

## **Distance Education Models and Best Practices**

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In this report, Hanover Research examines models of online distance education. Specifically, we survey program delivery models, media, and best practices; faculty perceptions of online courses and teaching best practices; factors affecting student satisfaction and success; and program costs and funding models.

## Key Findings

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- ❖ Printed materials remain an important component of most distance education courses.
- ❖ Two-way technology-based communication is now an essential feature of distance education delivery.
- ❖ Email, internet chat, and internet videoconferencing are the most cost-effective modes of communication.
- ❖ All courses should incorporate opportunities for synchronous (real-time) communications.
- ❖ There has been a recent re-emergence of videoconferencing in distance education implementation due to the development of inexpensive voice over internet protocol (VOIP).
- ❖ Social networking sites are seen as potential areas for future development due to their multi-faceted capabilities and community orientation.
- ❖ Six key factors that should be kept in mind during course design:
  - Delivery and access
  - Control
  - Interaction
  - Symbolic (or audiovisual) characteristics of the medium
  - Social presence created by the medium
  - Human-machine interface
- ❖ Faculty members should be given access to internal or external technical and course design consultants.
- ❖ Teachers must be flexible, innovative, and creative, as dealing with the distance learner presents challenges different from that of a traditional classroom.
- ❖ The prevalence of tenure track faculty in emerging e-learning fields speaks to the important correlation between faculty engagement and course success. Faculty teaching online should feel invested in the process, as staff buy-in strengthens programmatic outcomes. We found

that all levels of faculty, in general, teach online at the same rate that they teach traditional courses.

- ❖ Distance students should be given, at minimum, the same level of support as campus students. Student services for the distance learner are typically offered through a system-wide library or “help-desk functionality” which is often placed in a highly visible and accessible location on the main page of the distance learning site.
- ❖ It is imperative to have an accurate understanding of the current costs of a distance education program to project future costs.
- ❖ Institutions of higher education fund new distance education programs using one of two primary approaches: the cost center model or the profit center model.
  - Cost Center: In this model, distance education is provided money from a central operating budget.
  - Profit Center: In this model, distance education must recover all of its costs through enrollment revenues.

## Introduction – Growth and Importance of Distance Education

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The number of higher education institutions around the world offering distance education programs has increased significantly in the last two decades, and most countries have seen a growth in distance education enrollments. The literature reviewing distance education trends, the evolving methods of delivery, and emerging distance technologies is extensive. Even still, the rapid growth of technology in this field of education has outpaced research on practice, design, and models. One established distance education researcher noted that “Because technologies as delivery systems have been so crucial to the growth of distance education, research has reflected rather than driven practice.” She goes on to explain that this form of teaching has evolved from a specialized form of education to “an important concept in mainstream education.”<sup>1</sup>

One of the reasons that distance education has become and remained so prevalent, in particular for higher education, is that **various studies have validated its practice – revealing no significant differences in learning outcomes between traditional and distance students.** A recent study, published in 2005, found this to be the case when comparing students who were delivered the exact same content via one of three setups: in a traditional classroom, via online course management software, and through a CD-ROM, respectively. The authors measured no significant change in overall student satisfaction between the three groups.<sup>2</sup> A twenty year meta-analysis, released last year, went so far as to argue that in 70 percent of cases students taking courses by distance education actually outperformed their student counterparts in traditionally instructed courses.<sup>3</sup> Clearly, distance education is here to stay as a form of instruction and its proliferation continues to change the landscape of higher education.

One definition of distance education, from as far back as 1990, depicted the use of two-way electronic communication as a central tenant.<sup>4</sup> It is safe to assume, that virtually all current distance courses, even those extending to the world’s most remote regions, incorporate the use of communications technology into their implementation. Moreover, it is now commonplace for campus-based students to engage with their professors via email or internet-based course management software when outside of the classroom. Students who attended university in the last ten years

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<sup>1</sup> Gunawardena, C., and McIsaac, M. 2004. “Distance Education.” *Handbook of Research for Educational Communications and Technology: Second Edition*. Jonassen, D. <http://www.aect.org/edtech/14.pdf>, p.2.

<sup>2</sup> Skylar A. et al. 2005. “Distance Education: An Exploration of Alternative Methods and Types of Instructional Media in Teacher Education.” *Journal of Special Education Technology*, 20, 3, pg 25-33.

<sup>3</sup> Shachar M. and Nuemann Y. 2010. “Twenty Years of Research on the Academic Performance Differences Between Traditional and Distance Learning: Summative Meta-Analysis and Trend Examination.” *MERLOT Journal of Online Learning and Teaching*, Vol. 6, No.2.

<sup>4</sup> Hilpe D. and Fleming S. 2002. “Models for Distance Education in Critical Languages: Evolving Definition of Distance Education.” *New Technologies and Language Learning: Cases in the Less Commonly Taught Languages*. Spreen, C.

are likely to have received a CD-ROM accompaniment to at least one of their text books.

Educators now have more options than ever when it comes to methods of delivering a distance course. The majority are already blending various technologies to encourage student learning, engagement, and retention. As noted, the research on models has not kept pace with continual developments; however, a thorough review of the various technologies available is a good starting point for institutions seeking to enhance their effectiveness in the practice of distance and online instruction.

Modes of delivery are varied, and program selection will depend in large part on the national context of the university, including geography, student characteristics, and government support for such programs. Given the potential for distance education to cut costs and increase revenues by reaching students who may otherwise be left out of traditional classroom-based higher education, it is important for institutions to continually seek to improve and expand their capabilities in this area.

## Distance Education Technologies and Implementation

**Table 1: Summary of Major Distance Education Technologies**

Technology	Advantages	Disadvantages
Print	Materials Inexpensive Portable High comfort level Readily available	No interactions Limited sensory involvement Requires reading skills Time delay
Voicemail	Low cost Easy to use Increases interactions	Length may be limited No visual cues May involve toll charges
Audio files/CD	Inexpensive Easily accessible Easily duplicated	No visual cues No interaction
Audioconference	Inexpensive Easy to set up	No visual cues Requires hardware
E-mail	Flexible Interactive Convenient	Requires hardware Software variations
Online Chat	Real-time interactions Instant feedback	Requires similar software Must be scheduled Requires hardware
Web-based Education	May incorporate multimedia Worldwide access Interactive	Requires computer Requires Web access May be slow
Videotape/DVD	Inexpensive Easily accessible Easily duplicated Audio and visual elements	Complex to record No interaction Requires hardware
Satellite Videoconference	High realism May be interactive	Expensive hardware Must be scheduled Usually one-way only
Internet Videoconference	High realism May be interactive Relatively inexpensive	Must be scheduled Small windows May be slow, jerky video
Cable/Broadcast Television	Easy to use Easily accessible May be videotaped Includes audio and visual	High production costs Requires hardware No interaction Must be scheduled

Source: 2009. "A Teacher's Guide to Distance Learning." <http://fcit.usf.edu/distance/default.htm>

The earliest forms of distance education were little more than self-taught courses wherein course materials were delivered to students via postal mail and assignments were returned to instructors along the same route. Correspondence courses of this

type still exist and are an option for students that do not have a reliable access to internet or telephone. However, even they can now be delivered on a CD-ROM (containing either audio files or some other computer-based media, such as PDF or PowerPoint). Given the importance of technology in modern distance education, it is important to understand the strengths, weaknesses, and potential of technologies currently in use. Such comprehension will enable administrators to make more informed decisions when it comes to course design and implementation.

### **Print Materials**

Though there are numerous new options available to educators in distance education, print remains a significant component of most courses. In 2004, it was reported that only 24 percent of distance students had high-speed internet at home.<sup>5</sup> While this number has certainly increased in the last six years, open and distance education programs could exclude potential students if they move entirely away from print material.

There is potential for print material to serve as either the primary source for course instruction or as a supplementary source – i.e. textbooks or other printed required readings. In this case, communication via email or other electronic means could be utilized for student questions, assignment submissions, and instructor feedback.

Printed study guides have been identified as a key resource for distance education courses even if other forms of media are primarily used to deliver the content. Supplemental print materials such as these may be disseminated via regular email or even via a course website.<sup>6</sup>

### **Advantages of Print Materials**

- ❖ **Extremely portable.** Print materials can be used in any location.
- ❖ **High comfort level.** Most students are very comfortable using print materials to learn.
- ❖ **Cost effective.** Print materials can be created and duplicated with little expense.
- ❖ **Readily available.** Many distance learning courses can take advantage of existing textbooks, thus saving the time and expense of creating custom materials.<sup>7</sup>

There are several advantages to print media that are likely related to why it has remained, and will continue to remain, an important resource for distance education. Once printed or distributed, students are able to bring these hard copies with them

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<sup>5</sup> Gunawardena, C., and McIsaac, M. Op. cit., 1.

<sup>6</sup> 2009. "A Teacher's Guide to Distance Learning." <http://fcit.usf.edu/distance/default.htm>

<sup>7</sup> Ibid.

anywhere they go. This allows for study at any number of locations. This can be important to distance learners since many of them choose distance education due to responsibilities that prevent them from being at the same place at the same time on a regular basis. Print materials also do not require batteries or advanced technology to support their use (other than a reading light), and by the time they reach higher education most students are accustomed to using print materials for learning.

### Disadvantages of Print Materials

- ❖ **No interactions.** Print materials do not generally provide built-in interactions. Additional technologies, such as e-mail, must be supplemented.
- ❖ **No audio/visual elements.** Print materials are static and are not appropriate for teaching languages and visual concepts.
- ❖ **Require reading skills.** If the learners are non-readers or language skills are required, print materials will not be effective.
- ❖ **Time delay.** It may take days or weeks for printed matter to travel between student and teacher.<sup>8</sup>

Printed materials are limited in terms of what they can provide to a potential learner. Clearly they do not provide the opportunity in themselves for two-way interaction with the instructor or other students. Only certain content can be delivered effectively via print – language courses that require an audio component will require additional resources. Learners also need well-developed reading skills in order to be able to utilize print successfully. The time it takes to deliver materials to the student is something else that should be taken into consideration.<sup>9</sup>

### Guidelines for Incorporating Print Materials

- ❖ **Distribute print materials well in advance.** Although the mail system is generally quite reliable, issues may arise if the print materials are not distributed well enough in advance.
- ❖ **Include clear directions for use.** Students need to know exactly which print materials they are responsible for reading and the specified timeline.
- ❖ **Require interactions.** Print materials are inherently non-interactive. Therefore, you must design for the required interactions. In some cases, this may mean a specified timeline for e-mail messages, or a required number of postings to a listserv.
- ❖ **Specify a timeline.** Distribute a timeline for students to help them organize their study learning activities.<sup>10</sup>

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<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

## **Audio Technologies**

Another cost-effective method of enhancing a distance education course is to incorporate some form of audio or voice technologies into delivery. This can be as simple as a telephone with voicemail or as sophisticated as an audioconference.

### **Voicemail**

Voicemail has become a very common mode of contact when speaking or interacting directly is not possible. One resource explains that voicemail has a great deal to offer distance learning initiatives. Through voicemail students are able to leave messages for instructors regardless of the time. Advanced voicemail systems can enable instructors to leave messages for whole groups students at once. Further, this mode of communication can substitute for email for those students that do not have internet. The main advantages of voicemail are that most people in developed nations and ever-increasing numbers in less-developed countries have telephone access and voicemail messages can be checked at any point during the day (or night). However, the length of messages is usually limited and students calling from outside the local area must be provided with a toll-free number for access. Given these limitations voicemail is usually used to supplement other methods of delivery in a course.

### **Audio Files and CDs**

CDs and Audio files represent another inexpensive resource that can be combined with other implementation techniques. Entire lectures can be delivered via audio files as well as panel discussions or instructions for the student. As one publication notes, “audio is especially useful in courses that require nuances of inflection, such as foreign languages, or those that are designed for non-readers.” Though audio files are easy to create, duplicate and use, they are not interactive and do not provide visual elements that many students may need or want.<sup>11</sup>

### **Audioconferences**

As noted, telephones are one of the world’s most accessible communication technologies. As such, their use can be vital in the effective delivery of distance education. Via telephone instructors can reach a potentially large number of students – even simultaneously via a conference call. At locations with speakerphones multiple students are able to gather to interact with an instructor or each other under the instructor’s guidance. Using more advanced audioconference systems and what are called bridges, numerous individuals can call into a toll-free number and essentially attend class (audibly) or engage in discussion over the phone. Again, for

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<sup>11</sup> Ibid

students that do not have access to the internet or a computer, audioconferences are a viable option for fostering interaction and the sense of community – something researchers have pointed to as essential elements of an effective distance course.<sup>12</sup>

One thing to note, however, is that though audioconferences are relatively easy to set up and conduct, it may be difficult to retain students' interest for a long period of time given the lack of visual stimulation on a phone call. Therefore, audioconferences for distance courses should not be too long, should be well-planned, and it is important to supplement them with visual media distributed in advance.

### Podcasts

Podcasts can be used to make digital audio and video files easily accessible to students with internet access and preferably their own computer. Learners are able to set their computers to automatically download new “episodes” in a series that is posted online. This is very easy for them to do. They simply tell their software to subscribe to the RSS (Really Simple Syndication) feed and the latest episodes (or posted files) are automatically downloaded to their computer. These files can then be transferred to more portable playback technology such as CD or an audio device, for example an iPod or PDA (the term Podcast comes from combining iPod and broadcasting). They can also be played with any number of media programs installed on most computers.

Many students of the “Net Generation” will be fairly comfortable with the use of podcasts since they were originally created as a feature on the popular music downloading program, iTunes. Less technology-capable students may have trouble setting up a podcast on their machine and will likely need assistance or explicit guidance. Of course, if podcasts are incorporated as a major element of course delivery, instructors need to be certain that students have a computer (or at least have regular access to a computer).<sup>13</sup>

### Advantages of Audio Technologies

- ❖ **Inexpensive.** All of the audio/voice technologies are relatively inexpensive.
- ❖ **Easily accessible.** Most people around the world have access to a telephone (either landline or mobile). In addition, most students in developed countries will have access to an audiotape player in their home or in a car.

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<sup>12</sup> Gunawardena, C., and McIsaac, M. Op. cit

<sup>13</sup> 2009. “A Teacher’s Guide to Distance Learning.”

- ❖ **Easy to use.** Almost everyone is comfortable using a telephone and an audio cassette. With voice technologies, there is no software to install and no hardware to configure.<sup>14</sup>

The main advantage of audio technologies is their cost-effectiveness. Though they are easy to use and most people around the world will have the required devices necessary to take advantage of audio, there are certainly potential students that may not have the suitable technology for access. This should be kept in mind when planning a distance course that will utilize audio. Costs for students and schools may increase if special accommodations need to be made.

### Disadvantages of Audio Technologies

- ❖ **May require scheduling.** Some of the voice technologies (such as audioconferences) are synchronous, meaning that they must be scheduled at a convenient time for the students and teacher.
- ❖ **Not conducive to visual information.** Many students find it hard to focus and learn strictly through audio input. In addition, audio-only format restricts the content that can be conveyed (abstract concepts are very difficult to convey through audio).
- ❖ **May be impersonal.** With audio-only interactions, there is no eye contact and no body language. Students may be “turned off” by a talking box.<sup>15</sup>

Clearly scheduling issues need to be considered for any form of synchronous delivery. One of the benefits that attracts students to distance education is the ability to access information at one’s own schedule. While podcasts, CDs, audio files, and even voicemail allow for this, audioconferences do not. **Again, interaction and a sense of community have been established as key determinants of student satisfaction in distance courses.** If audioconferencing is not used to allow for both, some of the technologies discussed in the next sections should be incorporated into overall course implementation to foster such an environment.

### Guidelines for Incorporating Audio Technologies

- ❖ **Distribute visual materials in advance.** If an audioconference is scheduled, handouts or other visual materials that might be of value during the presentation should be distributed well in advance.
- ❖ **Set communication protocols.** Since the participants will not be able to see each other, it is important to agree on protocols to help identify the speaker in an audioconference.
- ❖ **Encourage interaction.** In an audioconference, interactions should be built into the format. For example, instructors should call on specific students,

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<sup>14</sup> Ibid.

<sup>15</sup> Ibid.

instruct students to take turns asking questions, and make sure that one student is not allowed to monopolize the conversation. With both audioconferences and audiotape delivery, students should be required to use e-mail, fax, or voicemail to engage in further interactions with each other and the instructor.

- ❖ **Record audioconferences on audiotapes.** It is very easy to record an audioconference. That way, you can distribute the tapes for students who were unable to participate in the conference and for those who would like to review the content.
- ❖ **Get to know the students.** If possible, seek ways to get to know the students, such as visiting the remote sites, gathering the students together in one place, or exchanging photographs or videotapes.<sup>16</sup>

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<sup>16</sup> Ibid.

## **Computer Technologies**

As internet usage continues to increase around the world computer technologies are becoming more commonplace in the delivery of distance education. Online learning does not necessarily imply distance learning as many traditional higher education courses now utilize internet-based course management software to aide in the learning process. Nonetheless, much research has gone into establishing best practices and guidelines for internet-based distance education courses and programs. E-mail, online collaborations, and Web-based education have been identified as the primary computer technologies used for distance education. Obviously, only students that have reliable computer and internet access will be able to enroll in courses that utilize these technologies.<sup>17</sup>

### **E-mail**

E-mail messages are a relatively simple and inexpensive way for instructors and students to communicate throughout course implementation. Occasionally, designers plan an entire course around e-mail communication. This works particularly well for students that prefer asynchronous instruction and allows students that may be too shy to speak up in a traditional face-to-face course to interact with the instructor. More often, e-mail is best used to supplement print, audio, or video technologies.

In addition to conventional e-mail communication, bulletin boards and listserves can also be used to improve the quality of a distance course. Bulletin boards are online discussion groups or newsgroups where students and instructors can post messages that everyone subscribed to the group can read and reply to. Most instructors will be familiar with listserves, which can similarly be used to send an e-mail message to a list or group of students. Bulletin boards and listserves can be an effective way of facilitating interaction among students and with the instructor.

E-mail is also a convenient way to distribute various files as attachments, such as PowerPoint presentations, spreadsheets, or PDF documents. These types of files are themselves computer technologies and for internet-based courses they can be used to supplant printed materials so long as students are comfortable with their use.

As mentioned, e-mail is inherently asynchronous – students do not need to be logged in at the same time to receive them – and this is one of the main benefits of e-mail technology. It can be accessed any time, day or night. Furthermore, email accounts can be obtained for little or no cost. In most cases, the only cost of an email account is the cost of an internet connection. Of course, the requirement of an internet connection is also the main disadvantage of e-mail software. Students will need to learn the use of email software which includes knowing how to access and download

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<sup>17</sup> Ibid.

attachments. As one resource notes, “Prior to involving students in e-mail instruction, you must ensure they have all the hardware, software, and knowledge to make the communications successful.”<sup>18</sup>

### **Online Collaboration: Internet Chat and Conferencing**

Though email is asynchronous, as most educators are aware, there are synchronous computer technologies that can be utilized for distance education courses. These include online chat, shared white boards, and videoconferences.

Online chat, also called instant messaging, can be between two people, for example instructor and student, or numerous people via a chat room. As each person types and enters a message the information is transmitted instantaneously to other individuals included in the chat session. Instant messaging allows for real-time communication. Instructors can utilize this technology to establish virtual office hours when they will be available to answer student questions or engage subjects in an online course discussion. Since chat is an internet-based technology students and instructors need not be concerned with phone charges for this form of communication. Chats are useful for communicating across large distances with students that have internet access.

A shared whiteboard is a form of internet collaboration wherein two or more people connected to the internet at the same time can communicate through graphic images. Using drawing tools, participants are able to draw arrows, circles, and other symbols in a shared space. Additionally, it is possible to paste in images or text copied from another source. More advanced versions of this software allow users at remote sites to view others’ screens and even take control of their computer. For instance, an instructor could open an Excel file on his or her computer and display it on the screen of a remote student’s computer. Both student and teacher have the ability to input data and make revisions.

The main benefit of chats and whiteboards is that through their use students are able to receive immediate feedback from the instructor – something that has been historically absent in distance education. It is necessary, however, for all participants to download and install similar software and scheduling conflicts are to be expected. Chats and whiteboards combine well with all of the other technologies discussed in this section and can be used to replace more expensive forms of communication.

### **Web-based Resources**

The increased popularity and use of the internet has been coupled with an increasing amount of online information that students and educators alike can access to improve

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<sup>18</sup> Ibid.

learning outcomes. Now, more than ever before, students can link to resources on the web that they once could only find in libraries or via expensive subscriptions. Teachers can take advantage of this situation and locate relevant Websites for students to review or task learners with searching the internet for information on a specific topic.

### Advantages of Computer Technologies

- ❖ **Allow self-paced instruction.** Computers allow learners to proceed at their own pace, receive feedback immediately, and review as often as they like.
- ❖ **May incorporate text, graphics, audio, and video.** With the trend toward digital audio, digital video, and computer animations, it is easy to incorporate various media into computer programs.
- ❖ **Allow high levels of interactivity.** Computer technologies allow embedded questions and interactions, as well as online collaboration.
- ❖ **Provide written record of discussions and instruction.** Computer logs can easily be generated for computer interactions in distance learning.
- ❖ **Inexpensive.** With access to the Internet, it is relatively inexpensive to participate in computer technologies for distance learning.
- ❖ **Worldwide access.** The Internet can be accessed by millions of people throughout the world. There is no other way to reach so many people for so little money.<sup>19</sup>

### Disadvantages of Computer Technologies

- ❖ **Require hardware and software.** At a minimum, a computer and Internet connection are required for most distance learning options that involve computers.
- ❖ **Generally rely on written communications.** Although it is possible to include audio and video in computer-based distance learning, most of the communications are in the form of text.
- ❖ **Require substantial planning .** E-mail and other asynchronous computer technologies require a great deal of planning and preparation on the part of the instructor.
- ❖ **Computer viruses.** If students send assignments via a computer, there is always a risk of viruses -- especially if they send programs or attached files.
- ❖ **No guaranteed performance.** Computer networks are notoriously unreliable. If students wait until the last minute to check their e-mail messages or search the Web, there is always the risk the server may be down or the Websites may have moved.<sup>20</sup>

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<sup>19</sup> Ibid.

<sup>20</sup> Ibid.

## Guidelines for Incorporating Computer Technologies

- ❖ **Provide adequate structure and guidelines.** The most successful asynchronous projects include deadlines and a structure.
- ❖ **Provide timely feedback to participants.** Since the communications in computer-based distance learning are more impersonal than video-based delivery, it is extremely important to provide quick and relevant feedback to students.
- ❖ **Get to know the students.** If possible, try to meet the students, either in person or through video. In some cases, the students may be able to meet once or twice; if not, videotapes can be sent to students to increase personal communications.
- ❖ **Ensure sufficient technical support.** It is very important to provide sufficient technical support so that the students can get help when they need it.<sup>21</sup>

## Video Technologies

Use of video technology is an effective way to add visual content to a distance education course, though some mediums can be rather expensive to implement. There are certain benefits to not only hearing but also seeing an instructor that have traditionally been lost in distance education. These include behavior modeling, demonstration, and instruction of abstract concepts. Video technologies effectively incorporate these benefits into a distance education course and are particularly useful for visual learners. There are several different media that can be utilized to transmit video to students – videotapes, DVDs, satellites, television cables, computers and microwave.

### Videotape and DVD

Videotapes and DVDs are perhaps the most accessible and common formats for video delivery. Their use is quite common in countries with high rates of advanced technology consumption – such as the United States, United Kingdom, and Australia. In addition to this ease of access, video tapes and DVDs are relatively inexpensive. Further, video for these formats can be easy to record and even amateurs prove successful producers of content. Video tapes and DVDs can be used to reproduce and distribute lectures, panel presentations, and demonstrations, among others. However, they are not (usually)<sup>22</sup> interactive and can be costly to ship to students via the postal system.

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<sup>21</sup> Ibid.

<sup>22</sup> DVDs do have some potential for interactive media through menu screens and selection options. However, these features require specialized expertise to develop.

### **Satellite Videoconferencing**

The closest a distance student can get to actually being there is full-motion video teleconferencing. This is one of the oldest forms of video transmission for distance education. Usually satellite offers one-way video (instructor to student(s)) and two-way audio. This technology requires two sets of equipment (or more for multi-site transmission) – the uplink dish to transmit the video and the downlink dish receiver on the student end to receive and display the signal. Its use also requires a properly wired and set up “studio” classroom – a feature that necessitates hiring a technician and other support staff. All of the equipment and expertise necessary for a satellite teleconferencing makes its utilization an expense prospect for higher education institutions. This form of video technology is recommended for transmitting courses within a network of campuses or other already established sites.

### **Microwave Television Conferencing**

On the other hand, microwave conferencing is a less expensive alternative though its range is limited. Microwave television conferencing can be used to transmit video signals that are not more than twenty miles apart. For this type of conferencing, equipment for both transmission and reception is also needed at both sites. Thus, microwave, like satellite, may not be a viable option for classes distributed outside of a pre-established network. Further, there are a limited number of channels available for microwave conferencing and in a heavily populated area all channels may already be in use.

### **Cable and Broadcast Television**

Another option for transmitting one-way video is through the use of existing television systems – cable or broadcast. Many large open universities have been taking advantage of this transmission medium for decades. TV can be used to transmit video to the community at large or between specific schools and branch campuses. This video technology also requires a studio for production and channels through which to broadcast. An added benefit is that many students will likely possess the capability and know-how to record television broadcast for later playback and review.

### **Desktop Videoconferencing and Internet Videoconferencing**

For students that are equipped with computers, desktop video conferencing and internet video conferencing is possible. Equipment needed by the instructor is limited to a computer, computer camera, and microphone. This form of video conferencing is less expensive than satellite and microwave, though the quality is usually lower and a high-speed internet connection is essential for effective use. One well-known example of videoconferencing software is skype. [www.skype.com](http://www.skype.com)

### Advantages of Video Technologies

- ❖ **Allow both audio and video communications.** Video technologies can provide the visual and audio realism of a face-to-face class. It is generally considered the “next best thing to being there.”
- ❖ **Facilitate personal feelings.** Video technologies enable students and instructors to see facial expressions and body language, adding personalities to communication.
- ❖ **Enable high levels of interaction.** Most video communications are synchronous, allowing high degrees of interactions, questions and answers, etc.<sup>23</sup>

Video technologies are certainly a step above audio since additional information can be conveyed visually. Teleconferencing allows students to interact with an instructor in nearly the same manner that they would be able to in a traditional classroom. Moreover, recorded video can be played back, paused, and resumed according to the schedule of the student.

### Disadvantages of Video Technologies

- ❖ **May be expensive.** Cameras and editing equipment can be expensive. In addition, the infrastructure at each site and the links between sites can be costly.
- ❖ **Require a great deal of planning and preparation.** To be effective, the camera crews and the instructor must practice and become a team. Faculty members generally need practice and training to be effective in this domain.
- ❖ **Must be scheduled.** Most videoconferences are not spontaneous. Instead, they must be planned and the necessary resources must be scheduled.
- ❖ **Require technical support team.** Because of the complexity of video recording, mixing, and transmission, a technical support team is required. In addition, site facilitators are necessary to ensure the equipment works properly at the receiving stations.<sup>24</sup>

As noted, video technologies and satellite teleconferencing in particular, can be cost prohibitive. Additionally their use requires significantly more planning, preparation, and scheduling than audio, print, or even internet-based communications. However, when used in conjunction with other forms of technologies, for example email and print, they have the potential to fully engage a distance student in course material in a way that was once only possible through on-campus study.

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<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

## Guidelines for Incorporating Video Technologies

- ❖ **Avoid the “talking head.”** Talking head refers to simply videotaping the instructor while she or he is talking. Instead, try to vary the camera angle, include still images of appropriate graphics, and encourage student interactions.
- ❖ **Practice with the cameras and the crew before the lesson.** It is important to plan practice times for the instructor and the camera crew. By working together, they can anticipate each other's needs and provide the best possible transmissions.
- ❖ **Encourage interactions.** Interactions can be added to video-based delivery in many ways. If the lessons are two-way, questions and other types of interactions can be included. If they are one-way video, interactions can be added through e-mail messages or the telephone.
- ❖ **Use the best cameras possible.** The old saying “garbage in; garbage out” is very true of video. The very best possible quality equipment should be used.
- ❖ **Ensure quality audio.** Losses in audio quality will be noticeable long before losses in video quality. Always ensure good recording, playback, and speaker quality.<sup>25</sup>

## Emerging Trends in Technology

All of the technologies discussed in this section have been in use for some time. Some of those not included, such as Radio, have been in use for decades. Still others are gaining in popularity and could soon become more important to distance education delivery. For this reason their mention is warranted.

### Mobile Devices

In some parts of the world cell phones and PDAs now outnumber people. Some universities have begun to explore the potential for incorporating text messaging into content delivery. The University of Pretoria in South Africa, which established its distance education department in 2002, found that in 2008, 99 percent of their students had mobile phones, as opposed to fewer than 3 percent who had internet access and fewer than 43 percent who had access to or owned a PC. The full function of a text message system there has been in place since the end of 2005. Bulk messages were sent to students to direct them to parts of their study guide, make students feel more supported by the university, send them a type of SMS quiz, and even give them a “mini-lecture” on a difficult concept. By 2007 the school had set up a system to receive and respond immediately to texts from students. The institution

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<sup>25</sup> Ibid.

has concluded that the SMS's haven't necessarily improved performances, but their pilot tests did reveal higher completion rates among students receiving the texts.<sup>26</sup>

Other researchers believe that cell phones have the potential to increase the equality of educational opportunity worldwide by removing barriers to anytime, anywhere learning.<sup>27</sup>

### **Renaissance in Videoconference Use**

A recent publication on emerging technologies includes an article on the increasing use of Web-based videoconferencing in distance higher education. The author notes that "While audio has been the default for many years, the use of video for two-way communications is increasing for several disparate, coincident, and substantive reasons." It is explained that around the turn of the millennium, connections to the internet became fast enough to support high-quality video conferences, "and the last few years have seen higher speeds that afford further increases in picture and sound quality." Furthermore, the cost structure of the internet is such that distance between locations is not a factor in price. Access to internet technologies are becoming easier for students and educators alike and accordingly the use of internet-based communications are increasing.<sup>28</sup>

### **Social Media**

Another article in the same publication explores the potential for social media sites, such as Facebook and MySpace, to serve as online community development centers for distance learners. These online spaces are informal and many people already feel comfortable in their use. Moreover, while these are public sites, privacy settings can limit the number of people able to access and view an online group. As the authors explain, "creating an online place where people feel comfortable and relaxed, a place that affords communication and interaction at different levels and while using a variety of tools, both tutors and students develop a strong sense of presence that can help participants gain confidence in both their learning and teaching."<sup>29</sup> Social media sites also essentially combine several technologies into one – they can be discussion boards, places to upload audio and video files, can facilitate chat, and have email-like functions. Their potential as a tool in distance and online education is considerable.

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<sup>26</sup> Hendrikz, J. 2009. "The Use of Mobile Phone Technology in Student Support at the University of Pretoria." *Quality Assurance Toolkit – Distance Higher Education Institution and Programmes*. Rama, K. et. al.

<sup>27</sup> ICDE. 2009. "Global Trends in Higher Education, Adult and Distance Learning" <http://www.icde.org/filestore/Resources/Reports/FINALICDEENVIRONMENTALSCAN05.02.pdf>

<sup>28</sup> Caladine, R. et al. 2010 "New Communications Options: A Renaissance in Videoconference Use." *Emerging Technologies in Distance Education*. Veletsianos, G.

<sup>29</sup> Kop, R. 2010. "Using Social Media to Create a Place That Supports Communication." *Emerging Technologies in Distance Education*. Veletsianos, G.

## Distance Education Design, Implementation, and Funding

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The four most important mediums for distance education are text, audio, television, and computing. However, each medium can be carried by more than one technology. Therefore, administrators and course planners can further refine courses by selecting various mediums for presentation.

As mentioned in the introduction, the digital-age definition of distance education implies that distance courses allow for two-way communication between instructor and students. Depending on the technology used this communication can be either synchronous or asynchronous. Regardless, any effective program must utilize some form of technology to allow for two-way communication and, where possible, collaboration. Early researchers pointed to two additional characteristics that have proved critical to the optimization of the study situation:

- ❖ The ability of the medium to reach all learners, or provide access;
- ❖ The flexibility of the medium.

In order to be effective as a program, the medium selected for the course should be able to reach all learners. This implies that if it is known that all potential students will have internet access then utilizing chat and email as a form of communication is a viable option, for example. The medium must also be flexible enough that students have some ability to adapt its use and it to their specific situation. An audio CD is an example of a flexible medium because it can be played on various devices, including a computer, and audio files can be extracted and transformed to different formats as needed.

Updated research expands on these characteristics. When designing a distance learning program and deciding which technologies to incorporate into the courses, experts point to six factors that need to be kept in mind.<sup>30</sup>

- ❖ Delivery and access;
- ❖ Control;
- ❖ Interaction;
- ❖ Symbolic characteristics of the medium;
- ❖ The social presence created by the medium;
- ❖ Human-machine interface for a particular technology that takes into consideration how the equipment interfaces with the end users.

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<sup>30</sup> Gunawardena, C., and McIsaac, M. Op. cit, p 373.

## **Delivery and Access**

Materials can be distributed using a several different technologies as discussed and to different locations: homes, places of work, or local study centers (for satellite teleconferences). Students must have access to the appropriate devices and technologies in order to receive materials and participate in the learning process.

## **Control**

Learners should be given some control over the medium to allow them to use it at a time and place that suits them best, or that is at least convenient. For example, the advantage of video over broadcast television is that students have more control over a recorded video in that they are able to pause, rewind, fast forward, and rewind. This gives them the ability to proceed at their own pace and on their own schedule which is one of the reasons the overall advantages to distance education over a traditional course at the onset. Technologies that do not provide this flexibility may be less attractive to the distance learner.

## **Interaction**

Students must be able to interact with the instructor and other students via some means. Interaction implies two-way communication between the instructor and student and among students. Printed text and materials, television broadcasts, podcasts, and CD-ROMs offer only one-way communication (instructor to student). Technologies that permit two-way interaction can be classified as synchronous (real-time) or asynchronous (time-delayed). Audioconferencing, videoconferencing, online chatting, are synchronous technologies that allow for interaction. On the other hand, email, bulletin boards, and voicemail are asynchronous communications technology that permit two-way communication.

## **Symbolic (or Audiovisual) Characteristics of the Medium**

Salomon (1979) distinguishes between three kinds of symbol systems: iconic, digital, and analog. Iconic systems use pictorial representation; digital systems convey meaning by written language, musical notation, and mathematical symbols; and analog systems are made up of continuous elements which nevertheless have reorganized meaning and forms, such as voice quality, performed music, and dance. Television, or multimedia, for example, use all three coding systems to convey a message. Salomon (1979) observes that it is the symbol system that a medium embodies rather than its other characteristics that may relate more directly to cognition and learning. “A code can activate a skill, it can short-circuit it, or it can overtly supplant it”<sup>31</sup>

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<sup>31</sup> Gunawardena, C., and McIsaac, M. Op. cit

## **Social Presence Created by the Medium**

The degree to which the student is perceived as a real person and perceives others involved in the course as real is important. This is described as social presence. Video technologies allow for the transmission of facial expressions and gestures where audio-only communication does not. Audio technologies transmit voice inflection and emphasis which can be difficult to ascertain by reading print and email. It has been shown that social presence is an important predictor of learner satisfaction. As such, course designers should not only incorporate some degree of communications technologies that allow for social presence but should also encourage their use among students.

## **Human–Machine Interface**

How the technology interfaces with the end users should be considered during course design. The learner needs to be capable of interacting with the technological medium in order to in turn then be able to interact with the instructor and classmates. This can be as simple as knowing how to use a key board to understanding the proper setup of a video camera during a desktop videoconference. The types of technologies that a course employs have implications for the extent of training that both students and teachers must receive to become competent users.

## **Faculty Support, Engagement and Incentives**

One study reported that despite the accelerated rate of growth in distance education, distance programs remain encumbered by a low rate of faculty approval and support. Only fifty percent of faculty participants in the survey accepted the legitimacy of distance learning, and the rate is much lower at baccalaureate institutions, where ironically, these programs have gained the most traction. Table 2 highlights faculty motivations for teaching courses online.

While financial incentives have typically been used to incentivize the development of online courses, this practice has become less prevalent, though it can still certainly be found at some universities. Indiana University, for example, extends a stipend of \$4,000 to faculty members who teach and develop online courses. \$2,000 is paid at the time that that course is approved and designed and the remaining \$2,000 is paid when the course is ready to be offered.<sup>32</sup> Financial incentives, however, have become less common as online instruction has become more prevalent and better incorporated into faculty job descriptions.

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<sup>32</sup> Indiana University-South Bend, “Indiana University South Bend Distance Learning Strategic Plan. 2005-2010.”

See [http://distance.iusb.edu/Distance\\_Learning\\_Strategic\\_Plan.pdf](http://distance.iusb.edu/Distance_Learning_Strategic_Plan.pdf)

**Table 2. Faculty Motivations for Teaching Online**

Statement of Motivation	Position	Not Important	Somewhat Important	Important	Very Important
Teaching Online Courses is Required	Chief Academic Officer	35.8%	32.7%	21.4%	10.1%
	Online Teaching Faculty	61.6%	17.7%	13.7%	7.0%
Pedagogical Advantages	Chief Academic Officer	19.1%	39.6%	35.5%	5.9%
	Online Teaching Faculty	45.6%	30.8%	19.2%	4.3%
Online Learning is the Future of Education	Chief Academic Officer	14.9%	37.0%	35.7%	12.4%
	Online Teaching Faculty	35.0%	35.4%	22.7%	6.9%
For Personal and Professional Growth	Chief Academic Officer	9.3%	35.4%	40.3%	15.0%
	Online Teaching Faculty	37.1%	31.2%	24.1%	7.6%
It is the Best Way to Reach Particular Students	Chief Academic Officer	8.4%	32.8%	44.8%	14.0%
	Online Teaching Faculty	11.5%	33.4%	38.9%	16.2%
To Earn Additional Income	Chief Academic Officer	10.1%	30.0%	40.7%	19.2%
	Online Teaching Faculty	43.9%	29.2%	19.9%	6.9%
Online Courses Meet Student Needs for Flexible Access	Chief Academic Officer	3.4%	19.1%	42.0%	35.5%
	Online Teaching Faculty	9.1%	29.0%	40.8%	21.1%

Source: The Sloan Consortium, "Staying the Course, Online Education in the United States, 2008," [http://www.sloan-c.org/publications/survey/pdf/staying\\_the\\_course.pdf](http://www.sloan-c.org/publications/survey/pdf/staying_the_course.pdf)

Whatever an institution ultimately decides in this respect, it is critical to develop clear policies regarding faculty stipends for the development of distance learning courses, financial incentives for teaching distance courses, and how time spent developing distance courses will be weighed in tenure considerations. In place of economic incentives, campuses are now more often emphasizing support directives to assist faculty in optimizing their instructional efforts and maximizing investment in their courses.

## Faculty Support

Several sources stressed that faculty need external support to optimally instruct in an online or distance environment. Faculty members should be given access to internal or external technical and course design consultants to assist them in the time consuming tasks involved in moving courses from the classroom format to the online format. In this way, faculty can retain their position of being “content experts” without the added burden of also being technology experts, a responsibility which may detract from their instructional productivity. To this end, many online programs institute mandatory training sessions to help acclimate the instructors to online teaching and protocol. At many institutions, faculty are encouraged to engage in educational development opportunities related to online education, such as conferences, tutorials, workshops, and mentoring networks. Further, the enterprise model of e-learning administration, described below in further detail, centralizes the functions of faculty and instructional designers at the system level, enabling a more collaborative approach to course design.<sup>33</sup>

Sufficient faculty support will enhance faculty commitment and reinforce course effectiveness. The following directives can help faculty receive the support they need to instruct effectively in an e-learning environment:

- ❖ **The faculty transition from classroom teaching to online instruction should be supported** by on-campus personnel devoted to online learning or an external vendor. Assistance should include technology training and guidance by professionals as to which resources would best achieve course and program objectives.
- ❖ **Faculty development should continue for the duration of the course.** The “E-lluminate Learning Suite” can be a useful resource for faculty-teaching-faculty collaborative efforts.
- ❖ **Faculty should be consulted at the conclusion of the course for assessment purposes.**<sup>34</sup>

## Ensuring Course Quality

Hanover found the quality of teaching and learning to be generally viewed as an institutional responsibility—that is, students and professors alike expect there to be quality control for courses delivered online and by remote delivery at the university or

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<sup>33</sup> Web-based Information Science Education (WISE), “Principles and Metrics for Effective Online Teaching and Learning,”  
[http://www.wiseeducation.org/media/documents/2009/2/Principles\\_of\\_Quality\\_Online\\_Courses\\_2006.pdf](http://www.wiseeducation.org/media/documents/2009/2/Principles_of_Quality_Online_Courses_2006.pdf)

<sup>34</sup> Ibid.

system level. The protocols used for the residential classroom and the expectations of the residential classroom also apply to courses delivered in a distance format. One mechanism for aligning expectations with results is the use of surveys and other feedback instruments. Through these efforts, students and faculty can be anonymously interrogated about their experiences in the virtual classroom.

Institutions will often designate an individual with administrative authority to oversee online course quality. Investing authority in a single individual or small group of individuals within the administration will help promote accountability and ensure quality in online courses. Some means of assuring quality may include:

- ❖ **Strengthening the development and course cultivation process** by establishing a cross-disciplinary, committee-driven review of courses and curricula; developing a student-faculty-alumni advisory board to guide program evolution
- ❖ **Ensuring quality content delivery** by making accessible academic and technical advisers who can assist students throughout the duration of the program.
- ❖ **Review and improve the program by including all relevant stakeholders**—area businesses and professional associations—in discussions about course and program content and design.<sup>35</sup>

### The Instructor Imperative

The selection of the instructors who will provide distance learning is critical to the program's success. These teachers must be flexible, innovative, and creative, as dealing with the distance learner presents challenges different from that of a traditional classroom. We found that, in large part, online faculty members are both adjunct and tenure track faculty who teach both online and traditional classes. The use of tenure track faculty has become more standard as online courses have blended with residential courses. The prevalence of tenure track faculty in emerging e-learning fields speaks to the important correlation between faculty engagement and course success. Faculty teaching online should feel invested in the process, as staff buy-in strengthens programmatic outcomes. We found that all levels of faculty, in general, teach online at the same rate that they teach traditional courses.<sup>36</sup>

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<sup>35</sup> "Web-based Information Science Education (WISE): Principles and Metrics for Effective Online Teaching and Learning." Page 4.

[http://www.wiseeducation.org/media/documents/2009/2/Principles\\_of\\_Quality\\_Online\\_Courses\\_2006.pdf](http://www.wiseeducation.org/media/documents/2009/2/Principles_of_Quality_Online_Courses_2006.pdf)

<sup>36</sup> Utah School, "Distance Learning Programs and Procedures," 1 July 2009,

<http://www.schools.utah.gov/adulted/directors/documents/PolicyProcedures/TabD.pdf>

## Provision of Student Support

Student services for the distance learner are typically offered through a system-wide library or “help-desk functionality” which is often placed in a highly visible and accessible location on the main page of the distance learning site. These online help-desks, the best of which offer advanced student support services such as online tutoring or writing assistance, are either provided by the campuses administering the online courses or by the learning management system vendor.<sup>37</sup>

## Funding the Operation of Distance Education

Institutions of higher education fund new distance education programs using one of two primary approaches: **the cost center model** or **the profit center model**.

**Cost Center.** In this model, distance education is provided money from a central operating budget. The institution allocates a certain number of dollars annually to fund distance education technologies and programs. Often the funding for a particular e-learning program is provided by a sponsoring academic department. The Office of the Provost may provide additional funding or support grants to generate requisite funds to launch programs for which there is no natural demand.<sup>38</sup>

- ❖ *Requires advanced planning and investment.* This funding method involves an institutional decision to make large investments up front to fund the development of the technological and institutional infrastructure needed to support the development of distance learning programs.
- ❖ *Most frequent method of funding programs at large universities.* This is a common funding method for public and private universities, where the programs’ costs, 80-90 percent of which is faculty salary cost, are covered regardless of the programs’ outcomes.
- ❖ *Delayed profitability, increasing returns.* In this model, there is an expectation that during the initial years of development, the costs will exceed the benefits but over time there will be a return of the initial investment and then large amounts of additional revenue will be generated to benefit the institution.

**Profit Center.** In this model, distance education must recover all of its costs through enrollment revenues. When start-up costs are included in the recovery amount, more time is needed to balance costs with revenues.

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<sup>37</sup> For document see [https://wcet.info/services/publications/accreditation/Accrediting\\_BestPractices.pdf](https://wcet.info/services/publications/accreditation/Accrediting_BestPractices.pdf)

<sup>38</sup> Indiana University-South Bend, op cit.

- ❖ *Requires goal setting and depends on revenue generation.* Using this approach, distance education must recover all of its development and operational costs by recapturing revenue generated by student enrollment in distance based courses.
  
- ❖ *Most institutions using this model initially launch programs in high demand areas.* When start-up costs are included in the recovery amount, more time is needed to balance costs with revenues. In such an arrangement, institutions need to consider creating an alternative organizational structure to manage distance learning programs that will guarantee a positive return on investment for distance education units that operate on a well thought-out business plan that will allow the distance education unit to eventually turn a profit.

## Business Models and Fiscal Plans for Online Learning

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### Access vs. Quality

According to Miller and Schiffman, institutions typically begin online learning programs for one of two reasons:

1. To extend **access** to degree programs to new off-campus students
2. To improve the **quality** of teaching for existing students on campus<sup>39</sup>

Institutions looking to increase access tend to separate their online learning programs from their general academic offerings by developing continuing education or distance education programs. These programs are often staffed independently of the other academic colleges in the institution, and are organized either as for-profit subsidiaries within the not-for-profit university or as a cost-recovery center with varying degrees of central subsidy. In both of these models, the expectation is that operational costs will be recovered through tuition and contracts.

Colleges and universities looking to enhance the quality of their current offerings tend to fold their distance learning programs into the work of the Provost's office or within individual academic programs. Cost recovery for these programs is achieved through the normal academic budget. Table 3 summarizes the differences between programs that are implemented primarily to facilitate **access** and those that are established mainly to enhance **quality**.

*Access-focused online programs are typically housed within continuing or distance education programs. Such programs tend to be largely self-funded. Quality-enhancing offerings are more frequently funded out of the traditional academic budget and are often operated through the Provost's office.*

**Table 3: Access vs. Quality as a Starting Point for Online Programs**

Primary Goal	Organizational Location	Leader(s)	Cost Recovery	Example(s)
<b>Access</b>	Distance Education or Continuing Education	Separate university administrators	Revenue from tuition and contracts	New York University, Penn State's World Campus, and the University of Maryland University College
<b>Quality</b>	Provost's office or individual academic units	Provost's office or faculty in individual academic units	Normal academic budget	University of Illinois

Source: Miller and Schiffman<sup>40</sup>

<sup>39</sup> Miller, Gary E. and Stephen Schiffman. "ALN Business Models and the Transformation of Higher Education." *Journal of Asynchronous Learning Networks*. Vol. 10, No. 2. May 2006. p. 15.  
[www.duc.auburn.edu/outreach/dl/pdfs/ALN\\_Business\\_Models\\_and\\_the\\_Transformation\\_of\\_Higher\\_Ed.pdf](http://www.duc.auburn.edu/outreach/dl/pdfs/ALN_Business_Models_and_the_Transformation_of_Higher_Ed.pdf)

## Miller and Schiffman: Three Online Business Models

Miller and Schiffman identify three business models pertaining to online course offerings: two “access” models and one model centered on quality enhancement.

### *Access Model #1 For-Profit Subsidiary Model*

According to Miller and Schiffman, the creation of a for-profit subsidiary within a nonprofit institution is “the model with the highest risk for long-term success.”<sup>41</sup> Many for-profit programs have failed due to a lack of sustainability. The demise of these programs can be linked to many factors, including failure to find avenues for growth or the failure of the market to materialize. Colleges and universities typically will not support these programs with internal investments because they are not seen as key to the core mission of the institution. This approach requires significant effort in bridging the for-profit model of the online learning sector with the non-profit model of the parent institution.

*The for-profit subsidiary is a risky and fairly unusual model, but offers a high level of bottom-line, profit-based accountability for online programs.*

### *Access Model #2: Cost-Recovery Model*

In this model, the distance education program operates within the administrative structure of the institution but on a separate budget. It has the goal of fully recovering costs through new tuition revenue generated by students, and is financially responsible for paying for faculty time and effort. This is the most common model chosen by institutions that have a previously established commitment to distance education. Again, the separation of this program from an institution’s main educational offerings may lead to difficulty in enrolling mainstream students in distance education courses.<sup>42</sup>

*Cost-recovery models are perhaps the most common solution and allow distance education programs to operate as largely independent units, which are held accountable by funding themselves.*

### *Quality Model #3: Enhanced Academic Program*

This model is most frequently used by institutions looking to enhance their current offerings to improve course quality, minimize the need for duplicate courses, address large classroom sizes, and stem drop-out rates. According to Miller and Schiffman these programs face three key challenges:

<sup>40</sup> Ibid.

<sup>41</sup> Ibid., p. 16

<sup>42</sup> Ibid.

- 1) How to sustain the cost of online learning within the existing tuition stream
- 2) How to move from the limited scope of an innovation...to a broader institutional strategy; and
- 3) How to organize centralized support services for development and delivery so that all academic units have appropriate access to online learning.<sup>43</sup>

The institution must address issues of intellectual property along with process issues such as reserving funds from tuition, finding grants and appropriations for growth, and the development, maintenance, and assessment of online courses.

*The “enhanced academic program” model is a popular option for quality-focused initiatives, but can lead to conflicts, administrative difficulties, and a lower level of program accountability.*

### Which Models Are Most Common?

A 2006 survey conducted by Vignare, Geith, and Schiffman asked colleges and universities to identify the business model and funding arrangement that best described their distance education programs. Table 4 presents the models identified by the 128 respondents.<sup>44</sup>

**Table 4: Distribution of Online Learning Business Models**

Which business model best describes your current online learning operation?	%	No.
Independent unit that is self-funded	19.5%	25
Independent unit that is overhead-funded	7.0%	9
Independent unit that is for-profit	0.8%	1
A college, department, or school within the university which is self-funded	22.7%	29
A college, department or school within the university which is overhead-funded	33.6%	43
Other	16.4%	21
<b>Total Respondents</b>	<b>100.0%</b>	<b>128</b>

Source: Vignare, Geith, and Schiffman<sup>45</sup>

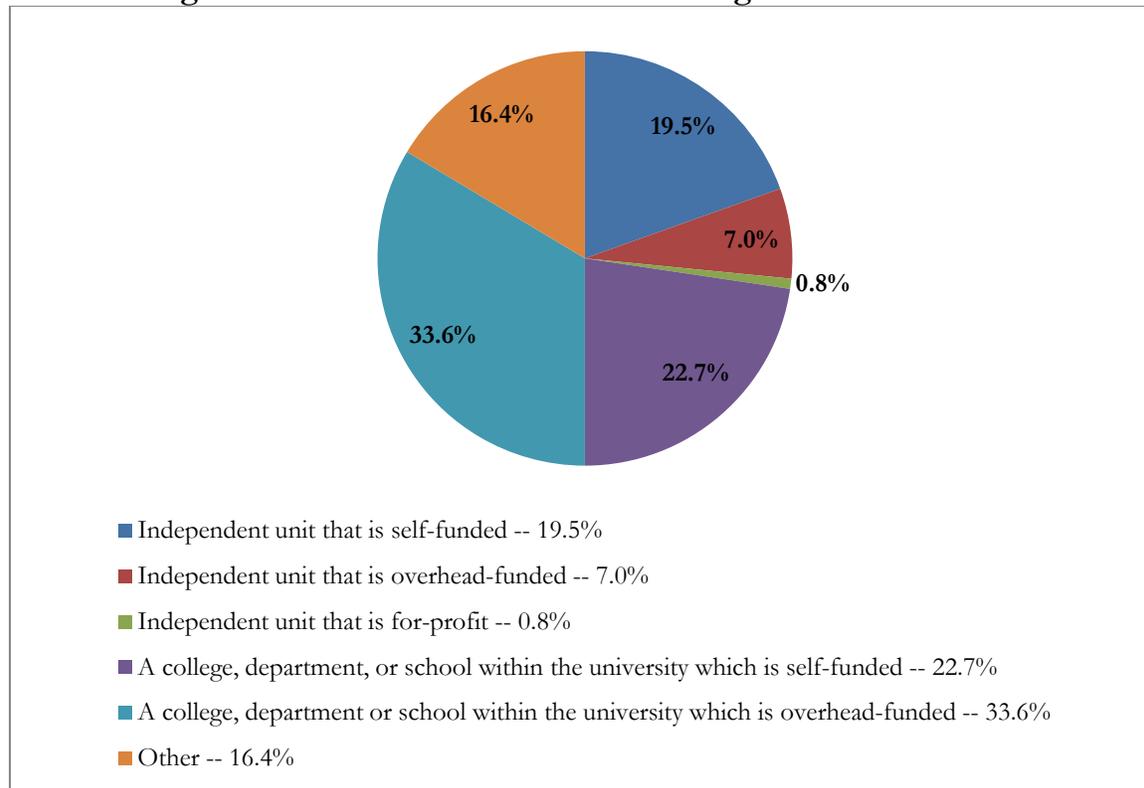
Respondents to the survey were fairly evenly split between self-funded organizations (54 of the 128 respondents or 42.2%) and those receiving overhead funding (52 of the 128 respondents or 40.6%). Less than one percent of respondents identified their online units as for-profit. A significant percentage, 16.4%, classified their online offerings as “other” – most of these respondents indicated that their institutions were “a mixture of business models.”<sup>46</sup> Figure 1 below illustrates the distribution of these models.

<sup>43</sup> Ibid., p. 17

<sup>44</sup> The 128 responses came from 110 institutions. The distribution of the survey sample by Carnegie classification was: Doctoral (31%), Master’s (24%), Baccalaureate (22%), Associates (17%), and Specialty (2%). See: Vignare, Geith, and Schiffman. “Business Models for Online Learning: An Exploratory Study.” *op. cit.* p. 55.

<sup>45</sup> Ibid. p. 57.

<sup>46</sup> Ibid.

**Figure 1: Distribution of Online Learning Business Models**

Source: Vignare, Geith, and Schiffman<sup>47</sup>

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<sup>47</sup> Ibid.

## Distance Education Sustainability and Growth

Established distance education programs must find ways to maintain stability, create a return on investment, and scale for growth. This section examines some of the concerns that institutions face when considering growth strategies, best practices for financial sustainability, methods of estimating program costs, and price setting.

### **Institutional Concerns for Growth**

According to Miller and Schiffman, “many of the most important short-term concerns are administrative...[but] other issues strike at very important academic issues.”<sup>48</sup> Table 5 presents some of the key challenges that the authors identify with regard to the expansion of distance education:

**Table 5: Administrative and Academic Challenges for Distance Education Expansion**

Administrative	Academic
<ul style="list-style-type: none"> <li>- Funding course development</li> <li>- Supporting the new needs for technical help and other student support issues</li> <li>- Ensuring a flow of resources back to academic units that take faculty members from their regular teaching to reach out to online learners</li> <li>- Deciding which services should be supported centrally and which should be provided locally</li> <li>- Managing the breakdown of traditional areas of administrative authority and “turf” as innovation diffuses throughout the institution</li> </ul>	<ul style="list-style-type: none"> <li>- Fully recognizing faculty contributions when their individually authored content is shared by other faculty</li> <li>- Championing a new pedagogy</li> <li>- Effectively assessing and evaluating all aspects of the performance of online courses</li> <li>- Holding faculty members accountable for their use of online materials in a blended environment</li> <li>- Ensuring curricular coherence across sections of a course or across campuses</li> </ul>

Source: Miller and Schiffman<sup>49</sup>

### **Financial Sustainability**

In a 2007 article published in the *Online Journal of Distance Administration*, Meyer, Bruwelheide, and Poulin drew upon the combined expertise of experienced online administrators to draft a series of ten principles that facilitate the financial sustainability of online programs.<sup>50</sup> These principles are summarized below.

<sup>48</sup> Miller and Schiffman. “ALN Business Models...” op. cit. p. 18.

<sup>49</sup> Ibid.

<sup>50</sup> Meyer, Katrina, Janis Bruwelheide, and Russell Poulin. “Developing Knowledge Through Practical Experience: The Principles of Financial Sustainability for Online Programs.” *Online Journal of Distance Learning Administration*. Vol. 10. No. 2. Summer 2007. [www.westga.edu/~distance/ojdla/summer102/meyer102.htm](http://www.westga.edu/~distance/ojdla/summer102/meyer102.htm)

*Principle #1: Know your market.*

Knowing the market allows administrators to determine the feasibility of a given program, expected enrollment levels, and how to make the program more appealing. In reality, “knowing the market” encompasses knowledge of several markets, including the following:

- ❖ *The job market:* What are graduates of the program qualified to do? What skills are growing in importance in the job market?
- ❖ *The student market:* How many target students are there? What kinds of programs are they interested in? Where are these students located? What skills do they have? What kinds of computer equipment are they able to access?
- ❖ *The market competition:* Which institutions offer similar programs? How are these programs delivered? What do they cost? What is their enrollment like? How much time is required to complete these programs?
- ❖ *The markets within your institution:* How does your program fit in with others offered by your institution? Does it compete with other internal programs?
- ❖ *Your competitive advantage:* How loyal are your students? Are there new competitors in your field? How do students base their decisions? Price? Focus? Delivery? Format?

*Principle #2: Know your costs.*

Administrators must create a process for identifying and estimating costs including those associated with instruction, academic support, and student services. Knowing the full costs will allow the administrator to improve efficiencies through scalability, technology, and labor changes.

*Principle #3: Determine a price.*

With cost information assessed, administrators can make decisions regarding what levels of enrollment are needed and to what extent other revenue sources are required. Price setting requires detailed knowledge about available state subsidies, grants, and students’ ability to pay.

*Principle #4: Negotiate with the institution.*

Institutional agreements should cover program revenue, the percent of royalty payments, indirect cost recovery, and distribution of revenue to faculty, the program, the departments, and others. Cross-institutional programs must also

distribute responsibilities for financial aid, student records, course transfers, and charges.

*Principle #5: Observe good financial management rules.*

Budgets must be established and monitored according to good accounting principles.

*Principle #6: Develop and implement marketing.*

A marketing plan is essential to reaching the target audience, and should be based on known market demands. Routes to contact prospective students will depend upon the program being offered but can include professional associations, employers, and agencies.

*Principle #7: Have a web identity.*

The program's online presence constitutes its public representation and should provide extensive information about the program (content, requirements, cost and financial aid, etc.), student and applicant responsibilities, and program contact information.

*Principle #8: Identify and develop good faculty, including adjunct faculty.*

A successful program will deliver a quality learning experience, which is heavily dependent on faculty. Faculty should be interested and engaged in online learning, and are often co-designers of such courses.

*Principle #9: Improve retention.*

Online programs typically have greater drop-out rates than traditional higher education, so programs should implement useful screening methods and admissions criteria, provide student orientation programs, encourage student-faculty interaction, and design high quality courses.

*Principle #10: Improve courses or programs.*

Programs must retain and recruit students and faculty, so continuous assessment of student learning is a priority.<sup>51</sup>

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<sup>51</sup> Ibid.

Next, we take a closer look at two of the principles listed above that are notably integral to ensuring the financial sustainability of distance programs: “Knowing your costs” and “Determining a price.”

### **Program Costs**

It is imperative to have an accurate understanding of the current costs of a distance education program so that reasonable projections of future costs can be established. As a distance program grows, all other operations must scale along with it. This includes faculty, materials, registration, support staff, and course quality.<sup>52</sup>

Programs must be careful to accurately estimate the costs of developing an online course. Underestimation can jeopardize the long-term growth of a program or even compromise its sustainability. Important factors that affect the costs of an online program include the choice of media and technology, materials and equipment, staffing costs, and course design and production expenses, including time management, resource assignment, formative evaluation, and quality control.<sup>53</sup>

There are a number of commercial off-the-shelf cost estimation tools available, but there is a notable lack of publicly available information about best practices for cost estimates. The Center for Learning Technologies at Old Dominion University (ODU) developed a “web-based cost estimation program based on expert evaluations and...years of experience in designing hybrid, synchronous, asynchronous, CD-ROM, two-way video, and online courses.”<sup>54</sup>

ODU’s Asynchronous Cost Model (ACM) is intended to help instructors and programs by establishing a framework (through an interactive spreadsheet) for cost estimation.<sup>55</sup> According to Stuart, He, and Abdou, the categories covered by the ACM include:

Instructional design, interface, text, graphics (clean presentation, graphic library, and original artwork), photographs, animation (Flash/2-D, 3-D and simulation), audio (background, voiceover, sound effects, and transcription), video (encoding for streaming, studio/post, and location/post), assessment, learning management systems (LMS), and deliverables (VHS tape, CD-ROM and DVD-ROM).<sup>56</sup>

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<sup>52</sup> Hill, Melanie and Matthew Clay. “Growth Management in Distance Education: How to Expand Your Distance Offerings.” *Online Journal of Distance Learning Administration*. Vol. 1. No. 4. Winter 1998. p. 2. [www.westga.edu/~distance/ojdla/spring21/hill21.pdf](http://www.westga.edu/~distance/ojdla/spring21/hill21.pdf)

<sup>53</sup> Gordon, Stuart, Wu He, and MPhammed Abdou. “Using a Web-based System to Estimate the Cost of Online Course Production.” *Online Journal of Distance Learning Administration*. Vol. 12. No. 3. Fall 2009. p. 1. [www.westga.edu/~distance/ojdla/fall123/gordon123.pdf](http://www.westga.edu/~distance/ojdla/fall123/gordon123.pdf)

<sup>54</sup> Ibid.

<sup>55</sup> The Asynchronous Cost Model is available online at [preweb.clt.odu.edu/cost](http://preweb.clt.odu.edu/cost)

<sup>56</sup> Ibid., pp. 1-2.

Another model for developing and implementing online degree programs comes from MSU Global, an “entrepreneurial business unit” of Michigan State University that works with academic partners “to develop and market online institutes, programs, and services.”<sup>57</sup> The Business Planning and Costing Model (BPCM) is divided into five templates (concept development, proposal formulation, internal approval, implementation, and evaluation) and a Program Costing Model (PCM). The PCM is a cost-planning model that uses an Excel spreadsheet format based on projections over four years that fall under the categories of gross revenues and fixed and variable costs.<sup>58</sup>

### **Determining a Price – Alternative Fee Structures**

Once institutions determine the cost of their program, they must find ways to meet that cost. Aside from securing external grants from foundations or federal programs and funding from the home institution, one innovative way of ensuring the financial sustainability of distance programs concerns price setting. According to the August 2009 study commissioned by the Association of Public and Land-Grant Universities (APLU), cited earlier in this report, a common strategy that institutions have pursued is the creation of alternative fee structures for students in online courses. These may include technology fees or entirely different tuition structures for online students.<sup>59</sup>

Some institutions charge technology fees to online students (or all students) to facilitate technology improvements across campus, including technology purchases that support distance education programs. Other institutions maintain separate tuition structures, typically referred to as “e-rates,” that are used to defray the costs of supporting specific online courses or programs. Such rates often provide individual departments with an important tool in recovering costs, particularly when responding to program growth or contraction. One participant in the APLU study explained the benefits of these tuition structures in the following manner:

Any time you have a completely online program, the students pay the increased cost, and tuition dollars come back to the department. It is expensive to gear up. [Also,]...once you start online, you don't know from one semester to the next if you are going to have 30 or 300 students. However, when the word is out there and somebody does a good job marketing a program, you may be able to gear up in a hurry and have to have the funds available in order to do this. You cannot wait for the next budget cycle to do it.<sup>60</sup>

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<sup>57</sup> Vignare, Geith, and Schiffman. “Business Models for Online Learning: An Exploratory Study.” p. 62. For further information, see: <http://msuglobal.com/about>

<sup>58</sup> Lorenzo, George. “Business Models for Online Education.” *Journal of Asynchronous Learning Networks*. Vol. 10 Issue 2. May 2006. p. 79. [www.sloan-c.org/publications/jaln/v10n2/pdf/v10n2\\_6lorenzo.pdf](http://www.sloan-c.org/publications/jaln/v10n2/pdf/v10n2_6lorenzo.pdf)

For more information about the BPCM see: [www.sloan-c.org/effective/details5.asp?CE\\_ID=59](http://www.sloan-c.org/effective/details5.asp?CE_ID=59)

<sup>59</sup> “Online Learning as a Strategic Asset – Volume I: A Resource for Campus Leaders.” op. cit., p. 24.

<sup>60</sup> Ibid., p. 25.

The extent technology fees or alternative tuition structures are used by academic institutions as evidenced in an October 2009 study conducted by the Western Cooperative for Educational Telecommunications (WCET) and The Campus Computing Project. The 2009 “Managing Online Education Survey” gathered responses from 182 administrators from two- and four-year public and private postsecondary institutions in the United States. The study found that at nearly one half of the institutions, online students pay higher tuition than on-campus students. Further, “in some instances students in online programs may confront tuition charges that are 10 percent more than the tuition paid by students in parallel on-campus programs.”<sup>61</sup> By contrast, a third of institutions (31 percent) stated that they charge the same tuition for online and on-campus students, while one fifth (20 percent) indicated that students in online programs are charged lower tuition.<sup>62</sup>

With regard to additional fees, nearly a fifth of respondents (19 percent) indicated that their institutions impose “a one-time registration fee” for online students. Among all participating institutions, this fee averaged \$232, spanning from an average of \$51 at public master’s colleges to an average of \$1,316 at private universities. The study also highlighted other fees pertaining to online students, including: special charges for individual courses (27 percent), technology resources/services (24 percent) and course materials (18 percent).<sup>63</sup>

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<sup>61</sup> “Online Education Programs Marked by Rising Enrollments, Unsure Profits, Organizational Transitions, Higher Fees and Tech Training for Faculty.” Western Cooperative for Educational Telecommunications (WCET) and The Campus Computing Project. October 2009. p. 2.  
<http://www.wcet.info/2.0/files/file/ManagingOnlineEd2009-ExecSummary.pdf>

<sup>62</sup> Ibid.

<sup>63</sup> Ibid.

## **Project Evaluation Form**

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