Module 5: Design (P2: Media Selection)

Principles of Design and Management in Distance Education

EDUC633

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

Contents

Introduction

In this second instructional unit, we will continue our discussion of design by focusing on media selection.

Objectives

Unit Objectives:

- Describe principles that can be used to select media
- Use media selection principles to identify media appropriate for instructional activities, content delivery, student participation, and assessments.

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

Personal Objectives:

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Media Selection

Media used in distance education may lag behind the technological cutting edge to ensure that the technology is readily accessible to students. However, it should not be out of date and ineffective. Multiple authors have discussed principles and guidelines to select media. We will consider what four sets of guidelines:

- Moore and Keasley's Two Media Selection Factors
- Davidson-Shiver and Rasmussen's Media Selection Questions
- Gange's Conditions of Learning Media Selection Criteria

Reflection 5.3

Is technology neutral?

There are competing schools of thought. Some say yes, and some say no (Locatis, 2007). Clark (1983, 2005) argued that any technology can be used for quality instruction; effectiveness of education is determined by the instructional method alone. Although instructional method is important to effective distance education and technology alone cannot ensure a quality online experience (MacIntosh, 2001), Clark's view may not be valid for the discussion of effective DE and has, in fact, been deemed as out of date because it was based on old, "non interactive technologies" (Kozma, 1994). How the nature of the technology and modes of delivery alter the quality of interaction and, thus, the effectiveness of education is obvious when comparing the different generations of DE. For example, correspondence education relies on the mail system for communication while the more recent telelearning education uses video streaming that supports real time audio and visual communication. The latter enables interaction that includes immediate verbal and nonverbal communication (i.e. synchronous); whereas, the former relies on delayed, virtually non-interactive correspondence via text (i.e. asynchronous). The ability to interact was enhanced by the media used for delivery; therefore, it can be clearly seen that technological applications are crucial factors to consider in the development and sustainment of effective e-learning experiences.
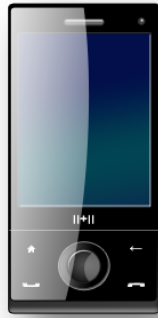
Another good resource for those of you who are planning to work in the business arena is a chapter in Rothwell et al.'s (2006) *Handbook of Training Technologies*. The authors classify media, provide steps to selecting media, give a model for relating media, and discuss the competencies needed for certain media (p. 103-119).

Moore and Keasley's Two Media Selection Factors

Moore and Keasley (2005) suggest two factors to consider when selecting media for instructional activities, content delivery, student participation, or assessments: (a) social presence and (b) media richness. Social presence is the ability to project oneself physically and psychologically (Short. et.al, 1976), and media richness refers to the capability to convey a large spectrum of information. Instructional tasks that involve interpersonal tasks or are highly abstract most likely require a media that enables a high level of social presence and media richness (i.e. video conferencing). An instructional task that requires the exchange of information requires a low level of social presence and media richness (i.e. lecture note posted on a content management system).

Think About It Activity 5.3

A counseling faculty is planning to design an online counseling skills course. The faculty needs to choose technologies to disseminate course content, to demonstrate and to teach reflective listening skills and other counseling skills, and to encourage students to self-reflect on their skills and what they learn in the course. What technologies would you suggest that would support the interaction needed for this course? Would both a high level of social presence and media richness be needed for all planned activities?

Instructor's Answer: *A variety of educational software and Web 2.0 technologies can be chosen for the HMSV counseling skills course. The educator may select Blackboard content management system, iTunes U, Skype, and Edublog. The Blackboard content management system content management system could support the organization and dissemination of course material. Lecture materials, readings, and other relevant course material can be posted to the content management system so students can access it anytime, anywhere. iTunes U could be used for the storage and dissemination of podcats lectures and vodcasts of sample counseling sessions that demonstrate skills. Skype would be used to support educators' office hours, small group case study discussions, and triadic counseling skills role plays. The weblog would support self-reflection activities.*

Davidson-Shiver and Rasmussen's Media Selection Questions

Davidson-Shiver and Rasmussen (2006) suggest 3 factors that should be considered when selecting media:

- The Instructional Strategies
- Technological Aspects of the Learning Environment (e.g. In the web- base environment, you need to consider bandwidth and computer capabilities) for the learners, the instructors, and the organizational hosting the course
- Designer's expertise in media development or the inclusion of or access to media specialists (e.g. graphic designers, videographers, etc.)

Davidson-Shiver and Rasmussen (2006) also identified questions for both the instructor and technologist to consider when selecting media:

Instructor Questions	Technologist Questions

Do media support learning of the content? Or distract from it?

Do media motivate learners?

Will training be needed for learners? How will training be provided?

Will instructor's need training? How will training be provided?

Are media congruent with objectives, content, and strategies?

Are the media easy to access?

Are additional supports needed to access the media (e.g. plug-ins, special software, etc)?

What are the computer capability requirements of the learners? Can media be used with the capabilities?

What are the bandwidth requirements of the learners? Can media be used with the bandwidth size?

Who will create the media? Do they have the skills?

Gange's Conditions of Learning Media Selection Criteria

Gagne's nine events of instruction are applicable to domains of learning outcomes. Different domains correspond to different conditions needed for learning. The conditions of learning are a set of factors that influence learning that should be taken into consideration when selecting media. Gagne distinguishes between two types of conditions, internal and external.

Internal conditions of learning refer to the learner's internal states and cognitive processes (e.g. prior knowledge, motivation, attitudes, etc.)

External conditions of learning refer to the things taking place in the learning environment.

We cannot control internal conditions; however, strategies for the provision of external support can be given. The conditions should be taken into consideration when selecting media.

Domain	Conditions
Verbal Information	- Provide a meaningful context for effective encoding of information. - Draw attention to distinctive features by variations in print or speech. - Use terms or definitions in a sentence. - Present information so that it can be made into chunks. - Relate the information (term or definition) to preexisting knowledge. - Present all terms clearly using the fewest number of words to convey the meaning. If more than five terms or units of information are to be presented in one lesson, group related terms or units into five or fewer clearly defined categories.

	- Use a variety of concrete (observable) examples when possible, emphasizing the clear and well defined features that relate directly to the information. - Explain clearly how learners will be expected to recall the information while it is initially presented. - Make information readily accessible to learners, and provide opportunities for them to explore "nice-to-know" information associated with the knowledge. - Practice with immediate feedback! - Provide cues for effective recall and generalization of information.
Intellectual Skills - the discriminations, concepts, and rules that constitute the basic skills. For example, being able to recall and reinstate a definition verbally is quite different from showing that one can use that definition. The latter is what is meant by an intellectual skill, but not the former**.**	- Encourage learners to recall previously learned information or examples that illustrate concepts or rules being presented. - Clearly communicate the definition of defined concepts, using the fewest number of words. - Call attention to distinctive features. - Stay within the limits of working memory. - Present verbal cues to the ordering or combination of component skills. - Break down the process of performing or applying rules into steps, and clearly communicate these steps to the students. - Demonstrate an application of the rule for the students. - Present varied examples or instances of concepts and rule applications, calling attention to the distinctive features of examples, definitions, and procedures. - Present nonexamples or non-instances of the concept if they will help to clarify the concept. - Schedule occasions for practice and spaced review. - Provide learners with opportunities to "play" with concepts and rules within simulated or "real" environments, identifying and selecting their own examples and nonexamples of concepts and rule applications if possible. - Present a variety of contexts or experiences that allow the students to practice applying the rules or identifying/describing concepts (transfer), providing guidance throughout early stages of practice.
Cognitive Strategies - internally organized skills that govern the individual's behavior in learning, remembering,	- Recall relevant rules and concepts. - Describe or demonstrate the strategy. - Provide a variety of occasions for practice using the strategy. - Provide information feedback as to the creativity or originality of the strategy or outcome.

and thinking	
Attitudes	• Establish an expectancy of success associated with the desired attitude. • Assure student identification with an admired human model. • Make students aware of the personal benefits gained by making choices based on attitudes (preferably by someone the students admire). • Clearly identify examples of choices made by people who possess the desired attitude (credible and attractive-similarity, familiarity, appearance). • Clearly identify instances in the students' lives in which making choices are based on the attitude being presented. • Allow students the opportunity to practice making choices associated with the desired attitude (role-playing, group discussion, etc.) and give them feedback. • Arrange for communication or demonstration of choice of personal action. • Positive feedback for successful performance; or allow observation of feedback in the human model.
Motor Skills	• Verbally guide learners through routine. • Visually present example of routine execution. • Encourage the use of mental practice. • Arrange repeated practice. • Furnish immediate feedback as to the accuracy of performance

The chart is adapted from Essentials *of Learning for Instruction*, R.M. Gagne and M.P. Driscoll, 1988.

A few final considerations are needed prior to selecting media, especially in the distance environment: Copyright, Fair Use and Accessibility.

Copyright, Fair Use and Accessibility

Copyright and Fair Use

Copyright is a complex issue in within distance education. The Technology, Education and Copyright Harmonization Act (2002), also known as the TEACH Act outlines rules about the use of text and media in distance education. This amends the Copyright Act. As an ID or educator, it is important to know the details of this act and how it applies to text, images, sounds, and other works.

According to the TEACH Act, educators, distance educators, at accredited, nonprofit educational institutions can transmit certain copywrited works if certain conditions are analogous

to traditional settings- Fair use. Note, however, if fair use conditions are not met, then permission from a copy write holder must be sought.

4 factors must be present for "fair use":

- o The purpose and character of the use (most importantly whether it is for commercial gain or for nonprofit educational purposes)
- o The nature of the copyrighted work (how creative or non-creative is the work)
- o The amount and substantiality of the portion used in relation to the work as a whole
- o The effect of the use upon the potential market for or value of the copyrighted work

In a distance education environment, there are different methods for providing protected materials to learners. A library's electronic reserve is one way. This is usually limited to one article or 10% of a text. When material is needed for more than one academic semester or multiple articles from the same journal or multiple chapters are needed then permission is needed. Durable links to material is another way to provide information to students.

Many constructs in the TEACH Act are directed toward the behavior of the institution; thus, institutions are responsible to develop policies, access restrictions etc. If you ever have the opportunity to be a tech director for a school system or an Dean of Distance Education, you will need to be very familiar with this act.

Accessibility

For individuals with disabilities, distance education and the technology used to deliver it can either increase or decrease accessibility. The Americans with Disability Act requires that accommodations be made to make distance education accessible to those with disabilities. "Providing accessibility means removing barriers that prevent people with disabilities from participating in substantial life activities…" (Bergman & Johnson, 1995). For example, an online version of a course manual should be formatted so that a reader can be used by a student who is blind. Distance education developers should design courses and systems with ADA compliance in mind. Doing this can not only make it accessible to those with disabilities, but actually make the course easier for all students to use.

In addition to media selection principles, there are also guidelines for evaluating media for adoption for courses or a university. We will briefly consider these next. These will be important for you new media assignment.

Sustainability, Usability, and Functionality: Guidelines for Evaluation of Media

When adopting media for instructional purposes for a single course or university, there are general principles that should be used to evaluate their appropriateness for adoption. There principles include, but are not limited to, sustainability, usability, functionality. Note that these principles should also be used when developing the distance education website of mobile app.

Sustainability

The term sustainability has been defined in many ways. The United Nations World Commission on Environment and Development defines sustainability in general terms as "development, which meets the needs of present generations without compromising the ability of future generations to meet their own needs." Another general definition is the capacity of a system to function effectively over time with minimum external input or the capacity of a system to endure over time. Many factors can be used to assess sustainability. Some that can be helpful to consider when assessing the sustainability of technologies or new media include: a) effectiveness, b) efficiency of services to optimize available resource usage and leverage demand and supply; c) financial viability; and d) equity, i.e., availability/ usability of media or technology for all populations (e.g. low tech ability, low bandwidth, etc.) d) reproducibility, such as integration and application in a variety of different settings; and e) portability, measured by ease of implementing and adapting concepts and approaches to other environments.

Usability

The usability of media and media design should also be considered. **Usability standards** are also useful to consider when designing a web-based or mobile site for a course or lesson. Some standards include:

- Consistency in layout (e.g. design, color, etc.)
- Readable font size
- Simple background; contrast is suitable for individuals with limited vision
- Consistency in terminology (e.g. menus, commands)
- Consistent titling or headers
- Functional features, button, scroll bars, and navigational bars are identified as working functions instead of images
- Content layout is usable for screen sizes and views
- Images include descriptive alternative text (e.g. ALT tags in web)
- Hyperlinks have descriptive headings
- Video and audio clips have text equivalent or closed-captions

Functionality

Functionality refers to the concept of '**user intuitive**.' Based on the writings of Nielsen and other experts who write, the following are standards of functionality:

- Standardization of functions: all functions listed in same order, in same position
- through application
- Consistency in order of basic functions/tasks
- Consistent error handling and easy reversal of actions
- Consistency of prompts, error messages
- Comprehensible error messages
- Avoid multiple screens, multiple overlapping of screens
- Universal DOS function F1 for Help
- Response time for a user to receive a 'physical sign' of the result of an action not to surpass 1.0 second in duration
- Quick Loading (or indication of loading times)

Navigation

Each navigation bar or frame should have these basic elements:
- Quit
- Help
- Back
- Search
- Menu (home)

Other suggested recommendations to facilitate easy navigation include:
- Menus should not exceed five to seven options or tiers
- Menus should give some indication of architectural framework
- Inclusion of table of contents or index
- Pull-down menus to be used sparingly so not to hide other 'options' or compact too much information

Lever-Duffy and McDonald (2001, pp. 188, 218, 280) produced rubrics to assess the usefulness of software and a website and the productivity of software. **Download these rubrics via the interactive unit. They may be helpful with your new media project.**

ISD Project: Media Selection

Taking into consideration the media selection principles, guidelines, and questions outlined in this instructional material, accessibility and copyright issues, as well as additional reading and

research you have done for this course, identify and select media for your instructional strategies. In a storyboard or course planning chart, clearly identify the media that will be used for each assessment, content delivery, and activity. Also identify the delivery system that will be used. Note that the delivery systems will affect the media selection for assessments, learning activities, and delivery of content.

Make sure your media selections are compatible and realistic; look for any commonalities. It is a good rule of thumb to use each selected media at least twice and to have no more than three to four types of media in the course. If you do, students can become overwhelmed and spend more time focusing on learning to use technology than meeting the objectives. Also, review your delivery system. It is likely that your delivery system may already be set in stone. However, if you have some flexibility you may want to consider your options at this point based on your media selections and based on the objective and learners. Once media is selected technology concerns will need to be addressed and support for technology assistance will need to be put in place. This should be part of your ISD planning.

For each selected media, answer the following in narrative or bullet form:

- Are additional supports needed to access the media (e.g. plug-ins, special software, etc)?
- What are the computer capability requirements that learners need to use the media?
- What are the bandwidth requirements that learners need to use the media?
- Who will create the media? What skills are needed?
- What skills will the users (instructor and students) need? How will skills be developed?

Summary

You should now be able to:

- Describe principles that can be used to select media
- Use media selection principles to identify media appropriate for instructional activities, content delivery, student participation, and assessments.

Have you also met your learning objectives?

Personal Objectives:
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