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ABSTRACT
                 This document contains three papers from a symposium on
online learning that was conducted as part of a conference on human resource
development (HRD). "An Instructional Strategy Framework for Online Learning
Environments" (Scott D. Johnson, Steven R. Aragon) discusses the pitfalls of
modeling online courses after traditional instruction instead of
incorporating a design that takes advantage of the unique capabilities of
web-based learning environments and presents a conceptual framework to guide
the development of online courses that includes specific, detailed examples
of instructional strategies that fit the framework. "Using Online Learning to
Meet Workforce Demand: A Case Study of Stakeholder Influence" (Angela Benson)
investigates how stakeholder interests influenced one large southeastern
state's efforts to provide online, undergraduate degree programs to meet
workforce needs and demonstrates how the negotiation of consenting and
conflicting stakeholder group interests resulted in the prevailing of the
interests of some stakeholder groups at the expense of the interests of
others. "Models for Human Resource Development Online Programs" (Phoebe E.
Lenear, Scott D. Johnson) examined the student support services, educational
technologies, and program models used to deliver and support online HRD
programs in six higher education institutions across the United States. The
first and second papers contain substantial bibliographies. (MN)

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An Instructional Strategy Framework for Online Learning Environments

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The rapid growth of web-based instruction has raised many questions about the quality of online courses. It appears that many online courses are simply modeled after traditional forms of instruction instead of incorporating a design that takes advantage of the unique capabilities of web-based learning environments. The authors present a conceptual framework that can guide the development of online courses. Specific examples of instructional strategies that fit the framework are described in detail.

Keywords: Online Instruction, Web-Based Instruction, Instructional Strategies

Distance education is an instructional delivery system that allows students to participate in an educational opportunity without being physically present in the same location as the instructor. Although print-based correspondence study is the traditional method of distance education, more contemporary approaches rely heavily on various forms of instructional technology (Garrison, 1987). The reason for much of the growth in distance education programs in recent years is due to the development of the Internet and improvement of technologies that support online learning environments. For example, among higher education institutions offering distance education, use of two-way interactive video and one-way prerecorded video was essentially the same in 1997–98 as in 1995 while the use of asynchronous Internet-based technologies nearly tripled in that same time period (Lewis, Snow, Farris, Levin, & Greene, 1999). This change is not new to the distance education community, which has seen technology-based educational innovations come and go with much fanfare. The instructional films of the 1940's were expected to radically change the educational delivery system, as were instructional radio and television. While each of these technology innovations had some impact on educational programs, they did little to change the fundamental nature of education. The Internet and computer technology, as the next generation of technological innovation to impact distance education, appears to have the power to significantly alter the education landscape.

In spite of this rapid growth, there is considerable concern about the effectiveness of this educational innovation. Numerous studies comparing traditional classroom-based instruction with technology-supported instruction have found no significant differences on critical educational variables such as learning outcomes and student satisfaction (Clarke, 1999; Johnson, Aragon, Shaik, & Palma-Rivas, 2000; Navarro & Shoemaker, 1999; Smeaton & Keogh, 1999). A very popular web site (http://teleeducation.nb.ca/nosignificantdifference) contains a listing of over 300 research reports on technology for distance education (Russell, 1999). This comprehensive bibliography spans seven decades and highlights studies that found little or no significant impact of instructional technology on various educational variables.

The obvious conclusion is that the technology used to support instruction has little impact on students' attainment of educational outcomes. The primary factor in any instructional initiative, irregardless of format or venue, is the quality of the instructional design that is ultimately implemented. Based on the lack of evidence that technology significantly influences the learning process, scholars in the field of instructional technology now conclude that the technology used in an online program is not as important as other instructional factors, such as pedagogy and course design (Phipps & Merisotis, 1999). This is not a new idea however, as stated by Schramm in 1977, "learning seems to be affected more by what is delivered than by the delivery medium" (p. 273).

This paper describes a research and development effort that evolved during the creation of an HRD graduate program (*HRE Online*) that was taught entirely online. The learning environment that was created to support *HRE Online* was based on the assumption that learning is a complex event that cannot be explained with a single theory of learning. Instead, we hypothesized that quality learning environments should be based on instructional principles that are derived from multiple learning theories. Through an analysis of existing literature and experienced-based practices throughout the development of *HRE Online*, we sought to answer the following questions:

1. What instructional principles for online learning environments can be derived from a fusion of multiple theories of learning?
2. Based on those principles, what specific instructional strategies or techniques can be applied in an online learning environment?

The purpose of this paper is to present a perspective of online teaching and learning that looks beyond the traditional paradigm of instruction. Once such a perspective is adopted, instructional designers can incorporate the key elements that are needed in quality online learning environments.

Instructional Challenges for Online Course Designers

Innovations in instructional technology are often implemented in very traditional ways. For example, while the television had the potential to significantly alter the way people were educated, its use as an instructional tool built on an existing instructional paradigm by providing a "talking head" that merely passed information to the student. Using this innovation in this way lacked creativity and ignored the power of the technology. The same problem now seems to be occurring in online instruction. Instructional designers are creating online courses that are simple conversions of their equivalent face-to-face counterparts. Online courses tend to build on traditional views of learning where the primary goal is to transfer information from the instructor to the student. This is accomplished by providing students with access to information and expecting them to demonstrate their learning on an exam. Examples of how face-to-face instruction has been converted for online delivery include recorded lectures, online readings, homework assignments, and online tests.
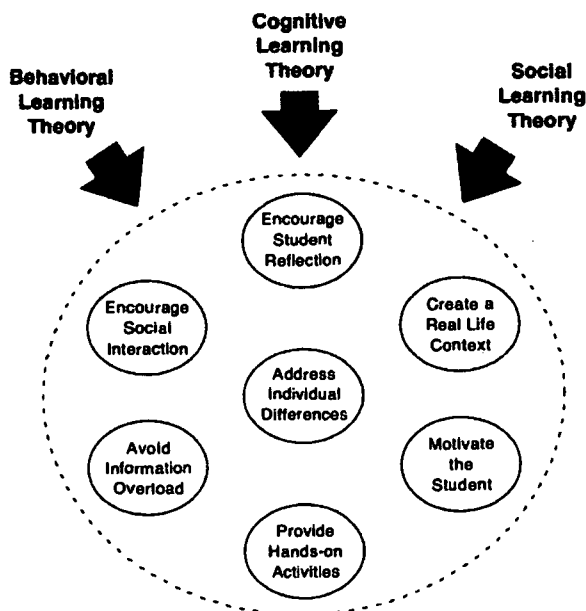
The growth of online instructional programs raises an interesting question for online course developers. Should we model our online course designs after formal models of instruction or should we incorporate innovative approaches into our online programs? If we hope to develop powerful learning environments via the web, the answer should be clear. Instructional designers need to look for innovative ways to support quality teaching and learning without succumbing to the temptation to have online instruction become direct instantiations of traditional forms of instruction. The challenge for instructional designers is to devise ways to create pedagogically sound content for delivery over the Internet. Online courses need to address variability in student learning styles and provide external forms of motivation for the isolated student. The challenge is also to facilitate active learning in online courses while avoiding the tendency to provide too much information. The most difficult challenge may be to devise ways to promote high levels of interactivity among students and instructors. Such interactivity can result in community building, collaboration among learners, and enhanced communication.

Instructional Principles for Online Learning Environments

In order to confront these challenges, instructional designers must examine their traditional perspectives and adopt a new philosophy of teaching and learning that is appropriate for online instruction. This does not imply that traditional theories such as behaviorism should be tossed aside in favor of the more contemporary social-constructionist theories. Instructional designers need to match their desired learning goals and instructional methods to the appropriate learning theories. We argue that this new philosophy should build on a combination of learning theories rather than being confined to one preferred perspective (Johnson, 1997). For example, quality online learning environments should be comprised of elements of behavioral learning theory (e.g., positive reinforcement and repetition), cognitive learning theory (e.g., address multiple senses, present new information in motivating ways, limit the amount of information presented, and connect new information to prior knowledge), and social learning theory (e.g., encourage group interaction, peer assessment, and personal feedback). Adopting a synthesized theory of learning can have a synergistic result by integrating the most positive and powerful aspects of each individual learning theory into an online learning environment.

The pedagogical model used to develop the *HRE Online* master's degree program was created by building on specific aspects of adult learning theory (Bandura, 1971; Skinner, 1968; Thorndike, Bregman, Tilton, & Woodyard, 1928; Vygotsky, 1978). Two conceptual models that were developed from an extensive study of the literature were reviewed. These two models were then synthesized into seven general principles that appear to be critical for quality learning environments (Johnson & Thomas, 1992; Johnson, 1997). We contend that powerful online learning environments need to contain a combination of these principles: (1) address individual differences, (2) motivate the student, (3) avoid information overload, (4) create a real-life context, (5) encourage social interaction, (6) provide hands-on activities, and (7) encourage student reflection (see Figure 1). This pedagogical model for online instruction was used to create the design template that is followed for each course in the *HRE Online* program. The following section provides specific examples of instructional strategies that have been used in the *HRE Online* program. Each of these strategies highlights the importance and practical application of the seven principles of quality online learning environments.

Figure 1. An Instructional Strategy Framework for Online Learning Environments

Using the Framework to Create Instructional Strategies for Online Courses

Individual Differences

Within a learning context, differences can be found in the areas of general skills, aptitudes, information processing, and application of information to new situations. In addition, all learners differ in their ability to perform various education-based and real-world learning tasks. Consequently, the general abilities or preferences of the learner will affect his or her ability to accomplish diffe rent learning outcomes. Individual differences specific to learning and instruction can be found within intelligence, cognitive controls, cognitive styles, learning styles, personality types, and prior knowledge (Jonassen & Grabowski, 1993). Each dimension helps us understand 1) patterns of thinking and reasoning about information, 2) how individuals process information to make sense of the world, 3) preferences for information processing, and 4) how past knowledge, skills, or ability influence the learning process. Each of these dimensions, collectively, helps to describe one's personality.

Recognition of individual differences has, for the most part, been taken into account and promoted through the instructional design template used in *HRE Online*. The following techniques and strategies have been used in our online courses to address individual differences.

1. *Provide content in multiple formats.* This is done through the use of various communication technologies. Lectures are audio streamed and synchronized with the applicable PowerPoint presentation. These lectures are additionally transcribed and posted in the course website. This is quite beneficial for students who travel and want to take the transcribed lecture with them to read. Content is also presented through WebBoard discussion groups where students are required to share and discuss information with each other. Each course also has links to outside web sites that provide supplemental material on the current topic.
2. *Allow for individual locus of control.* All courses provide various means of navigation within the online course. Content can be accessed through links or a graphical organizer. An individual can be as systematic or random in his or her access of course material as they desire. Although the course is built and presented in a hierarchical sequence, it does not have to be accessed in the same way. While it is not necessarily encouraged, students are also not discouraged from moving through the course in a random order.
3. *Encourage active and collaborative interaction.* Recognizing that "the whole is greater than the sum of the parts," each course is designed with activities that are both individual and group based. Working within "virtual teams," students work together to solve problems, analyze cases, and develop group deliverables. These assignments allow individual ideas, perspectives, and experiences to be heard and collectively considered. The idea of "agreeing to disagree" is taught through these experiences.

Motivation

At its most basic level, human motivation is controlled by the drive to satisfy a range of human needs (Maslow, 1970). According to Maslow's hierarchy of needs, if people lack basic needs or security, those needs must be addressed before higher level needs such as social status and self-worth can be attended to. While this model is certainly an influencing factor in human behavior, it may be more appropriate to examine motivation in terms of its complex interaction with cognitive, emotional, and behavioral factors.

The ARCS Model of Motivation is a practical way for instructors to address the issue of student motivation (Kellar & Suzuki, 1988). This model is based on a review of psychological literature on motivation and breaks motivation into four major concepts; (1) Attention, (2), Relevance, (3), Confidence, and (4) Satisfaction. Instructors must be able to gain and maintain students' attention by providing an environment that is interactive and participative. While keeping the students' attention is critical, it cannot be maintained unless the students feel that the course material is relevant. In other words, the course content, activities, and assignments must be related to their personal and professional goals. Students must also feel confident that they can achieve the expected outcomes of the course; therefore instruction should be flexible to compensate for individual student needs. The final component of the ARCS Model is satisfaction, which corresponds to whether or not students derive satisfaction from the instruction. For example, students will not perform as well if they feel dissatisfied with the instruction because it does not present enough of a challenge.

Strategies for enhancing student motivation in a web-based environment can best be characterized as either novel and entertaining approaches or attempts to personalize the instruction. We have successfully used the following techniques to enhance the motivation of our online students.

1. *Incorporate games into the online environment.* An example of a successful game for an online course is the popular television show called "Who Wants To Be A Millionaire." We have used this game during live synchronous sessions to summarize course content covered previously and to provide a sense of community among the students. The instructor plays the role of Regis Philbin, the game show host, and reads a question that requires the students to put a sequence of answers in the correct order. The students then type the correct order (e.g., B, C, D, A) as quickly as they can into a WebBoard chat window. The student who first answers correctly becomes the contestant who calls a toll free number so their voice can be patched through to the class. This provides live dialogue when the instructor asks a student the first of several multiple-choice questions. The student has the option of answering the question directly or, if they are not sure of the answer, they can use one of two "lifelines." The lifeline "Ask the Audience" involves asking all students to post what they think is the correct answer in the chat space. The contestant can then use their colleagues' responses to select the correct answer. The contestant can also "Phone a Friend" by asking one particular student for help, to which they respond by typing their answers in the chat space. The game continues until the student answers a predetermined number of questions correctly or responds with an incorrect answer. When this happen another sequencing question is asked so another contestant can be selected.

2. *Simulate a radio talk show with multiple DJs and "call-in" guests.* In many online courses the students spend much of the "class time" listening to the instructor through streaming audio or video technologies or during a live "web cast" during a synchronous class session. As we all know, it can be both boring and difficult to listen to one voice for any length of time, especially when there are few visual cues to accompany the audio. To provide variety and a livelier online atmosphere, we have been successful having multiple speakers interact during these broadcasts to liven up the synchronous sessions.

3. *Use multimedia when appropriate.* Online courses tend to be primarily textual-based forms of instruction. While this may be preferable to some students, we must recognize that the students of today are different from those of the past. The MTV generation seems to desire visual over verbal stimulation and there is no excuse for not incorporating multimedia into technology-based learning systems. We have found that graphic images, photographs, and videos enhance student motivation. For example, in several of our courses we have created short QuickTime clips from popular movies and television shows that can be streamed over the web. These clips provide entertaining examples that support the concepts and procedures being discussed in class and provide a nice break from the textual format that dominates current online environments.

Information Overload

Providing too much information in a short period of time contributes to memory overload, which makes learning difficult and leads to confusion and poor retention. Psychological studies show that most people can manage about seven "pieces" of information at one time without too much difficulty (Miller, 1956). Providing more

than that amount of information at one time overloads short-term memory. Instructional designers need to follow the *Rule of Seven*, which suggests that the amount of information presented at one time should be limited to no more than seven pieces of content (Clement, 1985). The Rule of Seven suggests that instructional designers "chunk" instructional content into small groups and give students the opportunity to learn each "chunk" thoroughly before being presented with new information. Using this strategy will result in better understanding. The following strategies have been used successfully in our online program.

1. *Limit the amount of content and activities.* By following the Rule of Seven, we help avoid memory overload by purposely limiting the amount of information and activities we provide in a course. For example, we ask instructors to break their lectures into 10-12 minute "chunks" or segments. These short lectures are recorded and converted into streaming media for delivery to students. These short lectures make it easier for students to complete in one sitting and it forces the instructor to concentrate on only a few main concepts in each "mini" lecture. This approach also fits ideally with the concept of a learning cycle.

2. *Organize instruction around learning cycles.* The instructional design model used in the *HRE Online* program utilizes learning cycles at the core of its modular approach. Each course has a hierarchical structure containing sections, modules, and learning cycles. This approach allows for easy updating of courses over time and the development of custom courses to meet different client group needs. More importantly, this instructional design approach builds on theories of adult learning. Each learning cycle is comprised of three components. The first component provides the student with access to new content through a streamed audio or video file or by reading an online article. The last component of the learning cycle involves evaluating the learning outcomes through an activity involving self-assessment, peer-assessment, or formal instructor assessment and feedback. Once the learning cycle is completed, a new cycle begins with the presentation of a new "chunk" of content, followed by new application and assessment activities.

3. *Provide a graphic organizer for the course.* It is very easy for students to get lost in any hypertext environment as they navigate through online courses that contain extensive layers of content distributed over multiple locations. To avoid the frustration and memory overload that can occur in a web-based environment, we provide a visual representation of the course structure. This graphic organizer serves as a map for students as they navigate through various portions of the course. The graphic is also hyperlinked so students can quickly move to a desired location in the course by clicking directly on the image.

Contextual Learning

Context is an essential central element in learning because knowledge is a product of the activity, context, and culture in which it is developed and used (Brown, Collins, & Duguid, 1989). Wilson (1993) identifies three major premises of context and how these affect knowing and learning. The first is the idea that learning and thinking are social activities that are structured by constant interpersonal interaction. Second, the available tools within the particular situation significantly structure an individual's ability to think and learn. Finally, "human thinking is profoundly structured by interaction with the setting" (p. 72). We offer the following recommendations to online instructors to promote contextual learning in the virtual classroom.

1. *Create virtual learning teams.* At the start of each new course, students are placed in a virtual learning team consisting of three to four other classmates. This allows the instructor to replicate the group experience found in face-to-face settings. Students work together on weekly assignments and projects via conferencing systems, conference calls, e-mail, and Instant Messenger. This initiative provides a group context that is similar to what would be experienced in the face-to-face classroom.

2. *Simulate reality using appropriate case studies.* Regardless of the delivery format, the more "real-life" examples that can be utilized, the better students will learn. Case studies are an excellent way to provide the context through which new learning can be developed. As with any situation where a case study is used, it is critical to choose cases that relate to the content of the course. In our online evaluation course, students are provided with a case describing a program within an organization that needs to be evaluated for effectiveness. Throughout the duration of the course, students are asked to design an evaluation around this case using the concepts, ideas, and procedures taken from the course materials. Students are provided with feedback through WebBoard discussions and weekly synchronous chat sessions.

3. *Require collaborative projects with schools, businesses, or other organizations.* Students are encouraged, where possible and appropriate, to develop course projects within the context of their work environment. This provides a real-life context in which to imbed application of the material. For example, in the online instructional design course, students develop a training package that represents 6-8 hours of training time. The majority of the students choose to develop a training package that addresses a performance issue within their organization.

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Social Learning

Social learning theory combines elements from both behaviorist and cognitive theories and posits that we learn best by interacting with others in social settings (Merriam & Caffarella, 1999). Behavioral learning theory contributes to social learning because people do not learn from observation alone but through imitation and reinforcement of what they observed. Cognitive theory focuses on the cognitive processes involved in the observation over the resulting behavior with the idea that individuals can regulate their own behavior by recognizing consequences. Social learning is manifested through socialization, social roles, mentoring, and locus of learning.

For the social learning theorist, the purpose of education is for the learners to have new roles and behaviors modeled for them. Instructors and peers serve as a model for new roles and behaviors within an educational context. The following strategies have been successfully used by online faculty to promote this perspective.

1. *Create a personal connection with students.* The goal is for instructors to be perceived as a real person in mediated communication. This is promoted several ways. Each course has an audio-streamed welcome message from the faculty member. This helps the student to put a face with the voice. Additionally, actions such as humor, vocal variety, personalizing examples, addressing students by name, questioning, praising, initiating discussion, and encouraging feedback all help make this connection. Personal connection can also be made through the use of "relational icons" or "emoticons" made by combinations of punctuation marks.

2. *Peer review and feedback.* Feedback from fellow students is as important as instructor feedback. Therefore, students in many online classes are asked to provide a meta-evaluation of another student's work. The purpose of the activity is to help their peers by providing comments that help the person understand the areas that are clear and well done and the parts that need further development. This activity also models appropriate format for the particular assignment being developed.

3. *Require and facilitate interaction.* This may not seem like a new approach, however, in the online environment, it is much easier for students to be passive both in weekly assignments involving the group as well as during synchronous chat sessions. In addition to basing a percentage of the course grade on participation, other initiatives can be taken as well. One is to post an agenda of the upcoming week's synchronous session. This serves as an advanced organizer and allows students to come to class better prepared for interaction. Another technique is to post discussion questions prior to a synchronous session so students can think about the topic and be ready for a discussion. Throughout the week, students are required to review comments and ideas that have been posted by other students and respond to them in a virtual class discussion. Two things that are important to keep in mind. First, while the quantity of interaction is important (measured by hits on the WebBoard), the quality of interaction is what should be stressed. If not, it becomes too easy for students to fall into the trap of providing comments that add little or no value to the discussion. Second, it is important that the instructor model the expected type of interaction by providing quality comments to the discussion as well.

Active Learning

There seems to be an assumed separation between knowing and doing in education (Brown et al., 1989) where knowing is valued over doing and mental activity is valued over physical activity. However, cognitive theorists have challenged this perspective because the activities through which learning occurs are inseparable from cognition. In order for formal online instruction to be successful, some form of learner activity must be included.

Active learning can occur in many forms in an online environment. Discovery learning, project-based learning, and cooperative learning are common techniques for engaging students in activities that involve considerable amounts of creativity, decision-making, and problem solving. Each of these instructional approaches emphasizes the importance of learning from experience that is goal driven and activity-based. Since these activities usually take more time to complete, they provide for sustained thinking about specific problems over long periods of time. The following are specific examples of how active learning can be applied in an online environment.

1. *Organize online courses around projects.* Since HRD is a constantly evolving applied field of study, it is reasonable to design an online HRD course with a heavy emphasis on the application of the skills and procedures needed by the HRD professional. The best way to accomplish this in an online environment this is through a project-based approach. Application-rich courses can be designed around major projects and specific activities to be completed in order to create a final product. For example, in the instructional design course where students are expected to create a complete training module, they need to complete many specific tasks such as conducting a needs assessment, developing training plans, and creating instructional media. By adopting a project-based approach, the online instructor can easily incorporate the concept of active learning into a virtual environment instead of providing the typical "read and write" online course.

2. *Think-Pair-Share in a virtual environment.* Having online students work in groups of two or three within a virtual environment is a great way to keep students active and focused on their learning. Think-pair-share is an active learning technique used in many face-to-face classes but is rarely used in a virtual environment. The goal is to help students organize prior knowledge, brainstorm questions, or summarize, integrate, and apply new information. This strategy can be used in both synchronous and asynchronous situations.
3. *Use small group discussions during synchronous sessions.* Although few online programs seem to rely on synchronous class sessions, they can provide powerful opportunities for student interaction. We conduct weekly synchronous sessions in our program where the instructor performs a live audio broadcast to the students over the web while the students interact with the instructor and other students in a group chat space. While this in itself encourages active learning, incorporating small group interactions into the large group discussions further enhances it. This is accomplished by having the instructor describe a discussion activity to the class and then asking them to enter their private "virtual team" chat space to discuss and complete the assignment. A specific time is given when the students are expected to return to the class chat space and share the major points of their discussion with the rest of the class. Although this technique is commonly used in many face-to-face classes, it is a unique, yet underutilized, strategy in an online learning environment.

Reflective Learning

Mezirow defines learning as "the process of making a new or revised interpretation of the meaning of an experience, which guides subsequent understanding, appreciation, and action" (1990, p. 1). Reflection allows individuals to correct distortions in their beliefs and critique "the presuppositions on which our beliefs have been built" (Mezirow, 1990, p. 1). Argyris and Schon refer to critical reflection as double-loop learning "that results in a change in the values of theory-in-use, as well as in its strategies and assumptions" (1996, p. 21). The process of reflection enables the ideas, understandings, and experiences of individuals and groups to be reviewed (Preskill & Torres, 1999). Values, beliefs and assumptions of team members are explored through reflection. Through better understanding of individuals' mental models, we can better understand how two or more people can view the same event so differently. Watkins and Marsick (1993) see reflection as a key to continuous learning. The following three strategies can be used to promote reflective learning.
1. *Provide extensive and timely feedback.* While this is something most instructors already know, it is important to remember that the online environment removes some of the human "checks and balances" that face-to-face students have with the instructor. While the opportunity to ask questions and have interaction with the instructor is relatively equal, feedback received through physical distance, eye contact, facial expressions and personal topics of conversation is not present for these individuals. Therefore, it becomes even more important that the instructor take time to provide feedback that is detailed enough to paint a complete evaluative picture. This includes addressing not only the areas that were weak or need improvement, but providing praise for the areas that were done well. Instructors are encouraged to get this feedback to the students no later than a week after the assignment is turned in.
2. *Incorporate "One Minute Papers" and "Muddiest Point" into class.* "One Minute Papers" are short writing exercises in which students are asked to reflect on a particular topic as a form of knowledge assessment activity. Students are asked to post a quick list of the new knowledge they gained through a particular session. The "Muddiest Point" activity allows students to identify the areas of confusion or uncertainly and/or to raise additional questions around the content of the session. Both of these activities benefit the students and instructor by providing feedback on what was clear and what may need further attention through the use of reflection.
3. *Online diaries or reflective journals.* Diaries and journals promote continuous reflection throughout the course. Entries can be self-directed or promoted by an issue, question, or experience posed by the instructor. Journals allow students to reflectively interact with various course topics and experiences and, as noted earlier, critically examine how their values, beliefs and attitudes fit with the material. This is a way that promotes growth beyond what regular instructor and student interactions provide.

Concluding Thoughts

The instructional strategy framework discussed in this paper is clearly a work in progress. Although the framework is based on well-recognized theories of learning and represents a synthesis of ideas from multiple perspectives, it is not fully developed, nor is it all-inclusive. Additional principles will be added as the online program continues to develop and evolve. The specific techniques for applying the instructional principles highlighted in this paper are currently in use in the *HRE Online* courses and continue to be enhanced each time they are implemented. The

possibilities for application of the instructional strategy framework are only limited by the creativity and energy of the instructional designers and course instructors.

Formalized research efforts need to be conducted to validate and improve the strategy framework and the instructional techniques that evolve from it. Studies that examine the effectiveness of instructional strategies in online courses are lacking in the educational technology literature. Most literature provides anecdotal comments on experiences with online courses and empirical research that compares face-to-face and online delivery methods. Instead of comparing two dissimilar learning environments, future studies should empirically test the effectiveness of different instructional techniques in maximizing learning opportunities and achievement in online environments.

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Using Online Learning to Meet Workforce Demand: A Case Study of Stakeholder Influence

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The purpose of this initial phase of inquiry was to investigate how stakeholder interests influenced one state's efforts to provide online, undergraduate degree programs to meet workforce needs. The investigation employed an embedded qualitative case study design. The findings showed that the negotiation of consenting and conflicting stakeholder group interests resulted in the prevailing of the interests of some stakeholder group at the expense of the interests of other stakeholder groups.

Keywords: Online learning, Program Planning, Distance Education

Traditional education and older forms of distance learning have presented difficulties for non-traditional learners. These learners include busy professionals who travel extensively and unskilled laborers employed in jobs with inflexible hours that make a traditional school schedule unworkable. Many business organizations and academic institutions have turned to online learning using the Internet and other web-based technologies in order to provide the needed learning experiences for these under-served learners. Over the past decade, online learning has evolved into a growing vehicle for providing adults with new skills, updated information, and new knowledge, often through degree programs. While online degree programs are primarily concentrated at the graduate, professional level, there are an increasing number of programs being developed at the undergraduate level (Davis, 1999). Unfortunately, a recent Institute for Higher Education Policy analysis of the distance education research literature indicates that distance education research has not kept pace with distance education use (Phipps & Merisotis, 1999). A review of the current literature related to distance education program planning, with a specific focus on online technologies, revealed the same lack of related literature (Benson, 2001).

Because of the number and types of stakeholders typically associated with online degree programs, this study sought to unravel the complexity of online degree program planning by examining the roles of the stakeholder groups involved in one state's efforts to meet workforce demands through online degree programming. In doing so, this research makes a much needed contribution to the literature base related to the planning and implementing of online degree programs, and provides practical insight to HRD professionals who are among the stakeholders of such programs.

Theoretical Framework

For the most part, online degree program development efforts have been approached using existing models from instructional design, adult education, and distance education. The models from these areas can be classified using the taxonomy that Cervero and Wilson (1994a) use for adult education program planning models: classical, naturalistic and critical. Classical models have their roots in systems theory as reflected in Tyler's (1949) curriculum development model. These models take a strict, systematic approach and require the completion of a stepwise process that usually begins with defining objectives and continues through evaluation. Naturalistic models were developed because researchers and practitioners wanted models that were more reflective of the environments in which planning, designing, and learning is actually accomplished. Instead of requiring a stepwise process as in the classical models, naturalistic models accommodate the value judgments of planners, designers and developers. Critical models were developed to focus attention beyond content knowledge and skill development to emancipatory action on the part of learners and instructors. Table 1 summarizes the model categories and provides example models from each of the three disciplines.

Cervero and Wilson (1994a) identified key problems with models in each of the categories. Classical models do not "account for the dimensions and variability of planning contexts, the nature of practical judgments, or the values that influence how judgments are made" (p.17). Naturalistic models fail to provide "any standards, either technical

or ethical, for knowing whether the planner has made the 'best' judgment" (p. 20) and do not address the unequal power relationships of the people involved in planning. Critical models fall "short in exploring the ways [political and ethical] insights might be worked out in the everyday world faced by program planners" (p. 24). Cervero and Wilson (1994a) provide an alternative to the classical, naturalistic and critical models with their negotiation of power and interests model. According to Cervero and Wilson, "Planning programs is a social activity in which people negotiate personal and organizational interests" (p. 4). They contend that programs are not created by following a series of steps, or by making a set of best judgments, or by identifying power inequities; rather they are created through the social negotiation of the interests of the involved stakeholders (Cervero & Wilson, 1994b).

Table 1. *Macro-categories from instructional design, adult education and distance education.*

	Classical	Naturalistic	Critical
Instructional Design Models	Dick & Carey (1996) Diamond (1998)	Wedman & Tessmer (1990) Tripp & Bichelmayer (1990)	Sanchez-Lugo (1998)
Distance Ed. Models	Rumble (1986)	Knott (1994) Keast (1997)	
Adult Education Models	Diamond (1998) Rothwell & Cookson (1997)	Walker (1971)	Forester (1989)

Purpose and Research Questions

The purpose of this initial phase of inquiry was to investigate how stakeholder interests influenced one state's efforts to provide online, undergraduate degree programs to meet workforce needs. This study is significant because it sought to investigate the online degree program planning process from the social and political perspectives, rather than the technical perspective that is the focus of most related lines of inquiry. The research questions that guided this inquiry are:
1. What interests did the affected stakeholder groups bring to the planning and implementation process?
2. What influence did those interests have on the resulting online degree programs?

Methodology

The study employed an embedded qualitative case study design (Yin, 1994). Strauss and Corbin (1998) identified three types of problems that are appropriate for qualitative research: 1) attempts to understand the meaning and nature of the experience of persons with problems, 2) explorations into areas about which little is known, and 3) inquiries into feelings, thought processes, and emotions that are difficult to extract or learn about through more conventional research methods. This investigation met all three criteria. This study sought to make meaning of the social and political processes in operation during the planning and implementation of online degree programs. The focus on the socio-political aspect of planning was a new one for the online education environment, and required experiential data that could not be collected through quantitative means.

Case study research is distinguished from the other types of qualitative research in that it is "an intensive description of a single unit or bounded system, such as an individual, program, event, group, intervention, community" (Merriam, 1998, p. 19). Case study design can take many forms. In a single-case design, the unit of analysis is the case itself (Yin, 1994). In an embedded case designs, "attention is also given to units or subunits" of the case (p. 41). The case in this embedded case study was NetEd, a statewide, online, undergraduate degree program initiative undertaken by the university system of a large southeastern state. The embedded cases were the six NetEd stakeholder groups: NetMan, University System Office of Academic Affairs (University System OAA), University NetEd Oversight Committee (University NOC), DevelopInc, Online Faculty, and Online Students.

Qualitative research typically focuses in depth on relatively small samples that are selected purposefully. The case study usually requires two levels of purposeful sample selection: the case level and the participant level (Merriam, 1998). The case level selection of NetEd was done using intensity sampling, a form of purposeful sampling (Patton, 1990). With intensity sampling, the researcher seeks "information-rich cases that manifest the phenomenon of interest intensely (but not extremely)" (p. 171). NetEd's planning and implementation processes manifested the technical and socio-political aspects of planning and implementing online degree programs that were of interest in this study.

Overall, participant level selection was done using the maximum variation form of purposeful sampling. The goal of maximum variation sampling is to "capture and describe the central themes or principal outcomes that cut across a great deal of participant or program variation" (Patton, 1990, p. 172). For maximum variation, participants

were taken from each of the six defined stakeholder groups. Within the participant groups, participants were selected using snowball, or chain, sampling. In snowball sampling, the researcher "identifies cases of interest from people who know what cases are information-rich" (p. 182). Table 2 lists the stakeholder groups included in the study, the number of participants in each group, and each group's function.

Table 2. *Stakeholder Group Summary Table.*

Stakeholder Group	No. of Participants	Function
NetMan	5	Provide direction for university system's online degree programming through its marketing and student services efforts; Entreprenuerial unit created by Board of Regents for the NetEd initiative
University System OAA	1	Provide day-to-day NetCore project management; In charge of faculty development for system institutions prior to NetCore role
University NOC	1	Direct NetCore development and policy; Comprised of Vice-Presidents of Academic Affairs at system institutions
DevelopInc	1	Transform faculty-provided content into online courses; Hired by the University System OAA and reported to that office
Online Faculty	2	Provide online course content and teach online courses
Online Student	3	Enroll in NetCore courses offered through NetMan

Qualitative methods consist of three types of data collection: (1) interviews; (2) direct observation; and (3) documents. The power of the methods is not in their individual use, but in the triangulation resulting from their collective use (Merriam, 1998; Patton, 1990; Yin, 1994). Therefore, this study used all three forms of data collection. Semi-structured, one-on-one interviews of 1.5 to 2 hours were conducted with each of the 13 participants and follow-up e-mail interviews were conducted with six participants. Observations were conducted of seven 3 – 4 hour meetings in which NetEd stakeholders participated. In addition, over 50 NetEd planning documents including meeting agendas, committee reports, commissioned studies, program objectives, mission statements, and marketing materials were collected and analyzed along with the researcher's journal.

Data analysis is the "process of making sense of the data" (Merriam, 1998, p. 178). Data analysis for this case study had descriptive and explanatory components. The descriptive component provided detailed descriptions of the case, the embedded cases, the planning process, and the stakeholder interests. In the explanatory component, the stakeholder interests and the planning process were viewed from the perspective of the negotiation of power and interests model (Cervero & Wilson, 1994a).

Merriam's (1998) version of the constant comparative method was used for the descriptive component. According to Merriam (1998), the researcher using the constant comparative method begins with a particular incident from a data set (interview, document, or observation) and compares it with another incident in the same data set or in another data set. The comparisons lead to the creation of tentative categories that are then compared to each other. Comparisons among categories are constantly made until all the incidents have been categorized and there is no ambiguity in the categorizations. The analysis of the observations and documents, including the researcher's journal, was conducted concurrently with the analysis of the interviews.

A modified form of Yin's (1994) explanation building was used in the explanatory component of data analysis. In explanation building, the researcher brings a theoretical framework to the analysis and uses the case and embedded cases to verify, fail to verify, or further develop the framework. For this study, the researcher began the explanatory analysis after completing the descriptive analysis. During the explanatory phase of analysis, the researcher compared the case, NetEd, to the theoretical framework to determine how the negotiation of stakeholder interests and the planning process shaped the resulting NetEd online degree programs. For this analysis, the researcher identified instances of negotiation when a) the researcher observed the negotiations, b) stakeholders explicitly discussed the negotiations, c) consensual or conflicting interests within or across stakeholder groups impacted the power relationships among the stakeholders, d) consensual or conflicting interests within or across stakeholder groups impacted the frames defining the NetEd initiative, or e) consensual or conflicting interests within or across stakeholder groups impacted NetEd's purpose, audience, content, and format.

Validity and reliability take on slightly different meanings in qualitative research. Internal validity refers to how well the data collected capture the reality of the phenomenon under study; external validity, to the transferability of the research findings, or the readers' ability to generalize the findings of the study to their specific situations; and, reliability, to the consistency of the findings, or whether the results are consistent with the data collected. The researcher enhanced the validity and reliability of this study by using triangulation, member checks, and peer debriefings, and by providing a stated theoretical framework and a rich, thick description of the findings that allow

readers to draw their own conclusions about the transferability of the findings to their environments, and by maintaining an audit trail of research activities through memo writing and reflective journaling .
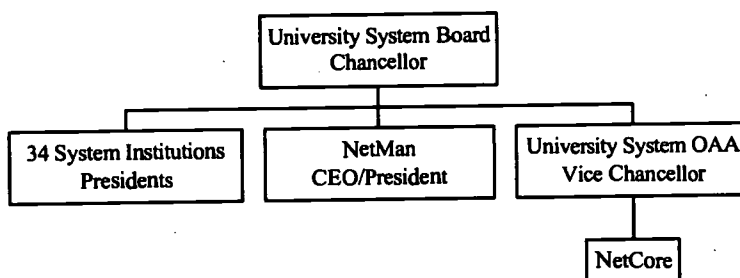
Study Limitations

Previous research using the negotiation of power and interests model as the theoretical framework has focused narrowly on a single educational program, the size and scope equivalent to a short-term course. This study took a broader view and focused on a degree program consisting of multiple semester-length courses. The difference in scope of the studies is reflected in the level of analysis conducted. Previous studies explored the depths of the interpersonal interactions and negotiations between individual stakeholders. This study, because of its broader focus, explored the macro-level interactions and negotiations between stakeholder groups, rather than between individual stakeholders. Taking the broader approach allowed the researcher to investigate the negotiation of power and interests within a large-scale project. In order to accomplish this broader approach, the researcher had to relinquish the ability to simultaneously investigate the micro perspectives within each of the stakeholder groups. As a result, the analysis reflects a macro-level view of stakeholder negotiations rather than the micro-level view provided in previous studies.

Program Description

The case under investigation was NetEd, a statewide, online undergraduate degree program initiative undertaken by the university system of a large southeastern state. NetEd's goal was to provide online degrees in areas of critical shortage as the defined by the state's workforce needs. NetEd consisted of two projects, NetMan and NetCore. NetMan provided a web portal to online degrees offered by institutions within the state's university system. NetCore was the online core curriculum development project within NetEd. NetCore courses formed the first two years of coursework (i.e., the core curriculum) for the online degrees offered through the NetMan portal. The final two years of online coursework were to be provided by various academic departments at the system institutions.

Figure 1 shows the organizational reporting structure of NetEd. NetMan resides in the NetMan organization and reports directly to the University System Board. NetCore resides in the University System OAA. Though Figure 1 shows the NetCore project residing in the University System OAA organization, the project spanned multiple organizations in the university system. The relationships of the six stakeholder groups are described in Table 1.

Figure 1. NetEd Organizational Reporting Structure.

Findings

Stakeholder Interests

Cervero and Wilson (1994a) described three types of stakeholder interests: expressed interests, which are the stated, or revealed, preferences of individuals involved in the planning process; ideal interests, which refer to "what is really in the interest or good of a person, whether she or he thinks so or not" (p. 124); and, real interests, which are the "norms, values, and purposes implicit in what planners do" (p. 125). The findings of this investigation suggest a second taxonomy: overarching interests and operating interests. An operating interest is a perspective of an overarching interest held by one or more stakeholder groups. Table 3 shows the overarching interests and operating interests identified for the NetEd stakeholder groups. Each overarching interest has at least one associated operating

interest. For example, the Quality overarching interest has four operating interests and the Policy overarching interest has three.

Table 3. *Mapping of overarching interests to operating interests*

Overarching Interests	Operating Interests (Stakeholder Perspectives of Overarching Interests)
Quality	• Overcoming stigma associated with online learning • Meeting accreditation standards • Effective and efficient course development process • Effective pedagogy
Development	• Institutional development • Faculty development • Formal training • Technical skills development • Interpersonal skills development • Career advancement
Policy	• Surfacing policy issues • Applying policy philosophy • Clarifying policy
Process	• Planning model selection • Process control • Process flexibility
Buy-In	• Through publicity • Through accreditation and course transferability • Through process
Student Lifestyle Accommodations	• Maintaining family and work life • Access to online services • Accessibility for students with disabilities
Organizational Identity	• Structural identity • Functional identity
Programming	• Fiscal programming concerns • Student-related programming concerns
Marketing	• Market research • Increasing student enrollments
System Change	• Limiting change to course modality for accreditation purposes • Effecting system-wide change

Table 4 shows a mapping of overarching interests to the stakeholder groups who held those interests. As shown in the table, multiple stakeholder groups shared each of the overarching interests. For example, the NetMan, University System OAA, and Online Student stakeholder groups shared the Student Lifestyle Accommodations overarching interest. In addition, all stakeholder groups held multiple overarching interests. For example, the Online Faculty stakeholder group had four overarching interests: Quality, Development, Process, and Marketing categories.

The data indicate that while stakeholders shared overarching interests, the operating interests within those overarching interests were often in conflict. For example, within the Process overarching interest, the DevelopInc stakeholders' operating interest in process control conflicted with the Online Faculty stakeholders' operating interest in process flexibility. Likewise, the University NOC's operating interest in meeting accreditation standards conflicted with NetMan's operating interest in overcoming the stigma associated with online learning.

This finding suggests that stakeholders of online degree programs must go beyond surface level discussions of consensual overarching interests and uncover those potentially conflicting operating issues early in the planning process. If conflicting operating interests are identified early, they can be addressed reasonably without causing any unnecessary stress on the process and the stakeholders. Uncovering conflicting operating interests late in the planning and implementation process can undermine the effectiveness of the process and the stakeholders.

Table 4. *Interests to Stakeholder Group Mapping.*

Interests	Stakeholder Groups					
	NetMan	University NOC	University System OAA	DevelopInc	Online Faculty	Online Student
Quality	x	x	x	x	x	x
Development	x	x	x	x	x	x
Policy	x	x	x			x
Process	x	x		x	x	
Buy-In	x	x	x			
Student Lifestyle Accommodations	x		x			x
Organizational Identity	x		x	x		
Programming	x	x		x		
Marketing	x			x	x	x
System Change	x	x				

Stakeholder Influence

Cervero and Wilson (1994a) contend that programs are shaped through the negotiations of the interests the stakeholders bring to the planning process. The ability of a stakeholder to influence the negotiations, and thus the resulting program, is determined by the power relationships among the stakeholders. This stakeholder capacity to act may be "socially systematic," derived from the organizational and political structures within which they act; or "socially ad hoc," derived from their role or position with respect to the planning task at hand (p. 128).

Table 5 shows the complexity of stakeholder negotiations involved in NetEd's planning. Consistent with the Cervero and Wilson (1994) model, the table shows that the negotiations of overarching interests shaped NetEd's audience, content and format. For example, negotiations around the Quality overarching interest shaped NetEd's content, format and process. The table also shows that the negotiations of multiple interests contribute to the shaping of a single program component. For example, NetEd's audience was shaped by negotiations around the Buy-In, Student Lifestyle Accommodations, Programming, and Marketing overarching interests.

Table 5. *Interests that shaped NetEd.*

Overarching Interests	Program Aspect Shaped by Negotiations		
	Audience	Content	Format
Quality		x	x
Professional Development		x	x
Policy		x	x
Process		x	
Buy-In	x		
Student Lifestyle Accommodations	x	x	x
Organizational Identity		x	x
Programming	x		
Marketing	x	x	x
System Change	x	x	x

Cervero and Wilson (1994a) posit that an ethical planning process in one in which the interests of all affected stakeholders are substantively represented, regardless of their place in the power hierarchy. The NetEd initiative did not display this characteristic. Influence amongst the NetEd stakeholders stemmed from two seats of power: NetMan and the University NOC. NetMan did planning for NetEd online degree programs and for the NetMan portal, while the University NOC focused more narrowly on planning for NetCore. The influence of each of the six stakeholder groups is discussed in this section.

University NOC Stakeholders. The University NOC consisted of representatives, primarily chief academic officers, from institutions that ultimately would have to approve the NetCore online core curriculum. Each system institution, with the exception of the three research universities and the medical school, elected to place representatives on the University NOC. These institutional representatives had the opportunity to shape policy that governed NetCore course development and implementation. Decisions on the University NOC were made by consensus, rather than by voting, since it was imperative that all institutions agree with all NetCore policy.

The University NOC model of including representatives from system institutions in NetCore planning activities extended to the NetCore course development teams. Each team had six faculty members representing six system

institutions. Using a team approach to NetCore course development allowed individual system institutions to participate in defining an online core curriculum that would be acceptable to all system institutions.

Unlike the University NOC planning team, which was made up of representatives from system institutions, the NetMan planning team was comprised of the NetMan staff with no institutional representation. As a result, NetMan had to "go on the road" to get "buy-in" from system institutions. In these road shows, the NetMan stakeholders presented the findings from their market research and tried to position the NetEd initiative and the NetMan project within that initiative as providing value to the university system and to the individual institutions.

Given the composition of the planning teams of the two projects, it should not be surprising that the University NOC exerted more influence over NetEd planning processes than NetMan. The University NOC planning team included the affected stakeholders while NetMan planning included none of the affected stakeholders. These University NOC representatives were decision-makers at their respective institutions and could make commitments that their institutions were bound to honor, while NetMan had to rely on the "good-will" of system institutions.

NetMan Stakeholders. NetMan's market research indicated student interest in "anywhere, anytime learning." In fact, NetMan's initial press releases and web portal used the phrase, "anywhere, anytime learning." Unfortunately, NetMan stakeholders were unable to exert the influence necessary to see "anywhere, anytime learning" realized within the NetCore courses, which were class-paced over the length of a semester. Neither NetMan's position in the university system organizational structure ("socially systemic power"), nor its functional role on the NetEd project ("ad hoc power") provided the power base the organization needed to ensure that NetCore course development proceeded as the market research dictated. As "facilitators," NetMan stakeholders were forced to rely on the "good will" of other stakeholder groups.

In general, any time a NetMan interest conflicted with a University NOC interest, the University NOC interest prevailed. Unfortunately, it is not clear that the prevailing of the University NOC was in the best interest of the NetEd initiative. One of NetMan's most fundamental interests, to effect system change, was in direct conflict with the University NOC's interest of limiting the educational change impact of NetCore to changing delivery media. The University NOC stakeholders prevailed because their interest in meeting accreditation standards outweighed NetMan's interest in system change.

Online Student Stakeholders. The Online Student stakeholders appeared to exert very little influence on NetEd planning. Students expressed interest in "anywhere, anytime learning," but all the NetCore courses were class-paced over the length of a semester.

Online Student stakeholders had a professional development interest in getting degrees in areas other than those NetMan defined as "critical shortage areas," but NetEd's focus did not change to accommodate this interest. From its inception, the NetEd initiative was focused on providing online degrees in areas of critical shortage to the state's key businesses. This adherence to the needs of the state's key businesses suggests that NetMan represented the interests of the business community, instead of the interests of the Online Student stakeholders, when deciding the content NetEd would provide.

Online Faculty Stakeholders. The Online Faculty and University OAA stakeholders brought their historical power relationships to the NetCore project. Historically, faculty members were clients that the University System OAA sought to serve and satisfy. During the NetCore course development process, the relationship gradually changed to one in which the University System OAA became more directive with faculty. Faculty did retain power based on their status as subject matter experts and content providers, and as representatives of institutions who ultimately had to approve or reject the course offerings. Not surprisingly, online faculty stakeholders exerted their strongest influence over the content of the individual courses.

University OAA and DevelopInc Stakeholders. The ability of the University OAA stakeholders and the DevelopInc stakeholders to influence NetEd planning decisions was limited by their organizational relationship to each other and to the University NOC. Since the University OAA hired DevelopInc, DevelopInc stakeholders treated University System OAA stakeholders as clients to be served and satisfied. The University OAA, on the other hand, operated at the direction of the University NOC and treated them with deference.

Implications for Future Research

While research has been conducted to identify strategies for managing power relationships among stakeholders (e.g., Mabry & Wilson, 2001), no research has been conducted to identify strategies to uncover and clarify the overarching and operational interests of stakeholders as identified in this study. Future research should pursue this line inquiry.

In addition, many studies have examined success factors for students in online courses, but few, if any, have focused on student perspectives on program and course planning and design. Such research would be a step in the right direction towards including student perspectives, which were discounted in the NetEd project, in the planning and design process. Future research also should consider the possible integration of the social and political focus of Cervero and Wilson's model with the technical focus of traditional instructional design and program planning models. An integrated model might better capture the environment in which planners and designers do their work. This future research should include program models with stakeholders from the business community.

Contribution to HRD Practice and Theory

Many HRD professionals perform the role of program planners in their daily work. As such, many rely heavily on traditional instructional design and program planning models to direct their efforts. The findings of this study suggest that the negotiation of power and interests model may provide a new perspective and a new set of tools with which to address the challenges inherent in managing planning and design processes that involve multiple stakeholder groups and a myriad of stakeholder interests. By suggesting a new perspective from which to view old problems, this research adds new knowledge to HRD theory and opens the door to future investigations that could yields models and theories of practice that are specific to the HRD environment.

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Models for Human Resource Development Online Programs

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Distance learning programs in higher education have grown rapidly in recent years due to the popularity of "online" or "web-based" instruction. However, little research has been conducted on effective online program models within the field of human resource development (HRD). The purpose of this study was to identify and describe program models for online HRD course delivery.

Keywords: Online Programs, Online Models, Web-Based Distance Learning

Advancements in computer technology have had tremendous effects on the world--how we communicate, conduct business, perform research, and even go shopping. By a simple click of a button, transactions can be made in minutes between people thousands of miles apart. Business and industry are using the Internet as a vehicle for advertising their products, offering their services, and broadening their clientele. In the same respect, higher education institutions are now using the Internet to offer courses to students who are located anywhere in the world. Many refer to this form of distance learning as online or web-based education.

The concept of distance learning has been in existence for many years. Through the use of audiotapes, videos, and correspondence, educational institutions have offered courses to students who could not physically attend their classes. Most students who enroll in distance learning courses are over 25 years of age and are characterized as highly motivated, disciplined, and committed (University Continuing Education Association, 1998). Through distance learning, students may take courses to obtain professional certification, continuing education units, or associate, baccalaureate, and graduate degrees.

Current statistics highlight the unprecedented escalation in the number of instructional programs offered through distance learning. For example, both the number of courses taught at a distance by postsecondary institutions and their enrollments nearly doubled between 1994-95 and 1997-98. In just one year, between 1997 and 1998, the growth of distance learning programs in higher education was well over 70% (Lewis, Snow, Farris, Levin, & Greene, 1999). Future projections suggest that this increase will continue because of the popularity of online instruction. The growth in online instructional programs for adults is not confined to higher education. The market for web-based corporate learning is expected to reach $11.4 billion by 2003, up from $550 million in 1998 (Moe & Blodgett, 2000).

Distance Learning Models

Distance learning is represented in a variety of educational models. These models are built around the instructional process; presentation of content; interaction with faculty, peers, and resources; practical application, and assessment (Institute for Distance Education, 1997). The most common types of distance learning models are distributed classroom, independent learning, and open learning + class model.

In the *distributed classroom model*, interactive telecommunications technologies extend a classroom-based course from one location to groups of students at one or more other locations. Educational institutions can broadcast face-to-face lectures to "satellite" sites that are strategically located near their students. Learning is synchronous or real-time. Since the satellite sites are equipped to receive and transmit both audio and video, "remote" students are able to participate in the lectures as if they were physically present. The technologies used to support the class sessions include two-way interactive video, one-way video with two-way audio, audio conferencing, or audiographic conferencing. The telephone, postal mail, fax, and a computer (for e-mail and conferencing, access to online resources, and submission of assignments) are used to support out-of-class communication.

The *independent learning model* does not require students to be in a particular place at a particular time. Instead, students are able to access course information, interact and collaborate with faculty and classmates, and submit course assignments from anywhere in the world. Students are given detailed course syllabi and access to faculty. Since there are no face-to-face class sessions, in-class technologies are not required. Technologies to support out-of-class communication include postal mail, voice mail, electronic mail, computer conferencing, and telephone. This model is used by most educational institutions to deliver online instruction.

The *open learning + class model* is a combination of the distributed classroom and independent learning models. Students use printed class materials and media, such as videotapes and CDs while learning at their own pace. There's also occasional use of interactive telecommunication technologies for group meetings among all enrolled students. This model uses the same communications technologies as the distributed classroom model.

Purpose of the Study

Given the extraordinary growth of online instructional programs in higher education, it is essential to know what online strategies or models are most effective in delivering Internet-based programs, in particular HRD programs. This is a new area of program development, and little is known about these types of models. Just as educational institutions use distance learning models to offer courses at a distance, what types of online models do they use to deliver Internet-based HRD courses? The goal of this study was to identify and describe existing program models for online HRD course delivery. The research questions that were used to focus this study were:
1. What services and technologies are used to deliver online HRD courses?
2. What program models are used to support HRD online programs?

Methodology

A status study was conducted to obtain information about online HRD programs in higher education institutions and the types of online models they use to deliver their courses. Because of the exploratory nature of the study and the need for timely, cost effective, and easily quantifiable data, a survey design was used to address each research question. A questionnaire was placed on a web site for participants to access. After 2 weeks, non-respondents were sent a follow-up e-mail message reminding them to complete the questionnaire. Telephone calls were made to those who did not respond to the e-mail reminder.

Population

The population selected for this study was higher education institutions in the United States that are associated with the Academy of Human Resource Development (AHRD). AHRD is an international organization comprised of researchers and graduate students who are interested in various aspects of HRD. The 1999-2000 AHRD membership roster, which consisted of 650 members, was used to identify institutions that have HRD courses and programs. From this membership list, the researchers identified a total of 128 educational institutions with connections to AHRD, and 107 of these were U.S. based.

The researchers then visited the department web sites of each institution to determine if they offered web-based HRD courses. A keyword search using terms such as "Internet-based courses", "online", "distance education", and "distance learning" was also performed. If the institution offered Internet-based courses, the researchers performed another query to determine if they offered HRD courses that were 100% online. Results from this search identified 19 AHRD institutions that appeared to offer Internet-based HRD courses. To validate this list of institutions, the 1999, 2000, and 2001 AHRD conference proceedings were also searched using keywords. This search revealed no additional institutions that offered 100% Internet-based courses. Although several strategies were used to identify appropriate institutions, it is still possible that some institutions that offered HRD online programs were overlooked because various search engines were used to browse the university websites.

A contact person (i.e., faculty member or program coordinator) was then identified from the web site for each institution that offered some type of HRD online course. Each of these individuals was then contacted to invite them to participate in the study.

Instrumentation

A web-based questionnaire was used to collect the program data. Prior to developing the questionnaire, the researchers conducted a literature review to determine if any distance learning surveys had been developed that could be adapted to the HRD online status study. From this search, the *Survey of Distance Learning Programs in Higher Education* was identified (Primary Research Group, 1997). Although the survey displayed face validity, it appeared to lack content validity. Several of the items had to be rephrased, while others were deleted due to lack of applicability. After numerous revisions, the questionnaire used for this study bore little resemblance to the original instrument. The final instrument contained 33 questions addressing issues of financing and marketing online

courses, online faculty and staff support, online faculty training and compensation, online student support and resources, course development, and technologies used to deliver online courses.

To ensure content validity and clarity, a group of HRD faculty and graduate students participated in a pilot test of the questionnaire. Based on the pilot test results, the questions were revised and the final instrument was placed on a web server for participants to access and complete. Sampling was not required since all North American AHRD institutions with online courses and degree programs were asked to complete the questionnaire.

Data Collection and Analysis

All data were collected online via the Internet. Participants received an e-mail inviting them to participate in the online survey. The response rate was 68.4%. Of the 13 responding institutions, 6 did not offer HRD courses that were 100% web-based and one institution elected not to participate. The six institutions that agreed to participate were then sent an Internet address so they could access the questionnaire. Participants responded to questions by clicking on the appropriate answers or inputting short responses. Once the questionnaire was complete, participants submitted the form and the items were transferred to a database.

Microsoft Access and Excel were used to organize the questionnaire data. The researchers looked for patterns in the data and calculated frequencies and percentages for each response category. An extensive web-site analysis was also conducted for each program that had online HRD courses. This analysis consisted of an examination of the web site for each program and a review of various program characteristics related to the research questions.

Results

Respondents were asked to provide general information about their online HRD programs such as types of programs offered, number of students receiving degrees online, student profiles, typical class size, available faculty and student support services, and technologies used to deliver online instruction. Table 1 provides a listing of the institutions that offer 100% web-based HRD courses and online degrees.

Table 1. *Institutions Offering 100% Internet-based HRD Courses and Degrees*

Institution	Online Certificates or Degrees
Bowling Green State University	Ph.D. in Technology Management (core courses only)
Indiana State University	M.S. in Human Resource Development M.S. and Ph.D. (core courses only)
University of Illinois at Urbana-Champaign	Ed.M. in Global HRD Certificate in Teaching and Learning
University of Louisville	M.Ed. in Human Resource Education
University of Minnesota	None, courses only
Western Carolina University	None, a few courses offered online

Bowling Green State University

Bowling Green State University offers core courses toward a Doctor of Philosophy in Technology Management via the Internet. The Ph.D. program uses a consortium of institutions to offer core courses to support the online doctorate in technology management. The consortium is comprised of Central Missouri State University, East Carolina University, Texas Southern University, University of Wisconsin-Stout, North Carolina A&T, and Indiana State University, which serves as the lead school.

The program is designed to prepare specialists who have extensive knowledge of scientific and engineering developments, knowledge of the economic and political organizations of the global community, and sensitivity to the ethical and moral issues surrounding technology. Requirements for the Ph.D. include: 15 semester hours of general technology core courses, 12 hours of a major specialization area, 12-18 semester hours of cognate studies, 27-33 semester hours of research, and 6 hours of internship. Courses are designed to provide experiences that address topics in contemporary and future trends of technology. Philosophical dimensions influencing decision making, historical perspective, and implications for technological development, and technical systems are included. HRD online tuition ranges between $500 and $599 per course.

Indiana State University (ISU)

Indiana State University offers an online Master's of Science degree in Human Resource Development for Higher Education and Industry degree and core courses toward a Ph.D. in Technology Management. The master's program is designed to prepare professionals for higher education, industry, business, government, and other agencies. It requires a total of 33-36 hours. Upon completion of the program, participants are able to plan, conduct, and manage education, training, and other human resource development activities. The core courses offered for the online Ph.D. program are the same ones offered through the consortium with Bowling Green State University. Currently, over 125 students have completed their degree online, with tuition costs under $500 per course.

University of Illinois at Urbana-Champaign (UIUC)

The University of Illinois offers an online Master's degree in Global Human Resource Development. The program is designed for individuals currently working in or aspiring to HRD positions in either the private or public sector. It is focused on employee training and development, organization development, and the use of information and technology to improve individual and organizational performance. Emphasis is placed on HRD leadership in both domestic and international settings. Upon completion of 9 units (36 semester hours) of coursework, students are awarded a Master's of Education (Ed. M.) degree. To date, 13 students have completed their degrees and 59 are currently enrolled online. Tuition costs is currently $1008 per course.

University of Louisville

The Department of Leadership, Foundations, and Human Resource Education at the University of Louisville offers an Internet-based Master's of Education (M.Ed.). This pilot program was developed with a grant from the United States Army. The M.Ed. program focuses on human performance improvement, instructional design, and human resource management. Currently, the only course offered over the Internet is Organizational Analysis. This course examines the processes and techniques used to (1) conduct organizational task and person analyses and (2) identify training needs in a non-school environment. They plan to expand their program to offer the entire degree program online. Students who are enrolled in the online HRE program and are located in the Louisville area are given the option to take the same courses on-campus. The program requires a minimum of 30 credits for completion with a core curriculum of 27 credits. The University of Louisville began offering their HRD course online in the summer of 2001. Tuition costs per course are below $500.

University of Minnesota

The University of Minnesota's HRD program is one of six faculty groups within the Department of Work, Community, and Family Education. Their HRD program prepares students to become work, community, and family education professionals. Although they do not offer any online degrees or certificates, they have several Internet-based courses. Tuition costs are variable and dependent on whether students reside in state or out-of-state and whether they are part-time or full-time.

Western Carolina University

The Department of Human Resources is part of Western Carolina University's College of Education and Allied Professions. The department's goal is to meet the needs of aspiring and experienced human resource professionals. They offer a Master's degree in Human Resources, where students may specialize in e-learning, organization performance, or interdisciplinary human resource studies. A few of the graduate level courses are available over the Internet. Western Carolina University has been offering HRD online courses for more than 3 years. Tuition costs per course are under $500.

Status of HRD Online Programs

The average online class size at the participating institutions ranged from 7 to 35. Their typical online students were part-time, graduate, and career/professional. When asked to rank the importance of various reasons for offering courses online, the highest ranked reasons were to provide alternatives to traditional and non-traditional students, stay competitive, and serve new markets. One institution's main reason for offering online courses was to model e-learning while another's main reason was "because admin said so." The least likely reason they offered online courses was to reduce impact on college facilities. The primary strategies that participating institutions used to

market their HRD online programs were e-mail, listserves, and websites. Persons responsible for marketing their HRD online programs were HRD faculty, directors of graduate studies, and program directors.

Support for Online Faculty and Students

The level of faculty support, faculty incentives, teaching load, and percent of full-time and adjunct faculty varied at each institution. Bowling Green State University does not offer incentives or support services to their faculty; their teaching load for their online courses is the same as their face-to-face courses, and only their full-time faculty teach online. Indiana State University supports faculty with instructional designers, graphic artists, computer assistance, web page development, and online faculty training. Faculty receive additional funding for course development and assessment. The teaching load for online courses is generally lower than the traditional classroom. Of their online faculty, 90% are full-time while 10% are adjunct.

The University of Illinois provides their faculty with instructional designers, programming, and multimedia assistance as needed. Only one of their online instructors is adjunct. Online and face-to-face courses are considered equivalent when determining teaching load. Illinois faculty are given a one-course release during the semester they develop a new online course, and they are provided with a half-time teaching assistant each semester the course is offered.

The University of Louisville has a teaching and learning center that provides faculty support for their online program. They also provide their online faculty with training in the use of Blackboard™ software. The teaching load for their online courses is higher than the traditional face-to-face courses. However, both online and face-to-face courses are considered the same when determining teaching load. As an incentive, faculty are given a semester of release time to develop their courses. Their entire online faculty are full-time.

Western Carolina University does not offer incentives nor support services to their faculty, and new online faculty are not required to undergo formal training prior to teaching their online course. The teaching load for their HRD online courses is equivalent to a face-to-face course. In the same respect, an online course counts the same as a face-to-face course in determining teaching load.

Unlike the other institutions, online courses at the University of Minnesota are developed by outside contractors with minimal input from their faculty. Faculty receive no incentives for teaching online. Since course development is outsourced, the teaching load for online courses is generally lower than the face-to-face courses. As a result, the online and face-to-face courses do not count the same when determining teaching load. Their entire online faculty are adjunct.

The types of student support and services varied for each institution. With the exception of Bowling Green State University and the University of Minnesota, each participating institution offered some type of orientation to acclimate students to their online system. Indiana State University sends their online students a CD that contains instructions and a self-guided tour. The University of Illinois offers online training that requires students to practice using the course technologies by installing software, submitting documents, and verifying that they can receive streamed audio and video. The University of Louisville's student orientation consists of a review of technical requirements. Western Carolina University offers to their online students software training and tutoring on how to be an online student.

The Internet services that the institutions provide to their students also varied. All participating schools provided their students with an online library database and catalog. Most schools also provided online advising, course catalogs, e-mail access requests, grades, and registration. Table 2 gives a summary of all Internet services offered by each institution.

Online Course Development and Technologies

With the exception of the University of Minnesota, regular faculty design online HRD courses. Courses at the University of Minnesota are developed by outside contractors with minimal input from their faculty. At the University of Illinois, graduate students are also involved in course development. When asked how much of the total online program costs are attributed to course development, both Bowling Green State University and Indiana State University indicated less than 10%. Western Carolina University attributed 11% to 30% of their HRD online program costs to course development. The University of Illinois indicated that 31% to 50% of their costs are attributed to course development. Development costs were reported to be greater than 50% at the University of Louisville and the University of Minnesota.

Table 2. *Student Internet Services Provided by the Institutions*

	Advising	Bookstore	Career Planning	Course Catalog	E-mail access requests	Financial aid	Grades	Library (online catalog)	Payment	Registration	Study groups	Timetable	Transcripts	Tutoring
Bowling Green State University	x			x	x	x	x	x				x		
Indiana State University	x	x	x	x	x		x	x		x	x			x
University of Illinois	x	x		x	x		x	x	x	x	x	x	x	
University of Louisville							x			x				
University of Minnesota	x	x		x	x	x	x	x	x	x		x		
Western Carolina University	x			x	x	x	x	x				x		

The variety of technologies used to deliver online HRD courses includes audio conferencing, audio lectures (asynchronous and synchronous), chat rooms, e-mail correspondence, discussion conferencing (e.g., Web Board), video conferencing (synchronous), and video lectures (asynchronous). All participating institutions utilize chat rooms, e-mail, and discussion conferencing. Asynchronous audio lectures are used by half of the institutions. Table 3 details the technologies used by each institution.

Bowling Green State University anticipates an increase in the use of audio conferencing and discussion board technologies. Indiana State University plans to use more audio lectures, chat rooms, video conferencing, and video lectures. The University of Illinois intends to make greater use of video conferencing and video lectures. The University of Louisville indicated that they plan to make greater use of all available technologies. The University of Minnesota and Western Carolina University do not anticipate changing the technologies they are currently using to deliver online instruction.

Table 3. *Online Course Technologies Used*

	Audio conferencing	Audio lectures (asynchronous)	Audio lectures (synchronous)	Chat rooms	E-mail correspondence	Discussion conferences	Video conferencing (synchronous)	Video lectures (asynchronous)
Bowling Green State University				x	x	x		
Indiana State University	x	x		x	x	x		x
University of Illinois		x	x	x	x	x		x
University of Louisville		x		x	x	x		
University of Minnesota				x	x	x		
Western Carolina University				x	X	x		x

Online Models

Three models, the contractor model, the consortium model, and the independent program model, best characterize the HRD online programs presented in this paper. In the *contractor model*, courses are designed and developed by an outside contractor. This model is ideal for institutions that may not have the expertise to develop and deliver the online courses, technical support to maintain the courses, or the time to convert their face-to-face material to an online format. The University of Minnesota uses this model to deliver their online courses.

The *consortium model* involves a collaboration of universities where faculty from participating institutions deliver one or more online courses rather than an entire degree program. This model is useful for institutions that may not have enough faculty to teach online. The Ph.D. program offered at Bowling Green State University and Indiana State University is part of a consortium degree program, where Indiana State University serves as the home school. Other consortium members include Central Missouri State University, East Carolina University, Texas Southern University, University of Wisconsin-Stout, and North Carolina A&T.

Within the *independent program model*, institutions take full responsibility for the development and implementation of their online program. This model is ideal for institutions that want to have full control over the online program's structure, policies, and technologies. This model is also ideal for academic units that have the technological capacity to develop and support technical solutions for course development and delivery. For example, this model works well for the University of Illinois because its many doctoral students who are specializing in the field of instructional technologies are able to support the program and develop their technology skills through graduate teaching and research assistantships. The University of Illinois and the University of Louisville used the independent program model to develop their online program.

Discussion

This study introduced three models that can be used to deliver Internet-based HRD programs—the contractor model, consortium model, and independent course model. The contractor model includes courses that are offered by educational institutions but designed and developed by an outside contractor. The consortium model involves a collaboration of universities that are responsible for teaching one or more courses within a degree or certification program. Within the independent program model, the department assumes full responsibility for the entire online program.

At the onset of this study, over 107 North American AHRD institutions were identified as potentially offering HRD courses online. Of these 107 institutions, only 6 are offering web-based courses that are 100% online. Why are so few institutions offering HRD courses online? There are several plausible reasons for this; however, some main issues could be (1) the need for considerable technical support and expertise, (2) the initial startup cost, (3) the need to train faculty to teach online effectively, and (4) the enormous time commitment that is needed by the developers of online courses.

With these concerns, the authors offer some recommendations. For institutions lacking the technical support and expertise to develop online courses, one plausible solution is to outsource these services. This is the direction the University of Minnesota took by offering their online courses through outside contractors. Another solution might be for institutions to develop one online course per semester using the most basic, cost effective, and easy-to-use technologies. These technologies could include chat rooms, email, discussion conferencing, and asynchronous audio lectures. The University of Louisville is an example of an institution that has taken this approach when they began offering one course during the summer of 2001. The idea behind this strategy is for institutions to start small until they gain more online experience.

If funding is a concern, organizations such as the Alfred P. Sloan Foundation (www.sloan.org) provide program development grants to universities to develop new online courses. These awards are intended to cover the one-time costs of converting existing course materials to a pedagogically sound online format. The Department of Human Resource Education at the University of Illinois converted their regular courses to an online format with financial support from the Sloan Foundation.

Institutions that do not have the faculty or staff to teach online courses may consider joining a teaching consortium as was done by Bowling Green State University and Indiana State University. Within the consortium, faculty from participating institutions deliver one or more online courses rather than an entire degree program. This arrangement "lifts the burden" off one institution so that it can be shared among many.

Time commitment is another barrier that may prevent institutions from offering online courses. Institutions may not have the time to develop the courses and at the same time may not have sufficient faculty to teach the courses. There are several solutions to this problem, many of which have already been addressed. Institutions could

outsource course development (University of Minnesota), they could become part of a consortium (Bowling Green State University and Indiana State University), or they could bring in adjunct faculty from other related departments to teach the online courses (Indiana State University, University of Illinois, University of Minnesota).

Rather than focusing on disadvantages to offering online courses, it is essential that institutions consider the benefits of offering Internet-based courses. One main advantage to offering Internet-based courses is that it allows institutions to reach other markets they would not have been able to reach otherwise. This includes the international population, working professionals, and single heads of households. Another advantage is that it increases institutional prestige. By offering online courses, institutions can serve as models for others seeking to offer similar Internet-based courses. As a result, popularity increases and ultimately the student population increases (online as well as face-to-face).

Future Research Implications

Technology is rapidly changing and is impacting the way institutions deliver Internet-based courses. Online technologies used today differ from the technologies used five or more years ago. Moreover, institutions that have offered online programs for a while are familiar with the various technologies and are able to offer more "online amenities" to their students. For example, the University of Louisville, who recently began offering Internet-based HRD courses, provides their online students with a limited number of online services. In contrast, Indiana State University, where over 125 students have completed their degree online, provides their students with numerous services online. A research study could be conducted to compare HRD online programs that have been offered less than a year, 3 years, and 5 or more years. An interesting research question would be: How does the structure and format of an online program change over time?

The results of this study also indicate that institutions vary in their use of online course technologies. Future studies should investigate the reasons why some online course technologies were chosen over others (i.e., the advantages and disadvantages of using various online technologies). Some possible research questions could be:
1. How do training requirements differ for each course technology?
2. Which technologies promote greater student-to-faculty and student-to-student interaction?
3. Which technologies best enhance student learning?

The University of Illinois utilizes synchronous audio lectures in their online courses. Another interesting research study could determine if synchronous sessions are worthwhile. Factors such as student questioning, student-student interaction, and student-faculty interaction could be compared between synchronous and non-synchronous audio modules. Some possible research questions would include:
1. How satisfied are faculty and students with the synchronous lectures?
2. Do student-faculty and student-to-student interactions increase in the synchronous lectures?
3. What factors promote quality synchronous interaction?

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