions for education. One solution to overcome this problem is decentralization of educational institutes. These decentralized units have to reach critical mass in order to justify their educational existence economically [2]. In developing countries, due to limited economical resources, it is not possible to build large number of above mentioned decentralized units. One way to overcome this problem is to utilize distance teaching or education wherever the decentralized support in terms of teaching and economic resources is not sufficient.

Distance education allows students from anywhere in the world to study at home. This means that instructors and students may be separated by geographical distance. Communication between students and instructors are mediated by different communication tools employed in distance learning systems. Most of the time, no face-to-face communication is employed in distance education system.

This paper is organized as follows. In Section 2, a brief history of distance education is given. Section 3 explores the available tools and resources including web based education. Section 4 discusses prospects of distance education and some case studies in developing countries using the tools and resources mentioned in Section 3. Section 5 gives the conclusion.

[2] HISTORICAL BACKGROUND

In order to evaluate the current status of distance education, a brief overview of its history is needed. According to Schneider & Germann [3], history of distance learning is divided into three generations, given as follows:

- First generation: “correspondence study”, where students and teachers communicate with each other through the mail.
- Second generation: “multimedia distance teaching” or broadcast/teleconferencing”, where television and radio broadcasts are used by the students and teachers for communication.
- Third generation: “interactive, web-based instruction”, where resources of the World Wide Web enhance communication, not only between students and teachers, but among students as well.

The evidence of first generation is found at least in 1883 in Sweden; in United States the movement begin in 1890’s [4]. The start of second generation in the mid of 20^{th} century has speed-up the communication between instructor and...
students. However, it is still one-way communication. The beginning of "interactive, web-based instruction" (third generation) has solved this problem, where the two-way communication is possible through news-groups, net-meetings, emails, and so on.

[3] TOOLS AND RESOURCES

Although the old ways of delivering distance education with correspondence and radio/TV broadcasts are still in practice, computer based technologies are gaining immense popularity among both the educators and students. A wide range of options is available to distance educators, including both the traditional ways as well as the recent technologies. They fall into four major categories: [5]

1. **Voice**: Instructional audio tools include interactive technologies of telephone, and audio-conferencing.

2. **Video**: Instructional video tools include still images as slides, pre-produced moving images (e.g., film, videotapes), and real-time moving images combined with audio-conferencing (one-way or two-way video with two-way audio).

3. **Data**: Computers send and receive information electronically. For this reason, the term "data" is used to describe this broad category of instructional tools. Computer applications for distance education are varied and include:
   - Computer-assisted instruction (CAI), which uses the computer as a self-contained teaching machine to present individual lessons.
   - Computer-managed instruction (CMI), which uses the computer to organize instruction and track student record and progress. The instruction itself needs not be delivered via a computer, although CAI is often combined with CMI.
   - Computer-mediated education (CME), which describes computer applications that facilitate the delivery of instruction. e.g., e-mail, fax, real-time computer conferencing, and World Wide Web applications.

4. **Print**: A foundational element of distance education programs and the basis from which all other delivery systems have evolved. Various print formats are available including: textbooks, study guides, workbooks, course syllabi, and case studies.

Having known about the technologies, a question arises "which technology is best? ". The answer is "it depends". Although technology has a key role in the delivery of distance education, educators must focus themselves on the instructional outcomes, rather than the technology of delivery. Effective distance education is dependent on the needs of students, the requirements of the content, and the constraints faced by the teacher as well as the student. Once these problems are addressed appropriately, adequate delivery system can be adopted.

WEB BASED DISTANCE EDUCATION

Web based education is a part of computer mediated education. Normally, the choice of distance education technology depends upon three factors; a) availability of resources to instructors as well as students, b) proper interaction between instructor & student and among students, c) economically affordable.

In case of developing countries, web-based-education (WBE) is suitable in terms of all the above-mentioned factors. a) Due to the boost in information technology, Internet has become one of the necessities of life and in most of the developing countries it can easily be accessible to instructors as well as students. b) News-groups, web based testing and evaluation provides necessary interaction and two-way communication between instructor & students and among students, c) due to advancement in technology, web-based learning is the cheapest as compared to its other counterparts. In comparison with audio/video conferencing, for two-way communication (over a large geographical distance) WBE is nearly free as its cost is independent of distances. Internet prices are as low as 20 cents per hour, which is negligible in comparison with long distance telephonic charges for audio/video conferencing.

[4] DISTANCE LEARNING IN DEVELOPING COUNTRIES

PROSPECTS

As mentioned earlier, distance education would rather be most effective in countries where the population is dispersed in a large geographical area and/or the population is dense. This is more or less the situation with most of the developing countries. Not only this, the ratio of population to resources is very high in these countries. This means that if traditional ways of educating people are continued, a large percentage of people in these countries would go illiterate.

As relatively wealthy developed countries struggle to fund their mass higher education systems, many poor developing countries are still
struggling to establish reasonable access to primary education [7]. With the enormous capital and infrastructure costs associated with on-campus higher education, it is little wonder that developing countries wishing to create greater access are increasingly looking at distance education to provide the solution. [7]

As mentioned in previous section, among other traditional tools and available resources for distance education, Internet is a relatively cheaper and accessible resource. Even in the poorest countries most of the universities are equipped with high-speed Internet facilities. For these universities or institutions, a high-tech technology hub can be created in each major center, providing high-speed Internet services. These can become centers of excellence for the development of new education and training services for the admittedly elite sections of the country. These centers can link to other regional centers, and can be used to provide training for the industrial and business sectors within their own communities. The importance of such hi-tech centers of excellence is that they could provide the elite within each country with the knowledge and skills needed to ensure their country does not fall behind, and to emphasize to key decision-makers the importance of investment in such technologies for the development of their own country. [8]

CASE STUDIES

The current trend of popularity of distance education is not limited to developed countries. The idea has now also got roots in developing countries, such as China. China’s Central Radio and Television University (CRTVU) is an institution of higher education that operates directly under the State Education Commission. It runs multimedia distance higher education courses using radio, television, printed, and audiovisual teaching materials. Established in 1979, it now heads a modern distance education system comprising of CRTV, 43 Provincial, Autonomous Regional, and Municipal TV Universities (PRTVUs), 654 branch schools at prefecture and city level, 1500 work stations at the county level, and more than 10,000 teaching classes that cover China’s rural and urban areas. While the whole Chinese distance education system was initially centered on CRTVU using China Central Television’s microwave network, it now makes use of a Chinese satellite capable of reaching all of China plus neighboring countries in Eastern, Central, and Southeast Asia. Having 146,000 entering students, 300,400 students matriculated, and 120,000 graduates in 1992, CRTVU is probably world's largest university. [1]

In Africa, distance education figures prominently among strategies to assist African countries escape from educational crisis. Africa has already made considerable use of distance education to extend access to formal education, although most public institutions have often been severely constrained by lack of finance and manpower. Case studies of Zambia, Kenya and Zimbabwe suggest that critical factors for effectiveness of distance education are the provision of adequate resources along with some other factors. It is expected that distance education will continue to be used to strengthen formal education by training primary teachers, extending access to secondary education and by providing high school education although, so far, few African countries have attempted degree level studies at a distance [6]. As a result of extensive research into distance education provision in Africa, the Nigerian National Commission for UNESCO has published in the current year the directory of distance education institutions in Africa. The directory lists 88 distance institutions from across Africa [6].

In Thailand, Ramkamhaeng University (RU) was established in 1971 as an open university. It was designed as an "academic market"; i.e., admissions were not limited by qualifying exams, class attendance was not mandatory, and fees were kept low. The main instructional materials used for learning and teaching include textbooks, handbooks, and instructional sheets printed by the university press. The primary teaching method in use is the lecture method in either a regular classroom or a large lecture hall with closed-circuit television. Laboratory services and equipment are practical additional training facilities. RU started distance-learning system in 1995. Videoconference is used through THAI-COM satellite as an educational media. Videotape cassettes, radio, and television are also employed. At present, the University offers programs for a bachelor degree level through the distance education system for students studying in six provinces namely: Uthaithani, Pare, Prachinburi, Annajchareon, NakornSrithammaraj, and NakornPanom. At the master degree level, it is offered to students studying in four provinces namely: Uthaithani, Prachinburi, Annajchareon, and Nakorn-Srithammaraj. [10]

In South Asia, where about 20 percent of world’s population is concentrated, distance education is also making its roots. The Allama Iqbal Open University in Pakistan reaches out to students in their homes and places of work, wherever they are. It teaches at a distance, using mainly text based materials, supplemented by radio and TV, in conjunction with services provided through learning resource centers. For non-
literate, it has developed a distance education system based on cassettes, flip-charts, outreach infrastructure and training of trainers. [9]

In Saudi Arabia, a pilot project under UNDP with Internet based distance training for Saudi professional women has been proposed in 1999 [5]. It is now an established fact that the Internet is an excellent medium for offering educational courses and material to well-defined groups of students [5]. The main aim of the project is to establish an online facility initially in Riyadh in order to train Saudi professional women in the fields of executive level management, interpersonal skills, and information technology use and applications. Courses will be taught over and accessible through the Internet and can be supported by CD-ROM material. A central classroom will be used to offer training sessions. The classroom will be equipped with 20 workstations and computers, allowing participation of 20 Saudi professional women who are already working either in managerial positions or are potential managers in different organizations from both public and private sectors. The project will focus on equipping sites in three different locations around Saudi Arabia: Riyadh, Jeddah and Dammam. Organizations already established as training centers will be equipped with the necessary hardware and connections to offer online courses [5].

[5] CONCLUSION

A huge population with limited resources in developing countries is an obstacle is delivering on-campus education to the people. Distance education is relatively a better solution to overcome this problem. In this paper, we have explored interactive and relatively cheaper resources for high-class distance education system, suitable for developing nations. A few case studies have been presented signifying the success of distance education is these countries. We have also discussed state-of-the-art web-based education and its prospects in developing countries. Collectively saying, web-based distance education will be a dominating medium in near future in providing quality distance education.

REFERENCES


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