Institutional and specialized Distance learning program accreditation

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ABSTRACT: *Teaching and learning are no longer confined to the classroom or the school day. There are many technologies that can offer a great deal of flexibility in when, where, and how education is distributed. The* Teacher's Guide to Distance Learning *is intended for K-12 educators who are interested in implementing distance learning technologies. It provides an overview of the advantages and characteristics of the various technologies now being used to reach remote learners. Distance learning provides "access to learning when the source of information and the learners are separated by time and distance, or both." Distance education courses that require a physical on-site presence for any reason (excluding taking examinations) may be referred to as hybrid or blended courses of study. Massive open online courses (MOOCs), aimed at large-scale interactive participation and open access via the web or other network technologies, are recent developments in distance education. A number of other terms are used roughly synonymously with distance education. However distance is the oldest and mostly commonly used term globally. It is also the broadest term and has the largest collection of related research articles. The main objective of this paper is develop an understanding of the characteristics and needs of distant students with little first-hand experience and limited, if any, face-to-face contact.*

Keywords – *E-learning, Distance Learning, Human computer interactions*

I.   WHAT IS DISTANCE LEARNING?

According to the definition by the United States Distance Learning Association (USDLA), distance learning is any mediated instruction that occurs at a distance – regardless of the technology involved. So although you probably imagine online degrees that involve using websites, email, and video casts, corresponding through regular mail or talking over the phone are methods that also technically qualify. Still, in practical terms, most of what constitutes distance learning today is done by using electronic means. Teaching programs utilize not only computers, but satellites, video phones, interactive graphics, response terminals, and more. It is also something that occurs in a wide variety of fields and locations, reaching well beyond K-12 and college campuses to include corporate, government, and military training, telemedicine, and anyone interested in lifelong learning. Distance learning is especially important for those who lived in rural or otherwise underserved communities, as well as individuals whose own physical and mental limitations impair their ability to attend traditional educational settings. Key players in distance education typically include students, faculty, facilitators, support staff, and administrators, each of whom have very different roles. Meeting the instructional needs of students is the main goal of every effective distance education program. Regardless of the educational context, the primary role of the student is to learn. But the success of any distance education effort depends primarily on its faculty. Special challenges confront those teaching at a distance. For example, the instructor must:

- Develop an understanding of the characteristics and needs of distant students with little first-hand experience and limited, if any, face-to-face contact.
- Adapt teaching styles taking into consideration the needs and expectations of multiple, often diverse, audiences.
- Develop a working understanding of delivery technology, while remaining focused on their teaching role.
- Function effectively as a skilled facilitator as well as content provider.

Because of these challenges, faculty often find it beneficial to rely on a site facilitator to bridge the gap between students and instructor. Where budget and logistics permit, the role of on-site facilitators has increased even in classes in which they have little, if any, content expertise. At a minimum, they set up equipment, collect assignments, proctor tests, and act as the instructor's on-site eyes and ears. In addition, most successful distance education programs hire support staff to manage student registration, materials duplication and distribution, textbook ordering, securing of copyright clearances, facilities scheduling, processing grade reports, managing technical resources, and other tasks. Finally, administrators work closely with technical and support service personnel, ensuring that technological resources are effectively deployed to further the institution's academic mission. Most importantly, they maintain an academic focus, realizing that meeting the instructional needs of distant students is their ultimate responsibility.

II. HISTORY OF DISTANCE LEARNING SYSTEM

Though many people think about distance learning as a relatively recent phenomenon, it's actually been going on for well over a hundred years. The first such program to appear in the United States was a correspondence school created by Anna Ticknor in 1873 – the Society to Encourage Studies at Home. Her main goal was to provide a way for women to become educated, and the school lasted for 24 years by keeping a low profile and utilizing mostly volunteers to send print materials through the mail. Other universities made attempts at correspondence schools, but none really got off the ground – or received any kind of official recognition – until the Chautauqua College of Liberal Arts in New York in 1883. After that, more and more people became interested in the idea of distance learning, and professors soon started predicting that this new form of education would quickly overtake traditional models. The founding of the National University Extension Association (NUEA) in 1915 raised the profile of correspondence schools further by calling for standardized policies regulating distance learning courses, educators, and credit transfer to "real" universities. Instructional radio programs gained popularity throughout the 20s, 30s, and 40s as the federal government granted broadcasting licenses to more than 200 school boards, universities, and colleges; and they added television in the 1950s. Still, correspondence study wasn't readily accepted by most of the academic world, and many saw it as unprofessional. Established in 1969, Open University in Britain changed a lot of those attitudes. Foregoing the traditional university model, it decided to see distance education as something completely disconnected from traditional education, offering a number of its own degrees. The university focused on research and technology to further distance education, and quickly became so popular that other Open Universities began operating in countries like the U.S. and Japan.

Over the last 40 years, technological advancements and practical necessity have worked hand-in-hand to continue the evolution of distance learning. More and more, educators recognize that our busy modern lives don't allow everyone the luxury of matriculating at a traditional university or even engaging in traditional independent study programs. And perhaps most importantly, much of the research collected over decades of studies showed that students tend to learn just as well from technological methods as they do from in-person teaching.

III. DISTANCE LEARNING PROCESS

Video Technology: The ability to see and hear an instructor offers opportunities for behavior modeling, demonstrations, and instruction of abstract concepts. Video techniques for distance learning are often characterized by the transmission media (videotapes, satellites, television cables, computers, and microwave). Each of the media can be described as it relates to the direction of the video and audio signals -- one-way video; two-way video; one-way audio; and two-way audio (see Figure 1).
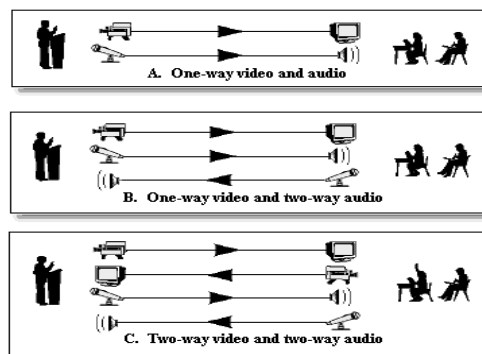

Figure 1: Three audio and video configurations.

Videotapes and DVDs offer popular, easy-to-use formats for instructional materials. Almost all students have access to a videotape or DVD player in the homes, and they are also common at school. Videotapes and DVDs have several advantages for the delivery of distance learning. In addition to easy access to the hardware, the tapes and discs are quite inexpensive. If a video camcorder is available, video is relatively easy to record (although professional staff and equipment provide in a much better product than will an amateur production team). Disadvantages of videotapes and DVDs include the fact that they are not interactive. In addition, they can be costly to send via the mail.

Satellite Video conferencing*:* Full-motion video teleconferencing offers the "next best thing to being there. "Satellite transmission is one of the oldest, most established techniques for videoconferencing. In most cases, satellite delivery offers one-way video and two-way audio. Two sets of equipment are needed for satellite systems. The uplink (a large satellite dish) transmits the video and audio signals to the satellite. The downlink (a small dish antenna) receives and displays the signals (see Figure 2).
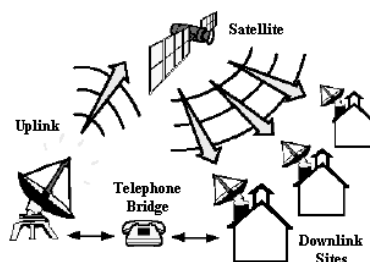

Figure 2: Configuration for satellite videoconferences.

When satellite videoconferences are used for distance learning, a studio classroom must be properly wired for the lighting, microphones, and cameras needed to produce an acceptable lesson. The cameras are usually connected to a control room, where one or more technicians control the signals. The resulting television signal is then sent to the uplink transmitter. Uplink transmitters are very expensive and are often shared with other schools or businesses. The receiving sites of satellite videoconferences (in most cases other schools) must have satellite downlinks. These dishes select, amplify, and feed the signals into the classrooms, where they can be displayed on standard television monitors. To provide two-way audio with interactions from the remote classrooms back to the teacher, a telephone bridge is usually employed. Satellite videoconferencing can be very expensive. It may not be cost-effective for most school systems to use uplinks to originate distance-education classes unless the school systems were in a position to market the classes over wide geographic areas. It is reasonable, however, for a school to use a downlink to receive commercial courses that are delivered through satellite channels.

Microwave Television Conferencing: Satellites are a popular method for enabling video communications over long distances. Microwave transmissions provide a cost-effective method for videoconferencing in more localized areas. Most microwave systems are designed to transmit video signals to areas that are not more than 20 miles apart (see Figure 3).
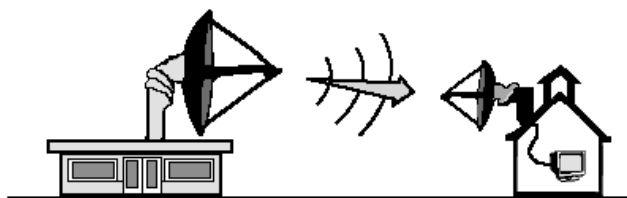

Figure 3: Configuration for microwave transmission.

The most common microwave systems use frequencies that have been designated by the Federal Communications Commission (FCC) as Instructional Television Fixed Service (ITFS) stations. When compared with satellite or commercial broadcast television, ITFS stations operate at a lower power, and the transmission equipment is relatively inexpensive. Reception equipment is also reasonably priced, as long as the receiving sites are located within 20 miles of the transmitter and there are no hills or tall buildings to block the line-of-sight signal.

Cable and Broadcast Television: Cable and public broadcast television have been used to distribute instruction for years. In addition to the educational networks, almost all public cable television systems allow schools to transmit television courses. This type of connection can be used to transmit one-way video and one-way audio to the community at large or between specific schools. For example, if two area high schools do not each have enough students to justify an advanced math course, they might team up to teach a single course delivered through cable television. In one school, the teacher would conduct a regular class; in the other school, the students would watch and listen through a standard cable television channel. Distance learning through cable television systems requires both a studio and channels through which to broadcast. The cost depends largely on the "partnership" offered by the cable or broadcast system. Even though the broadcast will take place at a scheduled time, research shows that the majority of the students will record the program and play it back at a convenient time.
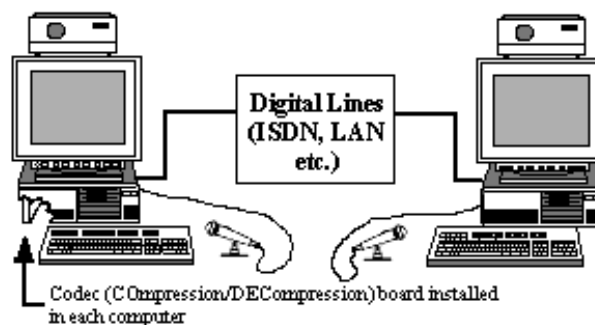

Figure 4: Broadcast from Television

IV.   CONNECTIVITY ISSUE

Even with increased options for connectivity, the transmission speed is still an issue. The problem is that digital files are huge, and they require channels or cables with tremendous capacity to transmit quickly and effectively. The transmission capacity of a cable or a technology is referred to as the bandwidth. The greater the bandwidth, the greater the amount of digital information that can be transmitted per second. There are several options available that teachers and students can use to access the Internet, including telephone, DSL, cable, fiber, satellite, and wireless delivery. Note that although the table lists the maximum download speeds, these speeds will seldom be realized, due to hardware limitations, latency, simultaneous users, and many other reasons. In addition, the upload speeds are often considerably less than the download speeds.

Cable Modems: In most areas, cable companies are offering Internet access through the same cable that delivers television signals to our homes (see Figure 5). If your area has been configured for this service, you can connect a cable line to a network card on your computer. The main advantage of cable modems is the bandwidth. Cable modems can bring data to your computer between 10 and 30 Mbps. If you have a 10 Mbps network card in a computer, you may be able to receive information up to that speed. A disadvantage of cable modems is that the transfer rate may be slowed if too many people in your neighborhood all connect to the Internet at the same time.
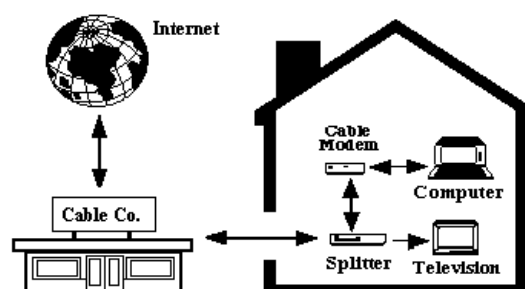

Figure 5: Cable modem in a home

Satellite Delivery:

It is also possible to receive information from the Internet via satellite. Satellite access is relatively fast, does not require the installation of telephone or data lines, and is not adversely affected by the number of simultaneous users. Satellite delivery, however, is usually one-way; you cannot send information back up to the satellite. In most cases, a telephone line is used to send information back to the Internet or service provider, and the satellite is used to receive information (see Figure 6). This configuration works well in most cases, because the information you send back is generally very small; whereas, the information you receive can be quite large.
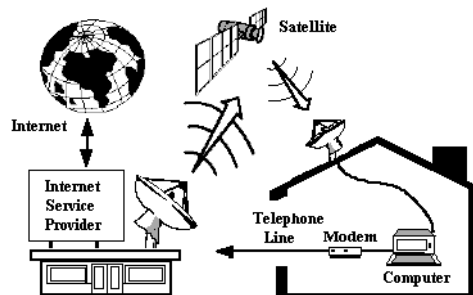

Figure 6: Connecting to the Internet via satellite.

V.   BENEFITS OF DISTANCE LEARNING

Convenience

Distance learning technologies can provide convenient locations for both students and instructors. Many of the technologies, such as the Internet and telephone, are easily accessed at home. Others, such as videoconferencing, can be distributed from a single point to multiple remote sites. Satellite transmissions can be viewed at specified sites, or the transmissions can be recorded for later viewing at home or school.

Flexibility

Many forms of distance learning provide students the option to participate whenever they wish, on an individualized basis. For example, some students may want to review a podcast in the middle of the night or read their e-mail during early morning hours. In addition, one student may wish to spend 30 minutes reviewing a website, while another spends an hour.

Effectiveness

Not only is distance learning convenient, it is also effective. Several research studies have found that distance learning is equally or more effective than traditional instruction when the method and technologies used are appropriate to the instructional tasks, when there is student-to-student interaction and when there is timely teacher-to-student feedback .

Affordability

Many forms of distance learning involve little or no cost. For example, almost all of the homes in the United States have televisions and many are connected to a cable-TV service. For these homes, it is relatively easy for the students to watch a public broadcast television show or educational documentary. In addition, almost all homes have access to a telephone and/or the Internet, enabling the use of voicemail and audio conferencing.

Multi-sensory

One of the benefits of distance learning is that there is a wide variety of materials that can meet everyone's learning preference -- at least part of the time. For example, some students learn from visual stimuli, such as video, and others learn best by listening or interacting with a computer program. If distance learning courses are well designed, they will likely offer learners a wide range of choices, thereby providing the optimal combinations of interaction and media.

Equity

Educational inequity is a major issue in this and other countries. Rural schools often have less contact with educational trends, fewer qualified teachers, and more need for technology. Distance learning offers great potential for alleviating these issues and has been employed very effectively in Canada and Australia -- two countries with geographically diverse student populations.

VI.   CONCLUSION

A well-structured distance learning course must place instructional objectives foremost. The technology should be as invisible as possible just another tool that teachers can use to effectively convey the content and interact with students. After the goals and objectives are outlined, the instructional materials can be designed and developed. It is important not to underestimate the commitment required for this step -- creating effective materials for distance learning is an extremely time-consuming and energy-consuming process. Regardless of whether the technology is audiotape or satellite video, ample time must be allocated to ensure that the materials are accurate, appropriate, and structured to maximize the benefits for distant students and to minimize the limitations. Many of the techniques and skills used in a classroom teaching situation do not translate directly into a distance education approach. Teacher training programs are important to acquaint the teachers with the use of technology as well as to help with the re-design of the instructional strategies. In particular, most teachers need assistance and practice with:

- Effective strategies for implementing small group activities and individual practice
- Techniques for maximizing teacher/student and student/student interactions
- Successful approaches for integrating technology into the teaching/learning process
- Tactics for motivating students at a distance

Facilitators and support personnel are also crucial to successful distance learning experiences. If students are located at remote sites, facilitators will likely be the on-the-spot contacts for the students. It is important that they are fully integrated into the course and communicate frequently with the instructor.

VII.   Acknowledgements

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