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Characteristics of Adult Learners with Implications for Online Learning Design

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The online educational environment is increasingly being used by adults and should be designed based on the needs of adult learners. This article discusses andragogy, an important adult learning theory, and reviews three other adult learning theories: self-directed learning, experiential learning, and transformational learning. During this discussion, the theories are examined for the ways in which they may be applied to the design of online learning environments. In addition, the characteristics of adult learners are examined, and an analysis of how these characteristics influence the design of an online learning environment is presented. Recommendations follow regarding how to design an online classroom environment while considering the application of adult learning theories.

The adult learner and the manner in which he or she learns best have been questioned and researched since the 1920s, when adult education became a professional field of practice (Merriam, 2001). Today, several theories and models attempt to explain adult learning. One of the most well known theories is Malcolm S. Knowles' learning theory of andragogy, the art and science of helping adults learn. Andragogy is a learning theory that is designed to address the particular needs of adults, and it is based on the idea that there are significant differences in learning characteristics between children and adults (Knowles, 1980).

This article presents a framework for integrating adult learning theories with recommendations for designing an online environment to meet the needs of adult students. This article introduces the characteristics of adult learners. Following this discussion, the concept of andragogy is presented. This presentation will provide not only andragogy's strengths, but also its weaknesses and limitations. Due to these limitations, the author will present an overview of three other important adult learning theories- self-directed learning, experiential learning, and transformational learning. These theories provide information that may help the instructor or instructional designer in creating an online or distance learning program for adults. Considering both the characteristics of adults and adult learning theories, recommendations that synthesize this information will be made regarding how to design an online environment that will best meet the needs of adult students.

ADULT LEARNING THEORIES

Today, most adults conceptualize learning as an instructor-designed and instructor-led endeavor that occurs in classrooms where students sit to learn from the "sage on the stage." This is the model with which most adults grew up (Tweedell, 2000). However, many adults want to take advantage of online learning environments, primarily due to their busy schedules and the online format's convenience. They are using technology with different sets of expectations that are based on their personal histories (Tweedell). Instructors need to be aware of what adults want and need. Learning theories and models, such as andragogy, are important for instructors to understand as they work with adults in an online or distance learning environment. Ausburn (2004) completed a study that supported the view that learners with different characteristics may not only prefer, but benefit, from different instructional features and goals. The next section of this article reviews important characteristics of adults that should be considered when designing an online learning environment.

Characteristics of Adult Learners

Most adults were taught in a traditional and passive classroom. Online learning environments are also new to instructors, who have to learn new

methods for teaching in this kind of setting. Learners and instructors both need to adapt and change as they learn how to use this new medium. Additionally, instructors, instructional designers, and other professionals working in the design of online environments for adults must understand adult learning theory, especially in terms of its relationship to distance or online learning. According to Moore and Kearsley (1996), "most distance education students are adults between the ages of 25 and 50. Consequently the more one understands the nature of adult learning, the better one can understand the nature of distance learning" (p. 153).

More distance learning programs are being developed annually; therefore, increasing numbers of adult learners will be tapping into this new resource for education. According to the U. S. National Center for Education Statistics (2002), 56% of all 2- and 4-year degree-granting institutions offer distance education courses for all types of students. The Sloan Consortium's fourth annual report (2006) on the state of online education in U.S. higher education reported: (a) almost two-thirds of all schools offering face-to-face courses also offer online courses, (b) the growth rate of online enrollment between 2004 and 2005 was 35%. The year 2004-2005 demonstrated the largest increase in the number of online students as well as the largest percentage increase in online enrollment growth (Allen & Seaman, 2006).

Adult learners are different from traditional college students. Many adult learners have responsibilities (e.g., families and jobs) and situations (e.g., transportation, childcare, domestic violence and the need to earn an income) that can interfere with the learning process. Most adults enter educational programs voluntarily and manage their classes around work and family responsibilities. Additionally, most adult learners are highly motivated and task-oriented (Merriam & Caffarella, 1999).

Adults have many challenges today, such as multiple careers, fewer stable social structures to rely on, living longer, and dealing with aging parents. The past is less helpful as a guide for living in the present. Adults are insecure in many decisions that they need to make. Life is complex due to career, family, and other personal choices.

Biological changes take place as individuals age, and it has been shown that memory decreases with age. It is memory that helps to form links between new and old information (Merriam & Caffarella, 1999). Short-term memory or working memory is limited to approximately five to nine bits of new

information at a time (Clark, 1999). The ability to perform chunking, or the grouping of associated concepts, is important for all students (Clark). Table 1 provides a summary of recommendations regarding the biological changes that may necessitate adaptations to the online learning environment.

Table 1
Recommendations for Online Course Development based on Characteristics of Adult Learners

Characteristic	Recommendations
1. Adults may have some limitations and these should be considered in the design of the online environment.	a. Maintain large, easy to read fonts and clear, bold colors. b. Use variety of graphics, images, and tables. c. Ensure compliance with Americans with Disabilities Act and Federal 508 guidelines. d. Use a clear menu structure. e. Use a search and find function. f. Provide practice with feedback and self tests. g. Provide record keeping among sessions. h. Provide frequent entry and exit points. i. Be consistent if using a metaphor. j. Provide a context sensitive help function. k. Distinguish between temporary vs. permanent termination of the program. l. Ensure there is no cultural bias. m. Use graphic organizers, Venn diagrams, concept maps, and flowcharts. n. Chunk information into 5-9 bits of information.

Learning styles are also important to consider, in that they determine how individuals approach learning tasks. There are many definitions of learning style. According to Felder (1996), "learning styles are characteristic strengths and preferences in the way [learners] take in and process information" (¶1). Silver, Strong, and Perini (1997) explained that learning styles relate to the different ways people think and feel as they solve problems, create products, and interact.

Learning style research is a complex field that has seen the growth of many models and numerous learning style inventories/tools. The field has developed in response to the desire of researchers and educators to know how students learn most efficiently. Lifelong learning may be enhanced if students are motivated to learn by understanding their learning style (Coffield, Moseley, Hall, & Ecclestone, 2004).

In their meta-analysis of 71 learning style inventories, Coffield et al. (2004) identified several problems common to learning style inventories: (a) lack of a unified, common definition of learning style, (b) weakness in reliability and validity research, (c) the classification or grouping of individuals using categories or dichotomies, and (d) the commercial gain that authors have sought through the sale of their instruments.

In spite of these weaknesses, there are many reasons why educators should continue to use such tests. They can help students develop increased self-awareness, and they provide an opportunity for students and instructors to engage in a discussion that may not have taken place otherwise. These tools foster a learner-centered approach to teaching and encourage diversity. Palloff and Pratt (2003) reported that "underlying learning style research is the belief that students learn best when they approach knowledge in ways they trust.... In other words, a 'one size fits all' approach will not work" (p. 31). Table 2 presents recommendations on incorporating learning styles in an online learning environment.

With the increasing number of adult students, interest in how adults learn continues to grow, and research continues in the area of adult learning theories. The next section of this article introduces learning theories with application to the adult learner.

Table 2
Learning Styles and the Characteristics of Adult Learners

2. Learning styles need to be considered. In any group of adults there will be a wide range of individual differences, thus the individualization of learning experiences is important in many situations.	a. Ensure that students can move through the instruction at their own pace. b. Ensure that the students can review previous learning whenever they want. c. Provides links to a wide variety of web resources. d. Ensure to allow ample time for students to master the content. e. Ensure that all learning styles are addressed by presenting material in multiple modes including text, graphics, audio and manipulatives. f. Use strategies such as consciousness raising, journal keeping, reflection logs, think sheets, guided questioning.
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LEARNING THEORIES

Gold (1999) and Reeves (1994) discussed the two major educational philosophies that have emerged in the last century. The instructivist and constructivist approaches to teaching and learning are considered to lie at either end of a continuum. Normally, educators choose an approach to teaching and learning that lies somewhere along this continuum. In an instructivist approach, the instructor sets performance objectives and develops a systematic approach to the learning content that is independent of the learner, while the constructivist philosophy places the emphasis on the learner and the learner's interpretations through self-directed explorations. Learning theories have their basis in philosophy and psychology and provide the overall framework for teaching and learning activities (Merriam & Caffarella, 1999).

Learning is about change, and adult learning is also about change. "Adult learning theory helps faculty to understand their students and to design more meaningful learning experiences for them. There is not one adult learning theory that successfully applies to all adult learning environments" (Frey & Alman, 2003, p. 8).

There is no one theory that explains how adults learn, just as there is no one theory that explains all human learning. Existing theories provide frameworks or models, "each of which contributes something to our understanding of adults as learners" (Merriam & Caffarella, 1999, p. 271). Merriam and Caffarella reported that learning is a process (rather than an end product) and that the focus of theories is on what happens when real learning takes place. "Adult learning theory helps faculty to understand their students and to design more meaningful learning experiences for them. There is not one adult learning theory that successfully applies to all adult learning environments" (Frey & Alman, 2003, p. 8). Learning is about change, and adult learning is also about change.

The author developed a framework of 13 characteristics of adult learners to consider when designing online instruction. The first two characteristics have already been presented in this article. The remaining 11 characteristics are presented in the Appendix with specific teaching strategies and recommendations to consider when developing an online learning environment. Not every recommendation can be followed, but they form the basis of the author's proposal to develop online training for adults. One must be

familiar with the way in which to design an online environment, understand the strengths as well as limitations that are inherent in this type of instructional medium, and balance that with information about how adults learn. The Appendix will be referred to throughout this section of the article.

Andragogy

Andragogy, a concept introduced by Malcolm Knowles in 1973, is learner-focused in nature. Andragogy is also grounded in humanistic learning theory (Merriam & Caffarella, 1999). This model has five assumptions to be considered in a formal learning environment.

First assumption. The first assumption underlying andragogy refers to adult learners' independent self-concept and ability to direct their own learning (Knowles, 1989). Adult learners are autonomous, independent, and self-reliant, and they are self-directed toward goals. According to Fidishun (2000), adults with previous schooling have been constructed as "dependent" learners, and it is up to the educator to move students from their old habits, shape them into self-directed learners, and encourage them to start taking responsibility for their learning. See the Appendix, characteristic 3, for recommendations to assist adult learners in becoming actively involved in their own learning.

Furthermore, it is recognized that not all adults are self-directed and that some may need help to become more self-directed. Some students need some type of structure to assist them in becoming more self-directed. Doing this may cause some students to express negative opinions, especially students who would rather remain passive than to become actively involved in the learning process. These students should be given "short, directed, concrete online tasks that provide the most 'learning for the experience' to make these adults see the relevancy of online learning" (Fidishun, 2000, Section: Technology and the Assumptions of Andragogy, ¶5). Providing scaffolding will promote self-reliance and help the student to become more self-directed. See the Appendix, characteristic 4, for methods for the application of scaffolding support. Characteristic 5 also considers support for adult learners in the new learner-centered paradigm.

According to Lieb (1991), since adults tend to be autonomous and self-directed, they need to be free to direct themselves. To enable this to occur,

instructors should actively involve the participants in the learning process and be facilitators for this process. The instructor should only serve as a guide. However, the instructor needs to provide the appropriate framework to allow this growth to occur. See the Appendix for recommendations on how to encourage active, self-directed learning (characteristic 3) as well as on how to work as a facilitator of knowledge (characteristic 6).

Second assumption. The second assumption underlying andragogy is that "an adult accumulates a growing reservoir of experience, which is a rich resource for learning" (Merriam & Caffarella, 1999, p. 272). Cognitivist learning theory supports this concept. The second assumption is based on the need to attach instruction to relevant schemata, which are considered internal knowledge structures. Adult students can build on previous knowledge and experience by relating new information to past events and experience. Instructors should strive to get this information from students and should then relate students' experiences to the concepts being learned. It is important for the instructor to recognize the value of experience (Knowles, 1989).

Fidishun (2000) stated that "adults want to use what they know and want to be acknowledged for having that knowledge" (Section: Technology and The Assumptions of Andragogy, ¶7). Kolb (1984) recognized that learning is a continuous process that is based in experience. "Learning is the process whereby knowledge is created through the transformation of experience" (Kolb, p. 38). Experiential learning is an active process that can be a powerful method for teaching adult learners. See the Appendix, characteristic 7, for recommendations that will enable instructors to relate new information to previous knowledge as well as to the learner's experience.

Lieb (1991) maintained that accumulated life experiences and knowledge are related to work or to family responsibilities as well as to past education. Adults need to connect new knowledge to past events and experience. The instructor needs to get this information from the student and then relate it to the concepts being learned.

Third assumption. The third assumption of andragogy is that "the readiness of an adult to learn is closely related to the developmental tasks of his or her social role" (Merriam & Caffarella, 1999, p. 272). Merriam (2001) stated that learning needs should be closely related to changing social roles. Lieb (1991) suggested that adult students are goal oriented; thus, objectives and

goals should be outlined early in a course. Adult students usually know what they want to learn, and they like to see the program organized toward their personal goals (Knowles, 1989). Lieb also believed that adults are relevancy oriented. They want to see a reason for learning something, and learning should be applicable to work or home. See the Appendix, characteristic 8, for recommendations that will enable instructors to improve the relevancy of content to student needs.

Fourth assumption. The fourth assumption of andragogy is that "there is a change in time perspective as people mature—from future application of knowledge to immediacy of application. Thus an adult is more problem-centered than subject-centered in learning" (Merriam & Caffarella, 1999, p. 272). Learners need to know why they should learn something and how it will benefit them (Knowles, 1989). The instructor should ask the online student to do "some reflection on what they expect to learn, how they might use it in the future or how it will help them to meet their goals" (Fidishun, 2000, Section Technology and the Assumptions of Andragogy, para. 2). Lieb (1991) believed that adults are practical and need to focus on what is important to them. It is vital that the instructor makes the coursework relevant. The adult learner believes that he or she is being prepared for tasks and responsibilities that are more challenging or complex than current tasks. See the Appendix, characteristic 9, for methods for incorporating problem-centered learning in the online classroom.

Fifth assumption. The fifth assumption of andragogy is that "adults are motivated to learn by internal factors rather than external ones" (Merriam & Caffarella, 1999, p. 272). Some factors that motivate adults include the promise of increased job satisfaction, self-esteem, and quality of life. According to Fidishun (2000), this can be built into the online environment in several ways. See the Appendix, characteristic 10, for methods that will help motivate adult learners.

Lieb (1991) reported that respect should be shown to all students, no matter what age. Adults respond positively when the learning environment is comfortable and safe. See the Appendix, characteristic 11, for methods of developing a climate that is collaborative, respectful, mutual, and informal.

Lieb (1991) added that self-reflection is important for the adult learner. The instructor should provide a space for the learner in an online course that permits carefully guided reflection about his or her performance of new

competencies. See the Appendix, characteristic 12, for methods to encourage learner self-reflection on the learning process.

Criticisms and Concerns Regarding Andragogy

According to Brookfield (1995), it is still not very clear how adults learn. Current learning theory does not address all aspects of how adults learn. Everyone is different and is shaped by his or her history. Many variables influence how individuals develop as adults. Educators need to consider culture, physiology, cognitive style, learning style, and personality as they develop the online learning environment for adults. To do this, educators must be prepared to learn from their students and listen to them. The students will teach the educator what he or she needs to know in order to develop course material.

Merriam (2001) and Merriam and Caffarella (1999) added that there has been a debate as to whether the assumptions of andragogy are principles of good practice rather than a theory, as andragogy primarily describes what the adult learner may be like. In fact, Merriam stated, "Knowles himself came to concur that andragogy is less a theory of adult learning than 'a model of assumptions about learning or a conceptual framework that serves as a basis for an emergent theory'" (p. 5). Knowles eventually represented these assumptions on a continuum "ranging from teacher-directed to student-centered learning" (Merriam, p. 6). Adults' dependence on the instructor is based on their previous levels of knowledge of the topic. If they have limited knowledge, they will depend on the instructor more.

Another concern related to Knowles' theory is that it does not consider the context of learning. It is important to remember that each learner is unique. Characteristics related to culture, life experiences, and gender may be more important to learning than the fact that a learner is considered an "adult."

Pratt (1993) concluded that "while andragogy may have contributed to our understanding of adults as learners, it has done little to expand or clarify our understanding of the process of learning, 'nor has it achieved the status of a theory of adults learning'" (p. 21). Smith (2002) pointed out that Knowles' concept of andragogy is a beginning attempt to try to build a theory (or model) of adult learning, and that it "is anchored in the characteristics of

adult learners" (p. 3). Smith also noted that Knowles' theory uses a model of relationships from humanistic clinical psychology. However, Knowles also built on behaviorist theory by encouraging the learner to "identify needs, set objectives, enter learning contracts..." (para. 4). Knowles' andragogy draws from two opposing traditions: behaviorism and humanism.

Andragogy is not perfect, but it represents an attempt to understand the difference between adult and childhood learning. It has several weaknesses; for instance, it has tended to ignore

issues of power and social justice, in society and in the educational process; the need for critical reflection as a necessary component of an adult learning process; the crucial place of dialogue and discussion as means for learning; and a recognition of multiple ways of knowing and learning. (Schapiro, 2003, p. 152)

Andragogy does not give the total picture of how adults learn. Due to these identified limitations in Knowles' theory of andragogy, the author is going to discuss three other research areas that have been proposed to represent adult learning. The author feels that these theories are important for the development of appropriate adult online educational programs and should be considered by educators as they work with adult learners.

Adult Learning Theories Related to Andragogy

Experiential learning. Experiential learning is a concept central to andragogy. Experiential learning is composed of three components: (a) knowledge of concepts, facts, information, and experience; (b) prior knowledge applied to current, ongoing events; and (c) reflection with a thoughtful analysis and assessment of learners' activity that contributes to personal growth. These concepts are crucial to experiential learning, and they should provide the basis of any adult learning experience. Brookfield (1995) agreed on the importance of experience for adult learning. According to Brookfield, the notion "that adult teaching should be grounded in adults' experiences, and that these experiences represent a valuable resource, is currently cited as crucial by adult educators of every conceivable ideological hue" (para. 1).

According to Merriam and Caffarella (1999), "experiences that provide learning are never just isolated events in time. Rather, learners must connect what they have learned from current experiences to those in the past as well as see possible future implications" (p. 223). Teaching of adults should be grounded in the learners' experiences; it should allow adult learners to connect what they have learned to experiences in the past, so that they can see possible future implications.

The reader is referred to the Appendix, characteristic 11, for recommendations regarding the development of the correct atmosphere for adult learners. Experiential learning considers experience; see the Appendix, characteristic 7, for recommendations for implementing this aspect. Recommendations for interaction and collaboration (characteristics 12 and 13) are also presented in the Appendix. These are needed by adult students so that they can draw on each others' experience.

Self-directed learning. Self-directed learning, another central concept in adult education, suggests that the locus of control in learning lies with the adult learner, who may initiate learning with or without assistance from others (Lowry, 1989). Some learners need varying degrees of direction and support, while others are ready to be self-directed. Characteristics of self-directed learners include independence, willingness to take initiative, persistence in learning, self-discipline, self-confidence, and the desire to learn more. They are able to organize time, develop plans for completion, enjoy learning, and remain goal-oriented. Self-directed learning has been confined to the informal learning situation until recently. Before the 1980s, learning was believed to occur only in a formal institution. Researchers now realize that self-directed learning is worthwhile as well as possible, and educators should encourage this type of learning in the formal classroom (Merriam & Caffarella, 1999).

Self-directed learning underlies Knowles' andragogy. The theory of andragogy acknowledges that as a person grows and matures, his or her self-concept changes from that of a dependent personality toward that of a self-directed individual. Older methods of teaching did not foster self-directed learning and were primarily teacher-centered and passive. These methods of education may be difficult habits for older students to break, since they reflect the way in which they were taught. These students need to be guided as they progress toward self-direction to take more responsibility for their own learning.

Refer to the Appendix for recommendations to assist learners in becoming self-directed learners. Characteristic 4 pertains to the provision of scaffolding, and characteristic 3 addresses methods to get students to become active participants in the learning process. Instructors should provide some support for students as they grow into self-directed learners and include tasks that let the students use their knowledge and experience (characteristics 7 and 8 in the Appendix).

Transformative learning theory. Transformative learning, which is considered a constructivist theory of adult learning, was strongly influenced by the work of Jack Mezirow (1997). Mezirow proposed that individual transformation includes a change in one's frame of reference or way of seeing the world. According to Palloff and Pratt (1999), "the goal of transformative learning is to understand why we see the world the way we do and to shake off the constraints of the limiting perspectives we have carried with us into the learning experience" (p. 129). Transformative learning helps adult learners understand their experiences, how they make sense or "meaning of their experiences, the nature of the structures that influence the way they construe experience, the dynamics involved in modifying meanings, and the way the structures of meaning themselves undergo changes when learners find them to be dysfunctional" (Mezirow, p. xii).

Frey and Alman (2003) stated that transformative learning is a process of critical reflection. It is about change in learners, and it is the kind of learning that occurs when individuals make meaning out of the world through experiences. The goal of this learning theory is to enable the adult learner to "become a more autonomous thinker by learning to negotiate his or her own values, meanings, and purposes rather than to uncritically act on those of others" (Mezirow, 1997, p. 11). This type of learning involves learning about one's personal life. The reader is referred to the Appendix, characteristic 12, for methods that an instructor can use to foster transformative learning. Characteristic 3 (active learning) and characteristic 4 (scaffolding and support) are important for self-directed learning. Learners need support to begin the process, and they must be actively involved as they incorporate new information into the old.

SUMMARY OF THE CHARACTERISTICS OF ADULT LEARNING THEORIES

The compilation of recommendations for the design of the online learning environment for adults is based on the theories presented in this article.

These theories provide a foundation for organizing current knowledge. The framework in the Appendix integrates the theories with recommendations for the design of an online learning program for adult learners. The compilation of recommendations combines every theory presented in this article. In the framework, each theory presented incorporates separate components of the characteristics of adult learners. There is no theory that uses all of the characteristics developed by the author. Knowles' theory of andragogy, which considers characteristics 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12, is the most comprehensive.

The biology of adults (characteristic 1) and learning styles (characteristic 2) are not included in any theory reviewed by this author. The biology of aging and learning styles both contribute to the individuality of the adult learner. One's biology and learning style is influenced by culture, cognitive style, physiology, and personality. All of these influences create the unique people who are today's adult learners. The consideration of the individuality of each person is critical to teaching adults.

Experiential learning only considers characteristics 7, 11, 12, and 13. Self-directed learning theory considers characteristics 3, 4, and 7. Transformative learning theory considers characteristics 3, 4, and 12. These theories are not comprehensive and should only be considered as components of adult learning theory. There is no single comprehensive theory that addresses all of adult learning. All of the characteristics in the table should be considered when developing an online learning environment for adult learners.

CONCLUSION

This article has reviewed several aspects of adult learning, especially in relation to the online learning environment. Several learning theories have been discussed, and recommendations have been presented for instructors who teach adults using an online medium. It has become clear that there is not one theory that can explain how adults learn. There are many theories; each is compelling, and each has its own strengths and weaknesses. The primary theme that has emerged is the following: Everyone is different, and each person is an individual. Adult learners are diverse and have their own histories to consider.

Andragogy and the other theories presented in this article all have something to offer instructors of distance or online learning. These theories emphasize

self-direction, flexibility, and the process of learning, rather than the content. They are learner-centered and recognize the importance of a customized approach to learning. They also focus on the fact that adults are different from children. Adults have experience and are self-directed and independent, yet they are all different. Instructors need to consider the context of learning and understand that culture and society shape the adult learner and add to his or her individuality.

The primary consideration of instructors as they design online learning environments should be that each learner is a unique being. Learners are real people with distinct needs. Understanding adult learning theories is also important, as is being able to change and accept change in a dynamic learning environment. The instructor needs to be open and honest with each student and respect each person as an individual who has experience that may be valuable to the classroom.

Another theme discovered in all of these learning theories is that adult learning is about change. The instructor needs to acknowledge that he or she may be a change agent and appreciate that adult students are undergoing transformations as they go through the learning process. Supporting learners as they go through these changes and allowing and helping reflection require the instructor to act as a facilitator rather than a lecturer, allowing students to experience discovery as part of the learning process.

Research continues to be done about how adult learners learn. There is research regarding how adults may use the online learning environment as well as the methods that facilitate learning in adult students. The future of adult online learning research may be based on the theories discussed in this article, even though most of these theories were developed almost 20 years ago and in traditional classroom environments. The online environment did not exist 20 years ago, and yet the universal nature of the theories enables educators to consider them for the online environment.

All of these approaches to learning can help develop the understanding of adult learning in several ways. First, the adult learner should be seen as a whole person and should be considered as more than a processor of cognitive information. He or she comes with a mind, memories, conscious and subconscious worlds, feelings, beliefs, imagination, and a physical body, all of which can relate to new learning. It is imperative that educators understand that culture and society influence each individual differently. Second, the learning process is more than the organized acquisition and storage of new information. The learning process involves learning about oneself and

transforming not just what one learns, but also the way in which one learns. It is also about sensing, visualizing, perceiving, and learning informally with others. Interaction and collaboration should occur in the learning environment to facilitate adult learning.

Online learning will continue to grow in importance for adult learners. The challenge for educators is to learn how to provide a positive "social" environment using an electronic medium. Technology will continue to change as new technologies are developed. Instructors will need to adapt, change, and continue to learn about how this "electronic" environment can be used to foster a social atmosphere, and they will need to recognize their role as change agents.

References

- Allen, I.E., & Seaman, J. (2006). *Making the grade: Online education in the United States, 2006*. Needham, MA: The Sloan Consortium. Retrieved March 21, 2008, from http://www.sloan-c.org/publications/survey/pdf/making_the_grade.pdf
- Ausburn, L.J. (2004). Course design elements most valued by adult learners in blended online education environments: An American perspective. *Educational Media International*, 41(4), 327-337.
- Brookfield, S. (1995). *Adult learning: An overview*. Retrieved March 21, 2008, from <http://www.fsu.edu/~elaps/ae/download/ade5385/Brookfield.pdf>
- Clark, R. (1999). *Building expertise cognitive methods for training and performance improvement*. Washington, DC: International Society for Performance Improvement.
- Coffield, F.J., Moseley, D.V., Hall, E., & Ecclestone, K. (2004). *Learning styles and pedagogy in post-16 learning: A systematic and critical review*. London: Learning and Skills Research Centre. Retrieved September 1, 2004, from <http://www.lsda.org.uk/files/pdf/1543.pdf>
- Felder, R.M. (1996, December). *Matters of style*. Retrieved June 9, 2004, from <http://www.ncsu.edu/felder-public/Papers/LS-Prism.htm>
- Fidishun, D. (2000, April). Andragogy and technology: Integrating adult learning theory as we teach with technology. *Proceedings of the 2000 Mid-South Instructional Technology Conference*. Murfreesboro, TN: Middle Tennessee State University. Retrieved November 25, 2003, from <http://www.mtsu.edu/~itconf/proceed00/fidishun.htm>
- Frey, B.A., & Alman, S.W. (2003). Applying adult learning theory to the online classroom. *New Horizons in Adult Education*, 17(1), 4-12.

- Gold, S. (1999). *An online workshop for higher education faculty on the practices of effective online teaching and learning*. Unpublished doctoral dissertation, Teachers College, Columbia University, New York.
- Kolb, D.A. (1984). *Experiential learning: Experience as the source of learning and development*. Upper Saddle River, NJ: Prentice-Hall.
- Lowry, C.M. (1989). *Supporting and facilitating self-directed learning*. (ERIC Document Reproduction Service No. ED312 457). Retrieved March 21, 2008, from <http://www.ntlf.com/html/lib/bib/89dig.htm>
- Merriam, S.B. (2001). Andragogy and self-directed learning: Pillars of adult learning theory. *New Directions for Adult and Continuing Education*, 89, 3-13.
- Merriam, S.B., & Caffarella, R.S. (1999). *Learning in adulthood* (2nd ed.). San Francisco: Jossey-Bass.
- Mezirow, J. (1997). Transformative learning. *New Directions for Adult and Continuing Education*, 74, 5-12.
- Moore, M.G., & Kearsley, G. (1996). *Distance education a systems view*. Belmont, Ca: Wadsworth.
- National Center for Education Statistics. (2002). *Distance education at degree-granting postsecondary institutions: 2000-2001*. Retrieved December 22, 2003, from <http://nces.ed.gov/surveys/peqis/publications/2003017/>
- Palloff, R.M., & Pratt, K. (1999). *Building learning communities in cyberspace*. San Francisco: Jossey-Bass.
- Palloff, R.M., & Pratt, K. (2003). *The virtual student*. San Francisco: Jossey-Bass.
- Pratt, D.D. (1993). Andragogy after twenty-five years. *New Directions for Adult and Continuing Education*, 57, 15-23. San Francisco: Jossey-Bass.
- Reeves, T.C. (1994). Evaluating what really matters in computer-based education. In M. Wild & D. Kirkpatrick, (Eds.), *Computer education: New perspectives* (pp. 219-246). Perth, Australia: MASTEC.
- Schapiro, S.A. (2003). From andragogy to collaborative, critical pedagogy: Learning for academic, personal, and social empowerment in a distance-learning, Ph.D. program. *Journal of Transformative Education*, 1(2), 150-166.
- Silver, H., Strong, R., & Perini, M. (1997). Integrating learning styles and multiple intelligences. *Educational Leadership*, 55(1), 22-27.
- Smith, M.K. (2002). *Malcolm Knowles, informal adult education, self-direction and andragogy*. Retrieved December 15, 2003, from <http://www.infed.org/thinkers/et-knowl.htm>
- Tweedell, C.B. (2000, October). *A theory of adult learning and implications for practice*. Paper presented at the meeting of the Midwest Educational Research Association Annual Meeting. Chicago, IL.

APPENDIX

Recommendations for Online Course Development based on Characteristics of Adult Learners(Starting with characteristic 3)

3. Adults need to be actively involved in the learning process.
- a. Encourage learners to identify resources and devise strategies for using resources to achieve objectives.
 - b. Encourage learners to formulate their learning objectives, giving them more control over their learning. It is important for the instructor to discover what the participants need or want to learn.
 - c. Provide regular, consistent communication to individual learners and groups.
 - d. Teach inquiry skills, decision-making, personal development, and self-evaluation of work.
 - e. Make regular announcements or updates and establish regular online office hours.
 - f. Assure learners that discussion board postings are being read.
 - g. Increase interactions with embedded practice and feedback sequences.
 - h. Embed content in authentic contexts if technology allows
 - i. Require learners to synthesize and problem solve, using the information in new ways.
 - j. Have learners manipulate objects on the screen if appropriate.
 - k. Develop peer-learning groups.
 - l. Periodically review goals. Have students reflect and discuss.
 - m. Provide students with multiple resources of information that include differing viewpoints from diverse authors.
 - n. Acknowledge the accumulated experiences of the participants as valuable educational resources.
 - o. Use learning contracts, group projects, role playing, case studies and simulations to enhance self-direction.

4. Adults need scaffolding to be provided by the instructor. Scaffolding should promote self-reliance, and it should allow learners to perform activities they were unable to perform without this support.

- p. Use hyperlinks to allow students to develop their own path. If they know the topic, they can skip it.
- q. Provide flexibility in assignments that allow students to work ahead.
- r. Divide learning into small manageable units or subunits that can be completed in relatively short amounts of time for logical stopping and starting points.
- s. Allow learner choice of assignments, projects, or research topics (consider learning contract).
- t. Encourage and reinforce self sufficiency through timely feedback.
- u. Develop a student portfolio or personal scrapbook
- v. Incorporate text signals such as "this is a long unit," "this is very important content," "proceed to lesson six."
- a. Provide learner support after the initial training in the form of coaching, study teams, and opportunities to learn, by watching his/her colleagues perform.
- b. Coach using audio files or other method to help in performance of a task.
- c. Encourage students to articulate problems.
- d. Provide resources to assist students to complete tasks.
- e. Provide examples of complete problems.
- f. Provide multiple scenarios, events, and perspectives to help students develop decisions and plans.
- g. Provide consistency among courses.

5. Adults have a pre-existing learning history and will need support to work in the new learner-centered paradigm.

- a. Encourage all students to post responses to questions, read other comments, and reflect using tools such as threaded discussions.
- b. Encourage learners to share with other students their derivation of meaning and their progress through discussion postings, reflection papers that are posted, or email.
- c. Hold debates, create multifaceted projects with deadlines for public display, introduce surprise, suspense, and disorder in the midst of routine and ritual. Ask learners to link ideas to other subjects.
- d. Recognize that it is important to "unlearn" old beliefs and allow learners time to work through conflict.

6. Adults need the instructor acting as a facilitator.

- a. Plan the course environment to allow participants responsibility for leadership and group presentations.
- b. Summarize key points of units and discussions for closure.
- c. Use questioning techniques to provoke thinking, stimulate recall, and challenge beliefs.
- d. Understand that some adults may feel intimidated and that their egos are on the line when they risk trying something new or unique.
- e. Use participants experience, protect minority opinions, keep disagreements civil, and make connections between the opinions and ideas presented by the students.
- f. Display student work.

7. Adults need consideration of their prior experience. The instructor should acknowledge this prior experience. Adults need to connect new knowledge to past events.

- a. Do a needs assessment and a student self-assessment prior to class starting. Relate this information to the class. Recognize the value of experience.
- b. Include tasks that let the participants use their knowledge and experience.
- c. Tell why the topic or link is important.
- d. Provide practical information with examples.
- e. Link new topics to what has been discussed or read.
- f. Open the class with introductions that include personal and professional background. Instructor should do the same.
- g. Involve learners in diagnosing their own needs.

8. Adults need to see the link between what they are learning and how it will apply to their lives. They want to apply immediately their new knowledge. They are problem-centered.

- a. Incorporate activities in assignments that students can relate to, such as real situations or events.
- b. Include opportunities for solving problems in groups.
- c. Ensure that assignments reflect the maturity level of the adult learners.
- d. Encourage students to apply their life and work experiences to learning.

9. Adults need to feel that learning focuses on issues that directly concern them and want to know what they are going to learn, how the learning will be conducted, and why it is important. The course should be learner-centered vs. teacher-centered.

- a. Ensure that students write their course goals in the beginning of the course so they can relate the course goals with their current needs and issues.
- b. Explain how the course information will be of use to the learners.
- c. Provide enough flexibility to allow student's input on issues that may be addressed by the

- whole class.
 - d. Provide models of 'best practice' behavior to let students know what they are doing compared to a known model.
 - e. Maintain consistent guidelines during the course.
 - f. Involve learners in diagnosing their needs to help trigger internal motivation.
10. Adults need to test their learning as they go along, rather than receive background theory.
- a. Apply concepts to tasks or problems.
 - b. Set the level of difficulty at the correct level. It should challenge but not be too challenging which could frustrate the learners.
 - c. Set rewards for success.
11. Adult learning requires a climate that is collaborative, respectful, mutual, and informal.
- a. Allow the learner to voice his or her own opinion and treat him or her as equal in the learning process.
 - b. Individuals have many perspectives and bring these to the classroom; these may be a result of their religion, gender, ethnicity, class, age, sexuality, and/or physical abilities. Acknowledge these.
 - c. Provide an open environment so that the students are allowed to disagree with the instructor. Not all learners bring the same ability to think critically, analyze results, etc. Plan accordingly.
 - d. Establish an environment that learners feel safe and comfortable in expressing themselves and feel respected for their views.
 - e. Help students with similar interests find each other.
 - f. Know when to pull back in a discussion and let the students go.

- g. Keep up with the discussion postings, and act as a summarizer, reflector, and source of external help if the group fails.
 - h. Recognize learner's individual talents and contributions.
12. Adults need to self-reflect on the learning process and be given support for transformational learning.
- a. Provide a place in the course to discuss the process of learning online which may include thoughts on how they are managing in the online course.
 - b. Allow students to discuss options for their new roles, plan action strategies and exchange of knowledge and skills for effective and efficient online learning.
 - c. Provide ways for learners to engage in metacognitive reflection. Students may benefit from the use of think logs, reflective journals, and group discussions within a cooperative learning setting.
13. Adults need dialogue and social interaction must be provided. They need to collaborate with other students.
- a. Allow students to introduce themselves, develop a personal web page, and provide an area that students can feel free to discuss their experiences.
 - b. Problem-based or case-based learning activities that are done in collaborative work groups.
 - c. Use cooperative and collaborative learning structures such as learning partnerships, to equalize the power relationships in groups and encourage a shared leadership.
 - d. Incorporate multiple methods of feedback in course.
 - e. Grade assignments with specific, stated criteria, such as a rubric.
 - f. Encourage shared leadership.