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Constructivism and distance education : meeting the needs of adult learners in distance education

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Abstract

This review addresses literature regarding how the implementation of constructivist principles in designing online learning environments can meet adults' needs. This literature review identifies the specific characteristics and concerns associated with distance learning environments. It also explores the usefulness of using constructivism as a means to meet the unique needs of adult learners in distance learning courses. Resources consist primarily of books and articles published from 1995 to the present, dealing with issues of constructivism, andragogy, and distance education.

The topics covered include constructivism, adult learners, and constructivist-based strategies integration with particular attention being paid to the problem-based learning model, scaffolded discussions, dynamic learning communities, and WebQuests. The collaborative nature of problem-based learning, scaffolded online discussion boards, and dynamic learning communities, address many of the needs of adults. The flexibility, authenticity and autonomous nature of the WebQuest address the needs of adults as well. Changes in available technologies and responsibilities of 21st century adults give educators and researchers cause to revisit the founding precepts of andragogy and distance learning. Educators and scholars continue to develop effective and innovative methods of meeting the needs of adult learners.

CONSTRUCTIVISM AND DISTANCE EDUCATION:

MEETING THE NEEDS OF ADULT LEARNERS IN DISTANCE EDUCATION

A Graduate Review

Submitted to the

Division of Instructional Technology

Department of Curriculum and Instruction

In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts

UNIVERSITY OF NORTHERN IOWA

by

Kimberly D. Nicholson

June, 2010

This Review by: Kimberly D. Nicholson

Titled: Constructivism and distance education: Meeting the needs of adult learners in online learning environments.

has been approved as meeting the research requirement for the

Degree of Master of Arts.

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ABSTRACT

This review addresses literature regarding how the implementation of constructivist principles in designing online learning environments can meet adults' needs. This literature review identifies the specific characteristics and concerns associated with distance learning environments. It also explores the usefulness of using constructivism as a means to meet the unique needs of adult learners in distance learning courses. Resources consist primarily of books and articles published from 1995 to the present, dealing with issues of constructivism, andragogy, and distance education.

The topics covered include constructivism, adult learners, and constructivist-based strategies integration with particular attention being paid to the problem-based learning model, scaffolded discussions, dynamic learning communities, and WebQuests. The collaborative nature of problem-based learning, scaffolded online discussion boards, and dynamic learning communities, address many of the needs of adults. The flexibility, authenticity and autonomous nature of the WebQuest address the needs of adults as well. Changes in available technologies and responsibilities of 21st century adults give educators and researchers cause to revisit the founding precepts of andragogy and distance learning. Educators and scholars continue to develop effective and innovative methods of meeting the needs of adult learners.

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INTRODUCTION

Educators are constantly searching for ways to improve interactivity and foster the creation of learning communities in distance education environments. The nature of online courses may provide the flexibility that many adult learners want or need (Allen & Seaman, 2007; Bryant, 2000). It has been noted however, that the availability of technology alone does not guarantee that students will become fully involved in their learning and assimilate the information given in a constructive manner (Lim, 2004). Facilitators and participants both face challenges when engaging in online learning activities. The participatory and authentic nature of activities designed using constructivist philosophies can serve as valuable tools in reaching those goals.

Importance of the Problem

Distance education is becoming more prevalent as an option for undergraduate and graduate students. Between 2002 and 2006 the number of students enrolled in distance education courses increased from 1.6 to 3.5 million (Allen & Seaman, 2007). Institutions often cited improved student access as their primary reason for instituting or expanding online courses and programs. Non-traditional students, specifically adults who are not enrolling in a post-secondary program directly after high school, contribute to community college diversity by enrolling in community colleges so that they may coordinate work schedules and familial responsibilities (Bryant, 2000). These associate degree-granting institutions are responsible for much of the growth in enrollment in online classes (Allen & Seaman, 2007). As enrollment continues to increase, students and instructors can both benefit from any advances that can improve the distance learning experience.

Adult learners are often more isolated from other students, and may lack support systems outside of the classroom (Huang, 2002; Simonson, Smaldino, Albright, & Zvacek ,

2003). One of the reasons learners drop out of distance education courses is due to a lack of support (Simonson et al., 2003). In 2006, academic leaders from 2500 colleges and universities in the U.S. identified lack of self-discipline among students as a barrier to the consistent growth of online learning (Allen & Seaman, 2007). The need for online students to regulate their cognition, motivation, and behavior coincides with the adult learner's need for "self-directed learning and inherent intrinsic motivation" (Knowles, Holton, & Swanson, 1998). Research suggests that the particular type of self-discipline necessary to succeed in online courses is a skill that can be taught (Zimmerman, 2000). An analysis of existing literature identified strategies that can be implemented in online learning environments, including specific activities for instructors, as well as areas where more research would be beneficial.

Scope of the Review

This literature review examines the historical context and evolution of constructivism and investigates the nature and characteristics of distance learning. The needs and characteristics of adult learners will be discussed. Finally, examples of constructivist-based activities and learning strategies will be explored and evaluated according to their potential suitability for use in distance learning and as methods for meeting the needs of adult learners involved in distance education.

Research Questions

This review will discuss literature that addresses three research questions. The questions are:

1. What is constructivism?

2. What are the needs of adult learners?

3. How are constructivist philosophies being integrated into the distance learning

environments to help meet the needs of adult learners?

METHODOLOGY

Sources for this review were located through several means. Databases used for locating articles were Infotrac, ERIC, Google Scholar, Academic OneFile, and Deep Dyve. The University of Northern Iowa's digital catalog UNISTAR was used to locate books that were relevant to the subject matter being researched. Keyword searches using the following descriptors: (a) constructivism, (b) andragogy, (c) distance learning, (d) constructivism and education, (e) graduate education, (f) higher education, (g) asynchronous learning, and (h) adult learners were performed.

Once located, journal articles were evaluated based upon several criteria including relevance to the topic, timeliness, and reliability. Articles more than 20 years old were discarded due to consistent references to archaic technologies. Peer reviewed professional journals were included in the review. Seminal works by experts in the field, such as Knowles, are included in the review even though they are older than other sources.

ANALYSIS AND DISCUSSION

This review will examine the relationship between adult learners, constructivism and online distance education. A brief summary of the literature regarding the history of modern constructivist thought will be presented. The needs and characteristics of adults as learners will be discussed. Examples of activities and methodologies illustrating the implementation of constructivist-based strategies in online courses will be explored.

Constructivism

There are many differing definitions of what exactly constitutes constructivism. The first theories of constructivism originated with Dewey, Piaget, and Vygotsky (Wilson & Lowry, 2000.) Their theories were theoretically based. Constructivism was considered one of many different theories of cognition (Wadsworth, 1996). Application was not a consideration. Modern scholars, however, introduced the practical application of theories to introduce constructivism into education. Tenenbaum, Naidu, Jegede, and Austin (2001) observed student responses to constructivist-based activities in electronic discussion groups, as well as mediated discussions via telephone. Their students deduced that constructivism was about "making meaning and not the incorporation of pre-existent and pre-determined performance-based criteria" (Tenenbaum et al., 2001, p. 94). Levy (2003) focuses on the active construction of meaning by learners when discussing constructivism, while Jonassen (1997) identifies the learner's personal experiences as one of the key constructivist features. Vrasidas (2000) concedes that knowledge cannot exist without the learner. The building blocks of the constructivist philosophy are the learners, their experiences, and their interpretations.

Constructivists also see knowledge and learning as the result of adaptation and assimilation of experiences and interactions. Tenenbaum et al. (2001) describe knowledge as

a mental entity actively constructed by the learner based on immediate learning and wider social environments, while according to Levy, "Constructivist epistemology rests on the assumption that people construct meaning actively within situated contexts of social interaction involving a complex range of factors such as language, history and ideology" (2003, p. 89). This view acknowledges that no two realities are the same because they are recognized through the filters of the individual's lives. Driscoll (2000), however, extends the temporal aspects as she states that constructivism rests on the belief that learners create new knowledge as they combine new and old experiences. She emphasizes learning in context and epistemic fluency. Jonassen (1997) consolidated the field by identifying seven key features of constructivism:

1. Ethos/environment ;
2. Nature of subject matter (realistic/real world; theoretical);
3. Learner's personal experiences;
4. Learner-learner interaction (encouraged; not sought; encouraged and tutor participation);
5. Learner "thinking aloud" (encouraged; not sought or encouraged);
6. Tutor feedback on contributions (positive and encouraged; negative or dismissive);
7. Attention to thinking skills and understanding.

Both Wenger and Tennant (as cited in Levy, 2003) found that a constructivistapproach "leads to a commitment to participatory and dialogic approach to learning design and facilitation including an interest in facilitating participation in learning communities or in knowledge-building communities of practice" (p. 93). Within these communities many contradictory ideas may exist at the same time. Some of these differences may include varied emphases on

individual thought processes and social aspects of learning as well as issues involving learner autonomy (Levy, 2003). Wilson (1997) defines constructivism as "an underlying way of thinking that informs instructional decisions and activities—but does not imply specific strategies" (p. 4). He also suggests that activities, and instructional strategies may be constructivist in nature but constructivism is not and does not refer to a single specific activity. Other researchers have also adopted the paradigm of constructed knowledge. According to Vrasidas (2000), knowledge cannot exist without the learner. In an attempt to find a consensus about what constructivism means, Tenenbaum et al. (2001) examined the results of a 6-week electronic discussion. The participants in the discussion were part of a special interest group from the Research of the Open and Distance Learning Association of Australia. One of the participants in the study pointed out that it is a "refusal to view truth or knowledge in a reified sense that clearly distinguishes the constructivist epistemology" (p. 93). The students also suggested that the social negotiation of meaning and the veracity of knowledge were the most significant epistemological processes in operation within a constructivist paradigm. It was also mentioned that constructivist-based learning environments should be interactive, collaborative and should encourage students to be self-reflexive (Tenenbaum et al., 2001).

Based on information gleaned from the discussion boards used by her students Tenenbaum et al. expanded Jonassen's principles based on observation of students. Learner contributions to tutorials (publicly valued; not valued, not sought) were integral to interactions in the online learning environment. This is distinctive because it advances the level of student interactions beyond participation; with learner contributions to tutorials the students take an active role in the instructional design process. (Tenenbaum et al., 2001)

According to von Glasersfeld (1996), the key idea that sets constructivism apart from

other theories of cognition was introduced about 60 years ago by Jean Piaget. He believed

what we call knowledge was more than a process involving the collection of facts about an

independent reality; instead Piaget asserted that knowledge and learning have a more

adaptive function. Long ago, Dewey, Piaget, and Vygotsky advocated for a constructivist or

meaning-centered approach to learning and teaching (Wilson & Lowry, 2000). Regarding this

concept, it is important to remember that students may perceive things in a radically different

fashion than facilitators intend and that from a purely constructivist standpoint even language

is not concrete (von Glasersfeld, 1996). As a mission statement for constructivist learning

Wilson and Lowry (2000) quote Greeno:

> We need to organize learning environments and activities that include opportunities
>
> for acquiring basic skills knowledge and conceptual understanding, not as isolated
>
> dimensions of intellectual activity, but as contributions to students' development of
>
> strong identities as individual learners and as more effective participants in the
>
> meaningful social practices of their learning communities in school and elsewhere in
>
> their lives. (¶14)

The most commonly referenced characteristic of constructivist ideology is that

learning must be constructed (Driscoll, 2000; Levy, 2003; Tenenbaum, et al. 2001). Learners

must reference their own past experiences as they integrate new experiences to create

knowledge (Driscoll, 2000). This knowledge is created through active participation in

authentic activities (Jonassen, 1997).

Adult Learners

The majority of educational research has traditionally focused on the needs of

children in primary and secondary schools to the exclusion of those adults who are beginning

or continuing their education. Recently, increases in overall enrollment in post-secondary

educational institutions and growing numbers of adults who are seeking to change careers or to return to school later in life have sparked renewed interest in the idea of adults as students. Uehling (1996) noted that even traditional students were dealing with many of the challenges that are attributed to adult learners such as juggling work and family responsibilities providing another reason for examination of the adult student. However, the concept of the adult learner as unique is not new. Alexander Kapp used the word, *andragogy,* in 1833 when referring to the educational philosophy of Plato (as cited in Friestad, 1988). In 1969, Liveright and Haygood described adult education as:

> … a process whereby persons who no longer attend school on a regular full time basis...undertake sequential and organized activities with the conscious intention of bringing about changes in information, knowledge, understanding, or skill, appreciation and attitudes; or for the purpose of identifying or solving personal or community problems. (As cited in Courtney, 1989, p. 17)

Adult learners have unique learning characteristics. The profile of an adult as presented by available research describes an individual who is "highly motivated, having practical reasons to learn and bringing to the classroom a wealth of life experience" (Uehling, 1996, p. 64). Adults must meet the demands of jobs and personal schedules which may make it difficult to attend traditional classes (Huang, 2002). Knowles' original theory of andragogy was based on four principles: self-direction, experience as a resource, the integration of willingness to learn, and social role and problem centeredness. Over time these evolved into seven principles. The principles of andragogy are:

1. Learners' need to know

2. Importance of topic and how learning will occur

3. Self directed learning

4. Prior experience is very important

5. Readiness to learn based on need/life experience

6. Orientation: problem -solving preferred

7. Motivation: intrinsic based on need to apply knowledge to solve life problems.

(Knowles et al., 1998, p. 133)

Knowles' work describes andragogy as a life-centered, task-centered, or problem-centered orientation to learning that with more research could become a unifying framework for adult education. Knowles recommends andragogical methods for the majority of adults in most learning situations

Merriam and Caffarella (1999) describe the profile of Knowles' adult learner as an individual who is "autonomous, free, and growth oriented" (p. 275). Friestad (1998) found that research focusing on the differences between adults and children as learners found that adults presented more experience and seemed to be more intrinsically motivated. Adult learners also have preconceived expectations of the characteristics that their instructors should possess. Adults expect instructors to be knowledgeable, to be concerned about student learning, to present material clearly, to motivate, to emphasize the relevance of class material, and to be enthusiastic. These characteristics support the idea of using different instructional design methods when designing activities and courses for adults. Merriam and Caffarella (1999) cite McClusky's theory about adult learners. This theory is based on the idea that students must balance load, defined as things that use energy, and power: things that allow one to deal with the load. According to McClusky (as cited in Merriam and Caffarella, 1999):

If, however, load and power can be controlled, and better yet, if a person is able to lay hold of a reserve (Margin) of Power, he is better equipped to meet unforeseen emergencies, is better positioned to take risks, can engage in exploratory, creative

activities, is more likely to learn, etc. (p. 280)

Reigeluth and An (2009) emphasize the importance of helping students to become self-directed learners who will take charge of their own learning, and who will not be afraid to display inventiveness in their problem solving.

Friestad (1998) cautions that adults are acutely aware of how they are evaluated. There is a chance that if an adult learner feels that a test is the primary measure of his/her achievement then focus will shift from learning to performing well on the examination. Additionally Friedstad posits that in a true adult learning situation, there is no single expert. In these situations, everyone involved becomes an equal participant and disagreement and discussion are an expected part of the learning process. Spigner-Littles and Chalon (1999) studied adult students to discover more about how they learn and found:

> Our observations of older learners tend to support the constructivist learning theory in that we found knowledge to be developed internally rather than simply transmitted by an instructor to a passive student. We also found that learning occurs most effectively when the mind filters incoming information, and connects that information to past knowledge and current relevance. Learners must construct their own schemas . . . and solutions to problems by actively revising restructuring, experimenting with, and placing the new information into their existing cognitive structures. As a result, effective learning is based on reflections, personal insight and permanent change in behavior. (p. 204)

Adult learners face unique challenges and characteristics. Their prior experiences lead them to have expectations that their learning environments will be life-centered, task-centered and problem-centered (Knowles et al., 1998). Adult learners are autonomous, and intrinsically motivated (Merriam & Caffarella, 1999), perhaps because they must deal with

the demands of their jobs and other obligations, however they still require a method for developing a sense of community with their fellow learners.

<div align="center">Distance Education</div>

According to Simonson, Smaldino, Albright and Zvacek (2003) distance education is defined as " institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources and instructors" (p. 9). They also identify that there are two different types of distance education. Same time/different place instruction occurs when classes are held at multiple locations simultaneously. Different time/different place or asynchronous instruction occurs when students and instructors do not interact simultaneously. There are also examples of blended instruction, such as when web-based activities or content supplement traditional classroom instruction. (Berge, Collins, & Dougherty, 2000). The complex nature of the web means that it can serve many different purposes when used as a learning environment or tool (Wilson, 2005). Web-based courses can be a particular benefit to students because they can be worked in when students have time to participate. This can be a significant advantage to students who are active and involved learners who are motivated to learn (Berge, Collins, & Dougherty, 2000).

For the purposes of this review, distance education will refer to different time/ different place interactions and same time/different place interactions that occur online, or through a computer-based medium such as video conferencing or instant messaging. Advances in technology have allowed same time/different place interactions to include real-time video and sound that are almost as real as those in a face-to-face learning environment (Saw et al., 2008). These settings create new challenges for both the learner and the faculty member.

One of the major challenges facing participants in online courses is a feeling of isolation. Feelings of isolation among learners have been identified as a factor in distance education students' failures to successfully complete courses. This may be more of a problem for adult learners because of the number of other commitments that they already have such as family and career obligations (Simonson et al., 2003).

The core of online courses is not content but interaction (Simmons, Jones, & Silver, 2004). Schaller and Allison-Bunnell (2003) describe interactivity as involving two-way communication between real people, an availability of relevant choices, and interactive activities as opposed to a clearinghouse of static information. Rourke et al. (as cited in Conrad, 2002) found social presence to be the ability of learners to project themselves socially and affectively into a community of inquiry. Students displaying high levels of social presence are able to create relationships with others in the learning community while smoothly integrating their questions and comments into community discussions. The definition of community is frequently unclear, however. Conrad (2002) notes that according to Abercrombie, Hill, and Turner an implied community is a "collection of people with a particular social structure, a sense of belonging or community spirit and self-containment of sorts--once geographical" (p. 2). Conrad conducted a study on participants' ideas of community, and found that among students there was no consensus regarding the meaning of community. Evaluations of community were based upon diverse criteria ranging from qualitative assessments regarding the number of participants to the level of perceived intimacy and interaction among classmates. In online courses it is important that communities be formed within learning environments for the smooth functioning of the course.

Constructivist Integration

Constructivism is a theory, and by itself does not describe any specific activity or set of activities (Wilson, 1997); however it can be used as a basis for the design of learning activities and courses. The following design strategies are constructivist in nature. They include: (a) problem-based learning models, (b) discussions and scaffolding, (c) dynamic learning communities, and (d) Webquests. The application or consideration of constructivist principles has been applied to the design of distance education activities, offsetting some of the inherent disadvantages of asynchronous interactions. This can be seen in the emphasis placed on student participation in these activities, as well as in the authenticity of the participatory activities. Each of these activities requires the participants to manage their own levels of involvement and interaction allowing a flexibility that is of particular benefit to adult learners.

Problem-Based Learning Model

The problem-based learning model is a classic example of an activity design based on constructivist philosophies. The problem-based learning model is an effective method of teaching higher level thinking skills. Lessons are taught by using realistic learning environments and simulations (Driscoll, 2000; Edens, 2000). Problem-based learning is student-centered and learning occurs in small groups where problem solving is the focus (as opposed to the memorization of facts). Problems are solved in order to develop skills, instead of to search for right answers, displaying an authenticity that is characteristic of constructivist based activities (Jonassen,1997) and a purpose that serves the adult learners' desire for problem solving based activities that can be applied to real life situations (Knowles, 1984). A viable choice for an authentic learning experience online according to Goold, Augar, and Farmer (2006) is problem-based learning. "Authentic open-ended

problems are presented, the students work in groups to provide appropriate solutions to those problems, and problem-solving, teamwork, communication and leadership skills are practiced" (p. 2). These strategies all work well with adult learners (Jonassen, 1997).

Teachers facilitate group activities but the learning is self-directed in problem-based learning. The autonomous self-guided nature of the activities makes them ideal for adult learners in distance education classes. The problems that groups work on are derived from real situations, similar to case studies. Each learning cycle begins when the students are introduced to an ill-structured problem. However before students are presented with the specific scenario the instructor should work with the students to brainstorm potential solutions and interpretations so that they will be more prepared (Edens, 2000). Goold, Augar, and Farmer (2006) found, in an anonymous survey of students who worked online in teams, that one of the most positive aspects of online group collaboration was its flexibility. Students were able to choose for themselves when and where to participate. Another positive aspect was the record the software created of their participation. They also found the online experience collaborative and an efficient method of learning. One of the negative aspects that concerned students included a feeling that some students were not as involved or that there was some procrastination among team members.

Discussions and Scaffolding

Online discussions and scaffolding are options for online learning activities (Anderson, Rourke, Garrison, & Archer, 2001). Discussion boards are recommended for communication in asynchronous learning environments because they allow free flow of information and ideas to everyone involved in the course. WebCT's discussion board feature allows for separate discussion areas that can be opened for a specific period of time. This

feature can be used to manage, organize, and track student participation (Simmons, Jones, & Silver, 2004).

Aworuwa (2004) found, at the conclusion of an action research study into the best methods of facilitating students' learning online, that when used as part of an overall course design, online discussion boards can lead to learning and can be perceived more positively by learners. During a four-week period participants were to:

1.Read three other students' original postings;

2) Provide feedback comments to their peers on the quality of their works;

3) Evaluate their peers' works by rating them on a scale from 1 to 10, with 10 being best, and justify their ratings;

4) Respond to questions and issues raised by peers who read their own original postings;

5) In a follow up activity students were to use information from peer comments and unused portions of their research notes to prepare a PowerPoint presentation;

6.) A flyer for inviting an audience to their presentations;

7) A brochure to be distributed at the presentation. (p. 3)

After two semesters, Aworuwa implemented a number of changes to the overall course structure. A set of written instructions clearly stating the expectations and steps in completing the discussion board activities was added. An orientation to using WebCT communication tools was introduced. Students were given choices of discussion topics from which they were to select one. Instructor-assigned articles that provided background information on the selected topic were provided. Students were given two weeks to carry out an Internet research topic they selected and complete a creative writing assignment on their topic. Students were also given instructions on how to post the products of their written work

(poem or short story) on the discussion board for others to read. An additional activity was added for the final semester of research. Groups with similar topics were to work together to fuse their individual projects into one integrated piece comprised of the best parts of each. It was found that by implementing the previous procedures to aid in scaffolding, students viewed the activities more favorably than they had in previous semesters and they were able to recall more of their classmates' work (Aworuwa, 2004).

Self–regulated learning refers to learning that occurs largely from the influence of students' self-generated thoughts, feelings, strategies, and behaviors. This type of learning, self-regulation, fits well with the needs of adult learners who must manage their own time and involvement. Students who employ self-regulated learning strategies tend to perform better than others (Artino, 2008). Self-regulation includes forethought, performance, and self –reflection (Zimmerman, 2000). Self-regulated learning can be the result of scaffolding. The evidence of the use of self-regulated learning is often visible in the character and content of students' posts and statements during discussions in distance education classes.

In addition to explicit instructions and the use of course management software, instructors may still provide scaffolding to help students. Scaffolding consists of several steps. Artino (2007) identified several behaviors (as cited in Anderson et al., 2001) that can be used on discussion boards to provide structure. They include:

1. Setting the climate by modeling posts

2. Focusing the discussion

3. Encouraging, acknowledging, and reinforcing student contributions

4. Identifying areas of dissent and moderating when necessary

5. Adding outside information to the discussion

6. Critically reading posts and seeking clarification when necessary

7. Identifying and addressing student misunderstandings. (p. 42)

The changes implemented by Aworuwa, are similar to the criteria developed by Palloff and Pratt for effective online collaboration. Palloff and Pratt (2005) identified several stages of collaboration that occur in both online and traditional learning environments. They are as follows:

1. Setting the stage: Expectations and importance of project

Case study research by Ge, Yamashiro, and Lee (2000) noted that "student preparation prior to engagement in collaborative activity significantly increases the cognitive achievement of participants" (p. 20).

2. Create the environment

"Students have to have a place to meet and know the parameters of how they should connect" (p. 2).

3. Model the process

"By modeling collaborative behavior in the course and by allowing students to negotiate some of the parameters within which they will work with one another and with the instructor, the instructor demonstrates what good collaboration looks like" (p. 23).

4. Guide the process

"When it comes to collaborative activity letting students know in advance how the instructor intends to be involved with the process and how he or she plans to guide it gives them the sense of confidence they need to move forward" (p. 22).

5. Evaluate the process

" It is important to include some form of evaluation at the close of any collaborative event or activity in an online class.... First student perceptions of the value of the collaborative activity they have experienced are critically important in determining the activity's success or failure,

and second, the emphasis in evaluation should be on the learning generated by the activity"

(p. 23).

Discussions and scaffolding are learner-centered strategies that allow students a large amount of autonomy. This autonomy can be of great benefit to adult learners. It is, however important that instructors not adopt a completely hands off approach when using discussions. Scaffolding and the establishment of clear goals and expectations ensure an effective learning environment.

Dynamic Learning Communities

Depending upon the situation, dynamic learning communities may function as a viable option for adult learners in a distance learning setting. Wilson and Lowry (2005) identify dynamic learning communities as "decentralized groups focused and interacting enough to form a stable community" (p. 1). In the dynamic learning community no one individual is in control and everyone involved expects to learn. Some common characteristics of dynamic learning communities are:

1. Commitment to the generation and sharing of new knowledge

2. Flexible and negotiated learning activities

3. Autonomous community members

4. High levels of dialogue, interaction and collaboration

5. A common focus and incentive to work together

6. A capacity to adapt to local conditions and evolve over time

7. Creativity and innovation

8. Crossing of traditional disciplinary and conceptual boundaries

9. Appreciation of diversity, multiple perspectives and epistemic issues. (Wilson &

   Lowry, 2005, p. 3)

Dynamic learning communities are unique in that an instructor does not necessarily organize them. Three places that dynamic learning communities occur include the workplace, academic settings, and internet discussion groups. Internet discussion groups are not inherently dynamic learning communities until they become oriented toward learning (Wilson & Lowry, 2005).

Wang, Sierra and Folger (2003) examined the development of dynamic learning communities among a group of adult learners in an online graduate course. Students' interactions were examined for signs of participation, shared identity and the establishment of a social network. Part of the course involved teamwork, and it was within these teams that community development was observed. Peer evaluation, use of the pronoun we, and a tendency of teams to introduce themselves as a group by project name were signifiers of community development. The course instructor noted that individuals consistently rated teammates' work higher than their own, emphasizing the collaborative, non-competitive aspects of the group interactions. Palloff and Pratt (2005) report that recent studies of online learning environments have shown that social presence, or a feeling of interconnectedness among learners, has had a positive effect on students' ability to reach learning goals and levels of satisfaction.

WebQuests

WebQuests are the epitome of the practical application of constructivist ideologies. The WebQuest is by its nature learner-centered. The instructor may provide a topic, and a specific format for final presentations, but the activity itself is directed entirely by the learner (Dodge, 1997). A WebQuest is appropriate for adult learners as it incorporates a version of self-directed learning and is usually problem centered.

According to Conrad and Donaldson (2004), WebQuests are an "inquiry-oriented internet exploration" (p. 105). Most or all of the information in a WebQuest comes from the web. There are two types of WebQuests, short and long-term. Short-term WebQuests are primarily for knowledge acquisition, and long term WebQuests extend beyond the pure acquisition of knowledge and expect students to synthesize and demonstrate understanding of the new material (Dodge, 1997).

WebQuests use learning cycles as a method of organizing knowledge acquisition. Each learning cycle addresses different components of the whole. For example, the first cycle may involve researching the topic, the second cycle might consist of evaluating the material obtained by visiting Web sites devoted to evaluation, and the third cycle might be producing an artifact, paper, or project that incorporates the first two cycles. (Palloff & Pratt, 2005, p. 93)

WebQuests, as developed by Dodge (1997) are a mostly autonomous exploratory activity designed by instructors as a means by which students may acquire and assimilate new knowledge while developing critical thinking skills. Short and long-term WebQuests can serve multiple purposes ranging from simple information gathering to long term activities involving the gathering, evaluation, presentation, and development of newly found information. While there are multiple examples of WebQuests available there is a shortage of critical examinations of such activities.

CONCLUSIONS AND RECOMMENDATIONS

Adult learners have a number of specific needs that differentiate them from younger students. Use of constructivist-based learning strategies, in addition to meeting the needs of adult learners, can counteract some of the potentially negative situations (e.g., isolation) that adults enrolled in online distance education courses might have to confront.

While there is still no universally accepted definition for constructivism, there are several characteristics that researchers agree upon. The concept of knowledge being constructed actively by the learner is key (Driscoll, 2000, Levy, 2003, Tenenbaum, et al. 2001). The idea of constructed learning is reflected in Wilson's (1997) definition of constructivism as "an underlying way of thinking that informs instructional decisions and activities—but does not imply specific strategies" (paragraph 8). These ideas come together to create a learning theory focused on active learner participation and meaningful authentic activities.

Adult learners have unique needs and expectations. The adult learner is often motivated and experienced, however they must deal with the challenges of coordinating jobs with personal and academic schedules (Huang, 2002). Adult students in distance education courses are frequently isolated from other students physically and/or lack support systems (Huang, 2002; Simonson 2003). These problems can be remedied by participation in small group activities in distance education classes or appropriate use of learning strategies. Adult learners must also contend with the demands of non-academic life such as work and family. The asynchronous nature of online distance education courses allows adult learners to have the flexibility that they need to be successful (Simonson, et al., 2003).

Distance education, while not inherently learner-centered, can become so by the implementation of constructivist learning strategies such as problem-based learning. The

instructor's role in a problem-based learning situation is that of a facilitator; consequently, students are allowed to direct and control their own learning while meeting another need of adult learners, namely the need for authentic experiences tied to their real lives (Edens, 2000). Problem-based learning can also address adult learners' need for flexibility because it allows them control over their participation. The cooperative nature of the group work in problem-based learning also adds a needed social aspect to the experience allowing adults to form interpersonal connections that can offset feelings of isolation. Dynamic learning communities may also help fill the adult learner's need for a sense of community. Since the instructor does not necessarily create these communities, they represent a unique opportunity for adult learners to fully express their autonomy. Additionally research has shown that a feeling of interconnectedness among learners has a positive effect on levels of satisfaction and students reaching learning goals (Palloff & Pratt, 2005).

Scaffolded online discussions that stimulate self-regulated learning also address adults' need for autonomy and community. The open nature of discussion boards allow everyone involved to see posts, and students and instructors have the flexibility to log on when needed. The availability of technology such as Course Management Systems allows instructors to add more structure to discussion board activities by opening and closing different areas for a specific amount of time. Instructors are also able to post or link to outside sources and add specific instructions about how students should interact with the technology, all of which may help with students' development of self-regulated learning strategies such as forethought, performance, and self-reflection. Scaffolded online discussions also allow instructors to implement Palloff and Pratt's stages of collaboration in the online environment: (a) setting the stage, (b) creating the environment, (c) modeling the process, (d) guiding the process and (e) evaluating the process (2005). It is important that

instructors continue to take advantage of available technologies and methods to make online discussions as effective as possible for learners.

There is an abundance of literature available regarding andragogy, constructivism, and adult learning. Changes in available technologies and the changing responsibilities of adults in the twenty-first century give educators and researchers cause to revisit the founding precepts of andragogy and distance learning and to continue to develop effective and innovative methods of meeting the needs of adult learners.

More research should be done on the effectiveness of implementing problem-based learning in an online distance education environment. It would be particularly useful to see more longitudinal studies such as that of Aworuwa (2004). Such research would be advantageous for researchers because it would allow them to develop more effective methods of integrating existing constructivist learning strategies into online distance education courses as well as to explore ways of developing new ones.

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