Module 5: Design (P1: Media and Learning Technologies)

Principles of Design and Management in Distance Education

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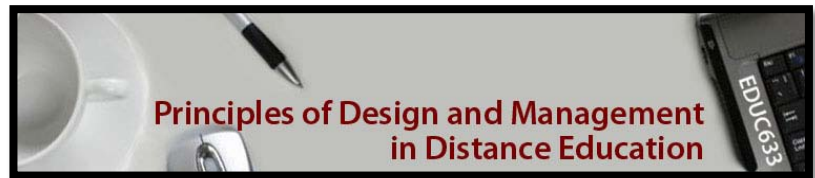
This document contains the content from the interactive instructional unit for the module.

Contents

Introduction

The second and third phases of ISD process are **design** and **development**. The designing phase is the basis of developing the instructional prototype. In this module, we will finish our discussion of design by focusing on media selection. We will then briefly discuss development. In this instructional unit, we will begin familiarizing ourselves with different media and technologies. For, we need to know what is available before we make a selection.

Objectives

Unit Objectives:

- Define media and multimedia
- Explain the difference between interactive and non-interactive multimedia

By the end of this unit, what would you like to learn? Write your personal objectives.
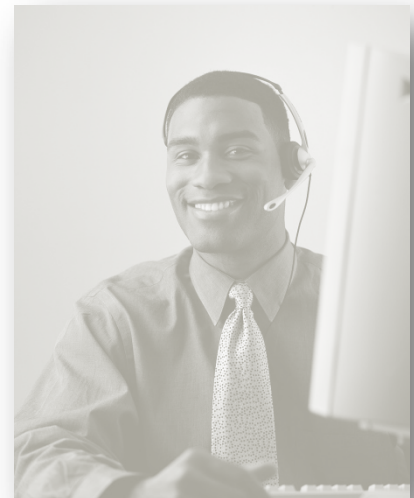
Personal Objectives:

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Definition for Media and Multimedia

Before we discuss media selection and media design and development, let's ensure we understand what it is and what it is not.

Media can refer to any of the following: text, drawings, graphics, photographs, film, video, wireless, audio, animation, web, etc.

Multimedia, simply defined refers to two or more types of media combined in order to convey information. A distinction can be made between interactive and non- interactive media. Multimedia is interactive when there is communication between the multimedia system and its user. That is, it requires input from the user. Non- interactive media allows the user to be passive. An example of interactive multimedia is a Flash Tutorial that requires the user to press buttons or perform tasks before progressing. An example of non-interactive multimedia would be a talking head audio- narrated PowerPoint. Now that we have defined media, let's talk identify a few different types of media and then discuss media selection.

Types of Learning Technologies

There are numerous technologies with numerous characteristics that can be selected when developing distance education courses and programs. Designers should select the technologies that best suit the teaching and learning process and best assist learners in meeting the course objectives. Although there is value in asynchronous test, unfortunately, many distance education

initiatives rely solely upon asynchronous and text-based technologies. Rovai, Ponton, and Baker (2008) purport that this decision is often rooted in faculty and instructional design teams' lack of technology skills and bandwidth limitations, rather than sound pedagogical and instructional design choice.

If you look at the list of technologies, you created a minute ago, you will not that there are many ways a discussion about learning technologies could go. For our discussion here, we are going to differentiate between synchronous and asynchronous technologies and list some of the most well known Web-based technologies.

Asynchronous vs. Synchronous

Both synchronous and asynchronous technologies exist (Romiszowski & Mason, 2004).

Synchronous systems support real-time communication.

Asynchronous systems support communication that is time delayed.

For example, discussion forums are prototypically asynchronous technologies since individuals at different locations communicate with one another at different times and with varied response times. Instant messaging and e-conferencing systems are prototypically synchronous technologies since individuals at different locations communicate with one another at the same time.

Reflection 5.2

Reflect upon your use of asynchnous and synchronous technologies in your education. List some of the benefits and challenges that you experience with each. Then, ask yourself, are these benefits and challenges due to the technology or the implementation of the technology?

Benfits	Challenges

Let's briefly look at what the literature has to say about asynchronous vs. synchronous. Note that as we discuss this, research is still needed in this area.
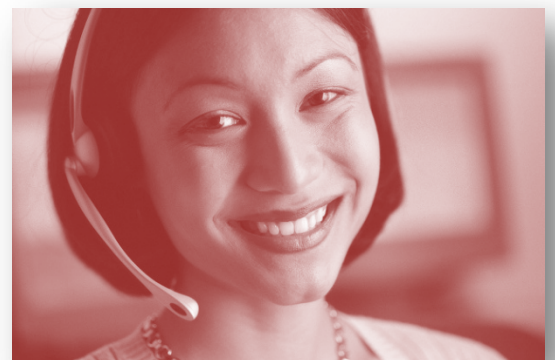
Asynchronous Technologies

Asynchronous technologies, specifically the integrated tools of content management systems, are the most commonly used in the online education environment (National Center for Educational Statistics, 2008), and the educational usage and benefits of asynchronous applications have been well documented (Chang, 2004). Democratic and equitable communication, time and location independence, high level of reflection, and the creation of community with learners at a distance are a few of the identified benefits. Studies have established that there is no significant difference in terms of student achievement between the asynchronous online environment and the traditional F2F environment (Russell, 2001; Saba, 1999). Asynchronous online discussion has been shown to be equal to and in some cases, superior to F2F discussion. Literature provides evidence that cognitive presence and social presence, although in some cases limited, can be established in the asynchronous e-learning environment.

Although research attests to the beneficial nature of the asynchronous e-learning environment, problems and limitations within the medium exist. The occurrence of information overload, reduction in non-verbal communication cues, increased misunderstandings, lower sense of community as compared to hybrid classes, difficulty in communicating emotions, and lack of higher order thinking are a few of the limitations noted throughout the literature (Eastmond, 1994; Hiltz, 1986; Moore, 1993; Moore & Kearsley, 2005; Nentwich 2003; Paulo, 1999; Rovai & Jordan, 2005; Stevens-Rayburn & Bouton, 1998). Community and higher order thinking can be present in the asynchronous e-learning environment; however, in asynchronous e-learning interaction, online learners and educators have found some tasks, especially cognitively complex tasks, challenging and the social aspect of learning lacking (Arbaugh, 2005: Liu, Bonk, Magiuka, Lee, & Su, 2005).

Synchronous Technologies

With the rapid emergence of technologies and the increase in Internet bandwidth, educators have been afforded the opportunity to address the constraints inherent in the solely asynchronous, test-based e-learning

environment (Anderson, 2004; Anderson & Kanuka, 2002). Synchronous technologies enable educators to interact with their students in real time using text, audio, and visual tools; research has begun to support the use of synchronous CMC technologies to enhance the asynchronous, test-based e-learning environment. Synchronous applications appear to promote community (Hrastinski, 2008), to decrease feelings of distances and isolation felt within an asynchronous e-learning environment (Wang & Chen, 2007), to encourage learning confidence (Wang & Chen,2007), and to support critical thinking (Olubunmi & McCracken, 2008). Using qualitative research tools, Offir, Lev, and Bezalel (2008) compared a synchronous intervention with an asynchronous intervention in the online learning process. They found that learners preferred learning via the synchronous systems, and learner achievement was equal to or better when using the synchronous system compared to the asynchronous system.

Although researchers have begun to recognize a variety of synchronous technologies as valuable for building community and facilitating learning in distance education (Blake, 2000; Chapelle, 2005), some educators have noted that the adoption of synchronous technologies may detract from asynchronous education due to technical difficulties and scheduling problems or inconvenience.

 Does the literature align with your experience? As you work on your ISD project for this course and go to practice in the field always remember to consider the literature an it's support or lack of support for the technology you plan to adopt.

Web-based Learning Technologies

E-mail, word processing programs, and presentation software such as PowerPoint are often used to deliver material and interact in distance education. Over the past several years, additional technologies, web-based technologies, have been adopted to increase collaboration and interaction. Although there are many, several of the most popular warrant mentioning and defining here:

Course Management Systems or Learning Management systems - Course management systems (CMS), such as Blackboard ™, Angel Learning, Sakai, and Moodle, are computer software programs that facilitate the delivery of online training and dissemination of course content (Comeaux & McKenna-Byngton, 2003) and are the most commonly used technology in the online higher education environment.

Podcasts and Vodcasts- Podcasts and vodcasts enable delivery of content to students in the form of both audio and video. Derived from Apple's *iPod* and broadcasting network, podcasting is "[t]he process of capturing an audio event, song, speech, or mix of sounds and then posting that digital sound

object to a Web site or a blog" (Meng, 2005, p. 1). Vodcasting (Video-On-Demand) is essentially podcasting with the addition of video. Inclusion of these technologies, as well as the weblog and wikis, which will be discussed next, may serve to increase students' sense of teaching presence and social presence (Seitzinger, 2006).

Weblogs and Wikis - Weblogs or blogs are easy-to-use customized web pages in which entries are logged in a chronologically reversed order (Herring, Scheidt, Bonus, & Wright, 2004). Blogs are personal pages, whereas wikis are communally created. A wiki is a website in which any individual can add and edit information without administrative access rights. The most popular example is Wikipedia.

Multi-User Virtual Environment (MUVE) - A MUVE transforms the two dimensional e- learning platform into a three dimensional virtual learning environment and facilitates asynchronous and synchronous interaction among the students and the educator. For the purpose of this discussion, one of the most popular MUVEs, Second Life (SL) ®, is utilized.

For an example of how these technologies can be integrated into a distance education course and be used to facilitate learning, go to the library and find the following article: Rockinson-Szapkiw, A. J. & Walker, V. (2009). Web 2.0: Facilitating interactivity and collaborative relationships in an online human service counseling skills course. *Journal of Technology in Human Services, 27*(3), 175-193. Or Walker, V. & Rockinson-Szapkiw, A. J. (2009). Educational opportunities for clinical counseling simulations in Second Life. *Innovate 5*(5). http://www.innovateonline.info/index.php?view=article&id=711.

You will learn about many more learning technologies via your new media assignment and presentations. Your texts also provide numerous ideas. Once you learn about the numerous technologies, you need to decide which you will select. Thus, in the next instructional unit we talk about principles and guidelines for media selection.

Summary

You should now be able to:

- Define media and multimedia
- Explain the difference between interactive and non-interactive multimedia

Have you also met your learning objectives?

Personal Objectives:
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