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Effective e-learning environments for adult learners

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Abstract

The purpose of this literature review is to examine the types of instructional strategies that are appropriate and effective in e-learning environments for today's adult learners. To identify the best practices among instructional strategies in e-learning environments, three specific questions were addressed. These areas include: adult learning, instructional design and future developments in e-learning.

The literature reviewed highlights the importance of learner-centered instructional strategies that use authentic learning experiences, collaboration, and real-world problem solving applications. Continued research is called for to further refine and expand on the best instructional practices. Institutions engaged in distance education need to provide for training and ongoing professional development for instructors and instructional designers.

EFFECTIVE E-LEARNING ENVIRONMENTS FOR ADULT LEARNERS

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ABSTRACT

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INTRODUCTION

Background

Distance education can be offered through a variety of technology applications. Today's generation of electronic learning, or e-learning, technologies refer to a course offering where "most or all of the content is delivered online" (Allen & Seaman, 2007, p. 4). Distinct from online distance education are the blended, or hybrid, courses where there is a mixture of online and face-to-face delivery of content and instruction. For purposes of this paper, distance education, e-learning, and online education are viewed as interchangeable terms.

An examination of the trend in enrollment patterns in distance education courses offered by post-secondary institutions in the United States shows continued growth and expansion. A report from The National Center for Education Statistics (NCES) by Waits and Lewis (2003) highlighted the growth of distance education courses at post-secondary institutions in the United States by noting that the growth rate had not slowed in the last decade. Furthermore, "the majority of the institutions offering distance education courses were using asynchronous computer-based instruction" (Waits & Lewis, p. 3). Carr-Chellman (2005) attributes the growth of distance education in the United States to the presence of "…open, permeable higher education, the efficiency value of Web-based degree programs; the independent nature of online learning; the history of vocations in higher education, and the myth of meritocracy" (p. 146). Recent data analysis shows that slightly more than one-half (53%) of U.S. post-secondary institutions are engaged in online education (Allen & Seaman, 2007).

A 2006 survey of post-secondary institutions in the United States found enrollments in online learning continue to increase with "nearly a 10 percent increase over the number reported the previous year" (Allen & Seaman, 2007, p. 1). Additionally, this survey reports that this ten percent growth rate far exceeds the rate of growth in overall higher education enrollments. Furthermore, the majority of institutions expect increasing enrollments in their online courses in the coming years (Allen & Seaman, 2007). Similar sentiments about future growth are highlighted in Moller, Foshay and Huett's (2008a) analysis of current trends in distance education, noting that it "…is explosive in almost all sectors, and in many developed and developing countries" (p. 70). While this growth in enrollment is described as a boom for institutions seeking to expand their base of students, it is not without controversies and tradeoffs. There are a number of barriers for distance education to overcome including program acceptance, technology needs, and workload issues. In Allen and Seaman's (2007) analysis of barriers to distance education, most campus administrators identified the significantly higher dropout rates and lower persistence rates to graduation as compared to the traditional on-campus rates as their primary issue.

With the growth of e-learning opportunities in higher education has come a discussion and research on issues related to distance education. The NCES survey of post-secondary institutions in 2003 noted that only a few respondents were concerned about faculty workload or professional development needs of faculty to teach courses in this new online environment. Palloff and Pratt (1999) note that faculty issues surrounding instructional design and technology applications in e-learning environments need to be resolved prior to launching online programs. Nearly a decade has passed since Palloff and

Pratt called for more research on the effectiveness of instructional strategies for building collaborative learning environments.

How have scholars responded to these calls for additional research into distance education? A content analysis of published material on distance education (Lee, Driscoll, & Nelson, 2004) examined key words in topics and methodologies to determine what areas received the most attention in the literature. From 1997 through 2002, the research indicates the following key words appeared most often: "...interaction, learners, perception, collaboration, videoconferencing, program evaluation, and faculty support..." (Lee, et al., p. 229). There are some limitations noted by Lee, et al., in that the majority of research methodologies are either purely descriptive or qualitative case studies, which may restrict widespread generalizations. More recently, the lack of empirical research to support the development of best practices in instructional strategies for distance education was noted by Bray, Harris and Major (2007). Another content analysis study of e-learning literature key concepts noted that "instructional approaches, learning environment, and metacognition" were the three most common topics identified (Shih, Feng, & Tsai, 2008, p. 955). Finally, a review of distance education trends in higher education (Moller, et al., 2008a) argued that training and course development issues, among others, are essential "to ensure the highest level of faculty performance in e-learning..." (p.69). There is no shortage of research on issues in distance education, but is there consensus for the question of what are the most effective instructional strategies in e-learning environments?

Purpose and Scope

The purpose of this paper is to examine the types of instructional strategies that are appropriate and effective in e-learning environments for today's adult learners. This review explores the research literature from 2001 to the present to identify the effective strategies that instructors and instructional designers should utilize. A focus on identifying and enumerating the best practices from the literature is also included.

Research Questions

To identify the best practices among instructional strategies in e-learning environments with adult learners, there are a number of specific questions to be addressed.

- How does the literature on adult learning shape instructional strategies in online education?

- What conclusions can be drawn from the literature on effective instructional design in e-learning environments?

- How does the literature from adult learning and instructional design shape future developments in e-learning practices?

These research questions have guided the choice of literature reviewed and how the paper is organized.

METHODOLOGY

Databases for the Literature Review

Twelve electronic databases were selected from the UNI Rod Library for this literature review. Specifically, the following databases were used: Education Full Text (Wilson), ERIC (EBSCO), Expanded Academic ASAP, now known as Academic OneFile, Google Scholar, JSTOR, Professional Development Collection (EBSCO), Psych Articles (APA), Psych Info (Silver Platter), SAGE Journals Online, Science Direct (Elsevier), Springer Link, and Synergy (Blackwell). The intent was to cast a wide net to identify applicable peer-reviewed research articles, current data, and monographs across disciplines. Additional parameters were used to restrict searches to the time period 2001-2008, and for works published in English.

Keyword Descriptors

A variety of keyword descriptors were used in searching the above databases: adult learners, andragogy, asynchronous learning, collaborative learning, distance education, e-learning, future trends higher education, instructional strategies, motivation, online learning, and self-directed learning. The descriptors that were the most useful were andragogy, collaborative learning, distance education, instructional strategies, motivation, and self-directed learning.

Evaluation of Sources

There were several procedures used to analyze the credibility, validity, and reliability of the sources that were identified during the search process. First, all database article searches were limited to peer-reviewed journals. Second, the review process used by each journal was verified by examining the submission requirements posted on the

journal's homepage as well as the journal's publicly stated acceptance rate, if such was available. In most cases, articles used in this literature review are from journals that employ a blind-referee review process with multiple reviewers and with acceptance rates of twenty-five percent or less. A number of the articles appeared in more than one database search and several of the authors have their works cited multiple times in the work of others. Additionally, the researcher used Google Scholar and the Social Science Citation Index to search for information about authors and the frequency of citation of articles and monographs in other works.

Monographs

In searching for applicable monograph publications, this researcher used several strategies. Seminal works were identified from the UNI Performance and Training Technology program reading list. Second, searches of online databases were done using the Rod Library Catalog, WorldCat, and Google Scholar with the same list of keyword descriptors employed for the article searches. Additional parameters were used to restrict searches to the time period 1998-2008, and for monographs published in English. Third, reference citations were examined from the peer-reviewed articles and those authors whose work appeared multiple times were examined. Additional works were included in the bibliography based on recommendations from faculty advisors.

Author Validation

There were several procedures used to analyze the credibility, validity, and reliability of these author(s) and monograph(s). First, author names were compared to the program reading list. Second, searches were conducted using Google Scholar and citation indices to locate information about the author(s) and the citation frequency of their work

in other publications. Third, consideration was given to the nature of the publishing company, seeking those that would be considered mainstream and respected companies. A small number of monographs were eliminated from the review for failure to meet these criteria.

ANALYSIS AND DISCUSSION

Adult Learners

Data from the National Center for Education Statistics indicates that there are increasing numbers of adults enrolling in distance education courses (Allen & Seaman, 2007). Other NCES data reports that adult participation in educational activities continues to be on the rise for both formal and informal learning activities (O'Donnell, 2006). What are the needs of the adult learner? This section will examine what the literature says about important characteristics associated with the adult learner. This will include an examination of adult learner characteristics and learning contexts, the model of andragogy developed by Knowles, and the First Principles of Motivation developed by Keller.

Characteristics and Contexts

Models of systematic instructional design emphasize the importance of understanding the characteristics of the learners, as well as the learning context. Knowing as much as possible about learners while designing instruction will beneficially impact the end results (Dick, Carey, & Carey, 2005).Huang (2002) notes that "…adult learners always bring their unique learning characteristics to the learning situation, so an effective instructor should recognize learners' characteristics to help them learn best" (p. 27). Many other researchers have also concluded that understanding learner characteristics and contexts is an essential step in the analysis phase of the design process (MacKeracher, 2008; Merriam, Caffarella, & Baumgartner, 2007; Moore & Kearsley, 2005; Taylor, Marienau, & Fiddler, 2000).

White and Bridwell (2004) expanded upon this concept when they wrote "it is critical that educational leaders assess the learner needs and their learning processes before designing distance education offerings" (p. 274). Effective instructional design requirements are heightened when e-learning is added to the mix. As Moore and Kearsley (2005) explained, "…an understanding of the nature of adult learning is an invaluable foundation for understanding the distance learner" (p. 161). A number of other researchers have reached similar conclusions about the importance of understanding the characteristics and contexts of learners in e-learning environments (Conrad & Donaldson, 2004; Morris, Xu, & Finnegan, 2005; Palloff & Pratt, 1999; Simonson, Smaldino, Albright, & Zvacek, 2006; Xu & Morris, 2007).

The evolving role of instruction with adult learners has been described a number of ways by researchers. Galbraith (2004) suggested that "… picking a metaphor such as a spiral or mobius strip to describe your instructional role will assist you in understanding the process of helping adults learn is continuously evolving and changing" (p. 3) highlighting that there are no beginning or ending points in the process. Moore and Kearsley (2005) noted that a disregard of the multidimensional nature of distance teaching can cause problems with distance education. Herring and Smaldino (2005) explain that the format of the class and the instruction can be improved by the instructor learning more about the diverse nature of the students. More recently Moller, Foshay, and Huett (2008b) remarked that what worked in the *craft approach* in traditional face-to-face classroom instruction does not always translate into effective instruction in online learning environments.

It is not simply a matter of the faculty member's content knowledge. Not only is there a pedagogical difference, but also the inclusion of technology often requires new skill sets, new ways of thinking, new time and resource management skills, and new communication boundaries, additional workers, and interdepartmental coordination.... (p. 68)

Another perspective on the evolving role offered by Shea, Fredericksen, Pickett, and Pelz (2004), who use the term *teaching presence* to describe three distinct instructor roles: "...instructional design and organization, facilitating discourse, and direct instruction" (p. 355).Teaching adults in e-learning environments challenges designers to evolve and change instructional practices and beliefs to meet the needs of adult learners.

Andragogy

No one single theory is put forth to define adult learners, but for many researchers the contributions from Malcolm Knowles' work on andragogy is described as a dominant viewpoint for instructional designers (Blondy, 2007; Merriam, et al., 2007; Moore & Kearsley, 2005). Merriam (2001) remarked that andragogy is one of "two pillars of adult learning theory" (p. 3). Some authors go even further to posit that andragogy is a key theory for distance education (Simonson, et al., 2006).

Knowles (1980) acknowledges that he is not the inventor of andragogy, but was simply bringing together and expanding upon ideas that have been in existence for centuries. He points out the even the great teachers of ancient times were teachers of adults. Over time Knowles, along with Holton and Swanson, refined the andragogical model by enumerating the following principles:

- Need to know: Adults want and need to know why it is important to learn something before beginning the learning process. The instructor serves as a facilitator to raise awareness among learners for the value in knowing. Knowles, Holton, and Swanson (2005) note, "even more potent tools for raising the level of awareness...are real or simulated experiences in which the learners discover for themselves the gaps between where they are now and where they want to be" (p. 65).

- Self-concept: Adults see themselves as responsible for their own decision-making. Knowles et al. (2005, p. 65) observed that adults desire engagement with others and need to be treated being responsible to direct their own learning. Instructors have a responsibility to foster rich learning environments for adult learners to become increasingly self-directed

- Life experiences: Adults bring a diverse background of experiences to the learning environment that need to be affirmed. Knowles (1980) encouraged instructors to tap into this reservoir of experience by encouraging learners to share these life experiences to enhancing the learning.

- Ready to learn: Learning becomes important when there is an immediate application to real-world problems that adult learners are facing. Knowles (1980) suggested that the instructor has the responsibility to gauge the timing of learning activities to match the with the readiness of learners to advance to the next level of development. Other researchers describe the instructional strategy as building scaffolds for the learner to advance to the

next level (Huang, 2002; Keeton, 2004; Moore & Kearsley, 2005; Nevgi, Virtanen, & Niemi, 2006; Palloff & Pratt, 2005; Simonson, et al., 2006).

- Problem-solving orientation: Adults want to learn when they know that it will help them in everyday life situations. Knowles (1980), commented that adults are problem-based learners. Instructors should encourage problem-centered learning with authentic learning tasks to sustain the learning environment (Merrill, 2007).

- Motivation: Learners respond to incentives, but for adult learners the most successful motivators are intrinsic(Knowles, 1980). Instructors can foster this intrinsic motivation by helping learners set challenging and proximal goals. Achieving goals set by learners as opposed to goals set by the instructor adds to the students' self-esteem (Artino, 2007, 2008; Keller, 1987, 2008).

Taken together these six principles of andragogy from Knowles (1980) work provides a framework for instructors to utilize in understanding the characteristics of adult learners. Instructors "...should recognize that the richest resources for learning reside in adult learners themselves; therefore, emphasis in adult education should focus on experiential techniques that tap into the experience of learners..."(Ota, DiCarlo, Burts, Laird, & Gioe, 2006, p. 3). This andragogical model offers instructors diverse alternatives for enhancing the learning environment with adult learners. Simonson, et al. (2006) go further to suggest that Knowle's model provides a framework for designing e-learning programs.

Motivation

Models of systematic instructional design emphasize the importance of motivating learners. The lack of interest and appeal to learners of instruction and instructional materials results in loss of motivation. (Dick, et al., 2005). Wlodkowski (2008) concludes that "motivation is important not only because it apparently improves learning but also because it mediates learning and is a consequence of learning as well" (p. 6). Many other researchers have concluded that understanding motivation is another essential step in the design of instruction (Driscoll, 2000; Keller, 1987, 2008; Knowles, et al., 2005; Simonson, et al., 2006; Wlodkowski, 2004; Zimmerman, 2008).

Visser, Plomp, Amirault and Kuiper (2002) concur that instructors and instructional designers in e-learning environments must "…understand motivational principles and be able to apply validated motivation-enhancing techniques to overcome the frequent motivational issues surrounding the distance learning community" (p. 95). There are researchers who view motivation as one of the causes for the lack of student persistence to complete post-secondary distance education courses (Artino, 2008; Keller, 2008; Paas, Tuovien, vanMerriënboer, & Darabi, 2005; Simonson, et al., 2006; Visser, et al., 2002).

Keller's (1987) ARCS model of motivation represents a systematic approach to identifying and solving motivational problems that occur within instructional design as well as with learners. Keller notes, "the ARCS model includes a systematic design process. It can be conveniently separated into the steps of define, design, develop, and evaluate" (p. 3). More recently Keller (2008) noted that "…it is possible to list First Principles of Motivation that are common to all learning settings" (p. 176). This approach

is patterned after Merrill's (2002) First Principles of Instruction. Keller's (2008) First

Principles of Motivation include: (a) attention, (b) relevance, (c) confidence, and (d)

satisfaction; and (e) persistence.

- Attention: To gain the attention, the instructor can use statements or pose

  questions designed to raise learners' curiosity in a topic. To sustain

  learners' motivation instructors and instructional designers are encouraged

  to use problem-solving activities combined with simulating visual images

  in media.

- Relevance: Relevance is established when learners' goals and previous

  experiences connect with experiences from the present learning

  environment. Instructors should use strategies that make connections

  between content and the learning environment to the learner's past and

  present experiences.

- Confidence: Confidence is built when learners have positive learning

  experiences. Recognizing small achievements can be used to build

  confidence for learners to attain larger goals. Other researchers have

  concluded that instructional practices that build and maintain learner

  confidence are essential in e-learning instructional design (Artino, 2007,

  2008; Keller, 2008; Lim, Morris, & Kupritz, 2007; Paas, et al., 2005;

  Rodriquez, Ooms, & Montañez, 2008; Visser, et al., 2002).

- Satisfaction: Satisfaction is, in part, a result of the previous three factors

  and that when learners experience satisfaction it fosters continued

  motivation in the learning process (Keller, 1987, 2007, 2008).

Instructional practices that provide for positive external rewards (extrinsic) and encouraging students to recognize their internal forces (intrinsic) of motivation are suggested by researcher's as important in achieving satisfaction in e-learning environments (Artino, 2007, 2008; Keller, 2008; Lim, et al., 2007; Paas, et al., 2005; Rodriquez, et al., 2008; Visser, et al., 2002).

- Persistence: Persistence means learners' stay motivated even in the face of obstacles to the completion of a task. Keller notes that it is important for instructors to utilize strategies that assist the learner in "overcoming discouragement and attrition" (2008, p. 178). Several researchers have concluded that instructional practices that provide regular communication, encouragement, and meaningful feedback are essential in e-learning environments to improve persistence among learners (Artino, 2007; Lim, et al., 2007; Paas, et al., 2005; Rodriquez, et al., 2008; Visser, et al., 2002).

The literature contains several examples in which sound motivation strategies are necessary for a complete and effective instructional design. Furthermore, the challenges of e-learning environments heighten the need for instructors and instructional designers to follow a systematic process of design with respect to motivation (Keller, 2007, 2008; Simonson, et al., 2006; Wlodkowski, 2008).

Summary

The research literature is clear that instructors and instructional designers working with adult learners must address important issues that affect the learning process. Being a subject matter expert is not a sufficient prerequisite for creating an effective learning

environment. In addition, the research literature has linked the understanding of the characteristics and contexts of learners to the andragogical model. The study of andragogy is important in the creation of collaborative learning environments. Some scholars go further by advancing the idea that the andragogical model provides a basic framework for designing instruction in today's e-learning environments (Galbraith, 2004; Moore & Kearsley, 2005; Simonson, et al., 2006).

Herring and Smaldino (2005) advise instructors and instructional designers that planning is critical for distance education courses. Online learning environments are multidimensional so the instructional designer is challenged to be a change agent in designing practices that meet the needs of adult learners (Conrad & Donaldson, 2004; Galbraith, 2004; Moller, et al., 2008a; Moore & Kearsley, 2005; Palloff & Pratt, 2005). The literature supports the idea that instructional strategies that focus on the learning environment are critical for adult e-learners. Researchers have identified instructional strategies in which the instructor role is one that: (a) facilitates learners to discover her or his knowledge, skill, or ability gaps; (b) assists learners in becoming more self-directed; (c) affirms the diverse life experiences of learners; (d) engages learners in authentic problem-centered tasks that have immediate application and use; (e) supports learners in rising to the next level of achievement; and (f) aids learners in developing and achieving their learning goals. (Huang, 2002; Keeton, 2004; Morris, et al., 2005; Nevgi, et al., 2006; Palloff & Pratt, 1999, 2005; White & Bridwell, 2004).

The research in e-learning environments has demonstrated that motivation principles are an essential component in the instructional design process (Artino, 2007; Keller, 2008; Lim, et al., 2007; Paas, et al., 2005; Rodriquez, et al., 2008; Simonson, et

al., 2006). Researchers have identified a wide variety of instructional strategies to enhance learner motivation in e-learning environments. These instructional strategies should include (a) problem-solving activities; (b) connecting learning to learners' goals and experiences; (c) external and internal rewards; (d) frequent communication; (e) collaboration; (f) encouragement; and (g) meaningful feedback in a safe learning environment (Artino, 2007; Bender, 2003; Keeton, 2004; Keller, 2008; Paas, et al., 2005; Rodriquez, et al., 2008).

Instructional Design

There are a number of instructional design models that have been advanced by scholars for a designing effective instruction for adult learners in e-learning environments. Many of the models are asynchronous in nature, meaning that the instructor and student are separated by time and place with technology providing the common link (Gibbons & Wentworth, 2001; Huang, 2002; Jameson, Ferrell, Kelly, Walker, & Ryan, 2006; Moallem, 2003; Palloff & Pratt, 1999; Strijbos, Martens, & Jochems, 2004; Tu & Corry, 2003). Today's generation of asynchronous learning environments makes use of web-based media to connect learners to each other as well as to their instructor. This section will examine the literature discussion on the paradigm shift that has occurred in e-learning toward creating learner-centered environments.

A New Paradigm for Instruction

In the online environment, the role of the instructor is often described as that of a facilitator. However, the role of the facilitator is not one to be taken lightly. "When teaching and learning leave the classroom, it is up to the instructor to create a container within which the course proceeds..." (Palloff & Pratt, 1999, p. 17). The instructional

strategies selected by the facilitator have a significant impact on whether or not a collaborative e-learning environment is created. Moallem (2003) noted that developing an online course that uses instructional strategies to encourage student exploration and reflection required significantly more time in each of the instructional design phases. He goes on to note that the type of technology used in the environment can impact the instructor's ability to focus on roles that are learner-centered. It can not be assumed that all instructors have the same understanding or view of the instructor's role as facilitator. Morris, Xu, and Finnegan (2005) found the following:

> ... although almost every instructor claimed to be a facilitator in the online course, the frequency and type of participation online varied dramatically. Clearly, the instructors held different opinions about what it means to facilitate and what the responsibilities are in the facilitation of discussion in this environment. (p. 76)

Similar sentiments were described by Su, Bonk, Magjuka, Liu and Lee (2005b) in their evaluation of an online MBA program and Keeton's (2004) Phase I report of the best online instructional practices.

Collaborative Environments

Instructors have a wide-ranging view of collaboration in e-learning environments. While some of the differences can be explained by subject matter uniqueness, there is no clear consensus in the literature about defining collaboration. Schellens and Valacke (2006) offer this concise explanation of collaborative work: "collaborative work requires bringing together information, ideas, solutions, and opinions that are not always compatible with one another" (p. 350). Moallen (2003) concluded from his analysis that

"collaborative learning tasks should be carefully designed and developed if they are to promote construction of knowledge through discussion and conversation" (p. 100). Researchers point to the importance of collaboration in e-learning environments (Bender, 2003; Blondy, 2007; Huang, 2002; Moore & Kearsley, 2005; Oosterhof, Conrad, & Ely, 2008; Steinbronn & Merideth, 2008). Lou, Bernard and Abrami found in their meta-analysis of distance education literature that collaborative learning was especially important in asynchronous environments to improving student performance (Lou, Bernard, & Abrami, 2006).Works by Palloff and Pratt (2005), and Conrad and Donaldson (2004) have been identified as important examples of literature with strategies for building online collaborative learning environments (Blondy, 2007; Oosterhof, et al., 2008).

     Stages of Collaboration. Palloff and Pratt (Palloff & Pratt, 2005) have outlined a process for designing collaborative activities for e-learning environments. Building a collaborative e-learning environment does not happen overnight and it requires the instructor to step back and allow the learners to engage in their own approaches to complete the activity. Attention must be paid to building a learning community before introducing activities that require collaboration. The process developed by Palloff and Pratt (2005) for designing online collaborative experiences requires the following steps:

- Set the stage: Learners need to understand "… the importance of collaborative work…" as well as the establishment of "…guidelines for completing the work" (p. 20). For example, instructors need to communicate clearly to students, what and how interactions with e-

learning tools will take place. A common example would be the protocols for conducting a threaded online discussion.

- Create the environment: Learners need to "...have a place to meet and know the parameters of how they should connect" (p. 21). Instructors need to communicate parameters that guide the interaction among learners. For example if learners are working in small groups what is the expected means of group communication and interaction? An instructor might want to specify the use of a collaborative online tool on which the group work should take place such as email, chat room, discussion board, etc.

- Model the process: Learners need to have the process of collaboration demonstrated by the instructor but leave room for learners to "...negotiate some of the parameters within which they will work with one another and the instructor..." (p. 22). Instructors need to model behaviors with online tools that they expect learners to emulate. An instructor might facilitate an online discussion thread at the beginning of a course so that learners can assume that role later in the class.

- Guide the process: Learners will need guidance as they progress through the collaborative activity. The instructor should communicate in advance "...how he or she plans to guide the activity while giving learners the sense of confidence they need to more forward" (p. 23). For example, if an instructor is using moderated discussion threads with learners engaging one another, the instructor should make clear what role she or he will have in the discussion. In some examples the instructor may be an observer,

may interject if support and guidance is needed to get back on task, or may

take a more active role in the discussion

- Evaluate the process: Learners should be encouraged to engage in

  reflection as part of the debriefing process of an activity. The instructor

  should include learner "...self-assessment as a critical component of

  performance in an online course containing collaborative activity" (p. 24).

The literature has many examples of collaboration activities that utilize this collaborative

process outlined by Palloff and Pratt (For specific examples, see: Artino, 2008; Huang,

2002; Keeton, 2004; Moallem, 2003; Morris, et al., 2005; Schellens & Valcke, 2006; Su,

Bonk, Magjuka, Liu, & Lee, 2005a).

Palloff and Pratt (2005) recognize that there will be challenges faced by

instructors as they implement collaborative e-learning activities. However, they note that

"we should never be afraid to try new and innovative ways of creating collaboration.

Even if we fail, we learn from that failure, and that learning informs and enhances our

teaching the next time around" (p. 99). The literature has many examples available for

instructors and instructional designers to use in building collaborative learning events

into e-learning environments with adults.

Phases of Engagement. Another approach to designing collaborative instruction is

the Phases of Engagement model from Conrad and Donaldson (2004). This model is

designed to help learners transition into being active members of a collaborative learning

community. The instructor's facilitator role steps back as learners assume more

responsibility for engaging one another in the learning environment (Conrad &

Donaldson, 2004).

The Phases of Engagement model has four distinct phases for an instructor to use to assist learners immersing themselves in collaboration. The phases are:

- Phase One: The instructor's role is that of a "social negotiator" and the learner's role is that of a "newcomer" (p. 11) to the community. Collaborative activities that are introduced in this phase are designed to foster community building such as icebreakers or team building exercises. The instructor discusses expectations and guidelines for online engagement and interaction on discussion boards or in a virtual lounge

- Phase Two: The instructor's role is that of a "structural engineer" while the learner's role shifts to a "cooperator" (p. 11). Collaborative activities utilized in this phase are designed to promote sharing of ideas and reflection. The goal in this phase is to pair learners together in cooperative activities such as peer review or debriefing an activity.

- Phase Three: The instructor's role is that of a "facilitator", while the learner's role transforms to "collaborator" (p. 11). Collaborative activities utilized in this phase are designed to engage learners in problem-solving, critical thinking and reflection. The goal in this phase is for learners to work in small groups and engage in discussion threads, role plays or debates.

- Phase Four: The instructor's role is that of a "community member/challenger, while the learner's role has become one of "initiator/partner" (p. 11). Collaborative activities utilized in this phase are

designed and led by the learners. The goal in this phase is for learners to

work together on group presentations and projects.

Implementing the Phases of Engagement model assumes that the instructor has

taken time to understanding the characteristics and contexts of the learners as

described previously in this review. The time period for moving through each

phase of the model must be flexible and dependent upon the characteristics of the

learning environment (Conrad & Donaldson, 2004).

Effective Strategies

There are a number of ways researchers have categorized effective instructional

strategies in e-learning environments. Keeton's (2004) work used eight principles

distilled from a meta-analysis of over twenty years of research in higher education. These

principles are:

> (1) Make learning goals and paths to them clear, (2) Use deliberate practice and
>
> provide prompt constructive feedback, (3) Balance challenge and support to
>
> individual readiness, (4) Broaden the learners' experience base, (5) Elicit active
>
> and critical reflection by learners on their growing experience base, (6) Link
>
> inquiries to genuine problems of high interest to learners. (7) Develop student's
>
> effectiveness as learners, and (8) Contribute to an institutional environment
>
> encouraging inquiry. (pp. 96-98)

Morris, Xu, and Finnegan (2005) analyzed course materials and archived online

discussion threads from thirteen instructors representing eleven different institutions from

courses taught during 2003-04. The researchers classified the instructional strategies used

by instructors as (a) pedagogical, (b) social, or (c) managerial based. Other scholars have

not attempted to group instructional strategies, but rather relied on the analysis from instructor and/or learner data sets to determine the most effective strategies (Moallem, 2003; Puntambekar, 2006; Su, et al., 2005b; Young, 2006).

Synthesizing the findings from these research articles, (Dewiyanti, Brand-Gruwel, Jochems, & Broers, 2007; Keeton, 2004; Moallem, 2003; Morris, et al., 2005; Puntambekar, 2006; Schellens & Valcke, 2006; Su, et al., 2005b; Young, 2006) there are six common themes for providing effective online learning environments. Instructional strategies that create effective online learning environments should:

1. Have clearly articulated policies and procedures that the instructor models throughout the duration of the course. These include course-learning objectives, expectations for group processes and group conduct, well-defined task structures, and overall course organization.

2. Strike a balance between individual and group assignments. For example, individual assignments can be used as a precursor for a collaborative group assignment or task.

3. Make extensive use of problem-based or case-based assignments. The use of problem-based or case-based assignments is designed to develop critical thinking skills and/or problem-solving analytical skills. A number of the authors advocate real-world applications be used, as much as possible, in these assignments.

4. Employ a wide array of technology applications for student interaction. Examples include text-based electronic documents, web links, PowerPoint slides, video and/or audio clips, email, discussion boards, chat utilities, and even voice and video conferencing.

5. Make extensive use of discussion threads to develop, refine, and summarize ideas. To aid in collaborative discussions, some instructors use reflective journaling assignments to assist learners in preparing for participation in discussion threads, while other instructors emphasize the importance of policies and procedures that guide learner involvement through a threaded discussion.

6. Develop good communication skills and interactivity to foster a collaborative learning community. Both the instructor and the learners need to model good communication skills throughout the duration of the course.

In each of these themes the instructor and instructional designer need to concentrate on ways to facilitate the learning process for adult learners in e-learning environments.

Jacobs and Dempsey (2007) note that distance education presents challenges in dealing with technological change by "...forcing instructional design, comfortable in its traditional models, to move to address these astounding changes" (p. 332). Moller, Foshay and Huett identify these changes as "...issues surrounding student interactions, course content design and delivery, multiple levels of communication, defining new types of assignments and performance expectations, and different assessment and evaluation techniques" (Moller, et al., 2008a). There is no shortage of examples for effective instructional strategies to use with adult learners in e-learning environments as the literature demonstrates (For examples, see: Dewiyanti, et al., 2007; Huang, 2002; Keeton, 2004; Moallem, 2003; Morris, et al., 2005; Palloff & Pratt, 1999, 2005; Puntambekar, 2006; Schellens & Valcke, 2006; Su, et al., 2005b; Young, 2006).

Summary

Instructors and instructional designers are faced with a number of challenges in today's e-learning environments. Fostering learner-centered, collaborative learning environments requires instructors and instructional designers to change the instructor role from that of a *sage on the stage* to that of a *guide on the side*. The research literature has abundant examples of effective instructional strategies to assist in that transformation of the online learning environment.

Future of e-Learning

Design Teams and Training

Several researchers have addressed the need for institutions engaged in online learning to provide training and support for instructors by creating instructional design team. (Gibbons & Wentworth, 2001; Jafari, McGee, & Carmean, 2006; Keeton, 2004; Moller, et al., 2008a; Morris, et al., 2005; Samarawickrema & Stacey, 2007; Su, et al., 2005b). Palloff and Pratt (2001) note that "faculty cannot be expected to know intuitively how to design and deliver an effective online course" (p. 23). Moller, Foshay and Huett (2008a) challenge instructional designers to "...be at the forefront of creating cost-effective models and tools for distance education" (p. 69). As this review has noted, the process of designing effective instruction for adult learners in e-learning environments requires change to overcome existing barriers to e-learning (Allen & Seaman, 2007; Bray, et al., 2007; Samarawickrema & Stacey, 2007; Waits & Lewis, 2003). Moller, Foshay and Huett (2008a).summarize the issue by noting that "...if distance education is to become mainstream with continued productivity, we need to begin to clearly address e-learning issues such as course development, salary, workload, intellectual property rights,

and promotion and tenure" (p. 69). The literature suggests there are no easy answers for many of these issues at this time.

Emerging Technologies

Several researchers have noted the impact globalization and economic development has had on workforce needs for the 21st century. Conclusions from the literature point to a paradigm shift in how we approach instructional design (Allen & Seaman, 2007; Christen, 2008; Dede, 2004a; Moore & Kearsley, 2005; Waits & Lewis, 2003). Dede notes that "transformational learning of the 21st century skills requires a strategy of infusing learning communities throughout students' lives – orchestrating the contributions of many knowledge sources embedded in real-world settings outside of schools, but with teachers still in central roles as facilitators and interpreters" (2004a, p. 16). He continues that emerging instructional technologies have played a role in this transformation and paradigm shift. Increasingly, these emerging technologies allow for activities that increase engagement and interaction among learners.

Some researchers have noted that new expectations have been created among learners, technology, and learning environments. (Bray, et al., 2007; Jafari, et al., 2006). Prensky's (2001) work that coined the phrases *digital natives* and *digital immigrants* sets the stage for understanding how learners interaction with emerging technologies are changing learner expectations. Prensky (2005) notes that these learners want to be engaged with technology in learning environments – just as they have been with emerging technologies elsewhere throughout their lives. Jacobs and Dempsey (2007) suggests that "...learning in many environments will take place in much different ways in

the future than it has in the past. Research is sorely needed on the effective use of these new technologies of learning"(p. 332).

Researchers have identified a number of emerging technologies that have instructional applications including, collaborative online tools, gaming, mobile learning (m-learning), social networking tools, and virtual worlds, all of which are expected to impact the instructional design process (e.g. Merrill & Wilson, 2007; Molenda & Boling, 2008; Moore & Kearsley, 2005; Rosenberg, 2001; Simonson, et al., 2006). Rosenberg (2001) notes that one of the challenges affecting the future of e-learning will be the need to "reassert instructional and information design" (p. 307). It is clear from the literature that technological advances have and will continue to change the nature of e-learning environments. In examining the future of e-learning, Rossett and Sheldon ask the question "how much brick and how much click"(2001, p. 281). In other words, will post-secondary education and training continue to focus on the traditional brick and mortar approaches to instructional design or will computer technologies reshape the approach to instructional design in e-learning environments. Emerging instructional technologies continue to change the face of e-learning environments and researchers need to continue to ask questions about the instructional value of these tools as well as their impact on the systematic design process.

Summary

Two emerging themes on the future of e-learning were examined by a number of researchers. The first trend is the need for comprehensive instructional design teams as well as training for instructors in e-learning environments (Bray, et al., 2007; Gibbons & Wentworth, 2001; Jafari, et al., 2006; Keeton, 2004; Moller, et al., 2008a; Morris, et al.,

2005; Samarawickrema & Stacey, 2007; Su, et al., 2005b). The second trend is the

recognition that new technologies have impacted learning and the instructional design

process. Awareness of these emerging technologies upon the part of instructional

designers in e-learning environments is important for improvements in and the outcomes

from the systematic design process. Educational institutions everywhere are challenged to

adapt to a paradigm that is learner-centered, learner-directed where the instructional role

shifts to facilitation of the process of learning. Emerging technology applications have

expedited the focus. (For example, see: Bray, et al., 2007; Dede, 2004a; Dede, 2004b;

Jafari, et al., 2006; Prensky, 2001, 2005).

CONCLUSIONS AND RECOMMENDATIONS

The growth of e-learning among adult learners has impacted education and training in the United States and around the globe. The research has documented that knowledge of adult learners' characteristics and contexts is important to shift the focus from instructor-directed to learner-centered learning environments. Researchers have shown that attention to how learners learn is essential to creating effective e-learning environments facilitated by the instructor. The literature documents that incorporating motivational strategies into the instructional design improves learner satisfaction and persistence to completion. Designing instruction for e-learning environments remains challenging for instructors and instructional designers, but the literature repeatedly provides rich examples of instructional practices that enhance the learning environment.

There are many facets to facilitating learning among adults and can be described as ones that fosters collaboration, utilizes authentic problem-centered experiences, has real and immediate applications, and is conducted inside a safe, nurturing learning environment. As this review has documented, there exists an evolving set of effective practices available to instructors and instructional designers to select. Instruction is improved when a systematic process is used to analyze, design, develop, deliver, and evaluate. This reviewer believes that everyone should strive to model these best practices in our instructional endeavors.

The research literature contains numerous methodologies and techniques that have been employed to define e-learning environments with adult learners. While caution must be exercised in making broad generalizations from those conclusions, there exists a

wide expanse of published literature to shape the instructional design process and instructional practices.

Yet this body of research is incomplete. While all of the articles examined in this review end with a call for additional research to replicate as well as expand upon what is essential for effective e-learning environments, it is important to note the limitations of the current research – the need for a wider range of disciplines as well as the need for larger participation by students and instructors. To date, no significant longitudinal studies have been published despite the growth of distance courses and online programs in U.S. higher education institutions. This writer concurs with the views expressed in the literature, that further research is merited.

Future trends in e-learning were examined and the research has identified the importance of using instructional design teams to improve instruction in e-learning teams. However instructional designers are challenged to evolve from traditional models of design to one that is learner-centered. In addition to a team approach to designing instruction, training should be a pre-requisite for instructors assigned to e-learning environments. Post-secondary educational institutions should engage in periodic review of the e-learning offerings and align instruction with best practices from the literature.

The challenges posed by the rapidly emerging instructional technologies of today will cause further refinements and changes in e-learning environments. Instructors and instructional designers should continue to look to the literature to guide the shaping of instructional design processes and the selection of instructional strategies.

Today's emerging instructional technologies will continue to foster the evolution of e-learning environments through greater ease for collaboration and interaction among

learners. The paradigm shift to learner-centered and learner-directed approaches in designing instruction holds promises for attaining a true transformation of instruction and learning in the 21st century.

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