Barriers to adult education participation, distance education, and learning

Chapter · January 2011

DOI: 10.4018/978-1-61692-906-0

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Chapter 1
The Role of Information Communication Technologies in Enriching Adult Education Theory Building

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ABSTRACT

Communication technology has influenced every aspect of our personal and professional lives. Yet, much of the literature on this influence focuses on the impact it has had on our actions and on the practice of teaching and learning. Little has addressed the impact of communication technology on the theory building in the field of adult education. How has it influenced the movement forward of the field itself? How has it changed the communication among professionals and between professionals and students? It has been almost 100 years since Adult Education made its entry into the arena of professions and fields of study. In recent decades, Malcolm Knowles is credited with popularizing adult learning theory, yet Stephen Brookfield, Jack Mezirow, Maxine Greene and Knud Illeris are among those who have moved the field forward. Along with this progression in theory, the utilization and sophistication of communication technology has escalated. This chapter will focus on the influence of communication technology throughout this history of adult education, particularly its influence on communities of learning and communities of practice for the experienced and the emerging adult educational professional and how it might enrich the future of the profession.

INTRODUCTION

Adult education traces its history to philosophical roots in ancient civilizations yet its emergence as an academic field is considered to have begun with the establishment of the American Association of Adult Education in the early 20th century. This chapter will begin by exploring the major theories and theorists in the field of adult education. While Malcolm Knowles is credited with popularizing adult learning theory in the 1970's, Stephen Brookfield, Jack Mezirow, Victoria Marsick and Knud Illeris are among those who have moved the field forward over the recent decades.

DOI: 10.4018/978-1-61692-906-0.ch001

Along with this progression in theory, the use of technology has escalated in popularity creating a need to frame its application in the foundational principles of adult education; an "Andragogy 2.0" focus is required. Technology has played an important part in the development and direction of the field. The Gutenberg printing press is often credited with being the beginning of the influence of technology on education and communication, however all early advances in transportation and communication have had an influence on the field of adult education. Any technology before and since Gutenberg that has facilitated the coming together of individuals and knowledge whether by transporting the individuals to a common place to share knowledge or by communicating the information to the individuals at remote locations has influenced adult learning. Today, wiki's and blogs are the norm. Some universities offer space behind password-protected firewalls, while others advocate the use of public spaces for these online collaborations. What impact does this have on confidentiality and intellectual property issues? A plethora of questions begin to emerge and answers are only beginning to follow.

BACKGROUND

This chapter explores the role of information communication technology in the development of the field of adult education and suggests how today's Web 2.0 technology can enhance the field's future growth. To understand the background of this influence, each of these two components will be explored individually.

The Development of the Field of Adult Education

It has been nearly a century since adult education made its entry into the arena of professions and fields of study. But the roots of the field extend through millennia. Malcolm Knowles (1989) describes himself as being "part of a long and significant historical movement" (p. 72) and assigns the role of adult educators to great teachers of ancient China, Rome and Greece. However, he suggests that "ancient teachers were following their intuitions rather than some prescribed doctrine such as pedagogy" (p. 61). He continues that because of their experience with adults, they "perceived learning to be a process of active inquiry, not passive reception of transmitted content" and therefore "invented techniques for engaging learners in active inquiry" (p. 61). He credits the Chinese sand Hebrews with methodologies such as the "case method or critical incident". Wang and King (2010) note that one of the hallmarks of adult learning, critical reflection, was advanced by Confucius over 2,500 years ago. They add that ancient cultures in India included the "development of intuition, aesthetics, and a futuristic and ecological perspective" (p. 14) in their view of learning. The "Socratic dialogue" which Knowles (1989) attributes to the Greeks consisted of posing a dilemma to the group who would then pool their knowledge and experience to develop a solution. The Romans were credited with the methodology that involved forcing the students to state positions and to defend them.

While Knowles (1989) notes a gap in the literature on adult education between the fall of Rome and the Renaissance he also indicates that the "institutionalization of education for children" (p. 62) developed during that same period. The Renaissance is also credited with an abundance of new scientific discoveries and the development of a new approach to scientific inquiry. Galileo first pointed the newly invented telescope to the sky in 1609 beginning the use of optical technology in the investigation of our universe. During this period, Francis Bacon formulated the scientific method, a disciplined approach to searching for new knowledge that has influenced the advancement of every academic research project since and therefore will be investigated further in the next section of this chapter. As we consider the field of

adult education moving forward, we will include the impact of technology on the elements of this new approach to acquiring and managing new knowledge. Following the Renaissance, examples of adult education institutions throughout Europe can be seen in the folk high schools, the workers' education movement and apprenticeships.

Elias and Merriam (2005) suggest that during the colonial period the United States transplanted a form of "elitist-classical education" from primarily France and England to American educational institutions, notably Harvard. Knowles (1989) suggests that Benjamin Franklin might have been the first American role model for adult learning. Franklin's "Junto, a discussion club …to explore such intellectual challenges as morals, politics, and natural philosophy" (p. 63) became a model for other discussion groups and study circles. Knowles (1989) continues to note the importance of adult education throughout and on history citing examples in the citizen involvement initiatives in the American colonies and during the Civil War" (p. 64). However, Knowles (1989) suggests that the adult education movement during the early 1800's "that had the greatest impact on the quality of life in this country is agricultural education" and cites local and regional agricultural societies and fairs as locations for farmers to learn new practices to improve productivity on their farms. He credits organizations such as the Grange, Farmers' Union, and the American Farm Bureau Federation in the last quarter of the 1800's with educating the farmers. The emergence of these formalized groups will open the doors for a more structured communication among group members and might be considered examples of the communities of learning and communities of practice that will be explored in more detail in the next section of this chapter. Additionally, the Land Grant Act of 1862 was significant in that it set aside land in every state for a "land-grant college for research and study in the agricultural and mechanical arts by average students" (Knowles, 1989, p. 65). After the Civil War, the new industrial society brought a "compulsion for knowledge" (Knowles, 1989, p. 64) and the secondary education curriculum even expanded to include "life-related subjects" (Elias & Merriam, 2005, p. 23).

At the beginning of the 1900's, the progressive education movement was prevalent and included "vocational education, university extension and cooperative extension, settlement houses for new immigrants and Americanization education" (Elias & Merriam, 2005, p. 58). The notable voice of John Dewey was associated with these ideas of pragmatism and progressive thought. Dewey's notion that practice is superior to theory was in direct conflict with the earlier theories of Aristotle and Plato who espoused the superiority of theory. Dewey argued that "education appropriate for American society must include both the liberal and the practical, both education for work and education for leisure" (Elias & Merriam, 2005, p. 62). This was a digression from earlier thinkers who suggested that primarily liberally educated leaders were required for the growth of America. This influenced education by implying that the experiences of the learners were at the heart of the educational process thus impacting the role of the instructor in the classroom and that curriculum should be expanded to include practical knowledge. This period between the Civil War and World War I is credited with the emergence of numerous organizations focused on practical adult education. The creation of the Cooperative Extension Service and the passage of the Smith-Hughes Vocational Education Act began the formation of vocational schools open to adults across the country (Knowles, 1989).

While James Watson is credited with founding behaviorism in the 1920's, (Elias & Merriam, 2005, p. 83), Edward Thorndike's ideas are connected with the behaviorist movement with a focus on performance and an emphasis on the scientific method and experimentation to arrive at truth. Thorndike's 1928 publication, *Adult Learning* is considered the first major report of research on learning with adults. He reported that

adults could be expected to learn at the same rate as younger students and that the best time to learn was just prior to using the knowledge (Elias & Merriam, 2005).

The formalization of this body of knowledge attributed to the field of adult education begins to solidify when the American Association of Adult Education, the forerunner of today's Association of Adult and Continuing Education, began to sponsor studies in the field in the 1920's. By 1934, this Association published the first *Handbook of Adult and Continuing Education* that "met the chief function of the Association as a clearinghouse for information about adult education" (Wilson & Hayes, p. 7). Wilson and Hayes (2000) explain that the "first attempts to define the field were to show its institutional and programmatic manifestations throughout society" and the "relation of knowledge and practice" (p. 7). This 1934 handbook and its next edition in 1936 were a directory of both national organizations and local initiatives of national significance in adult education including descriptions of the activities of the organizations such as "agricultural extension, workers education, and Americanization programs" (Wilson & Hayes, p. 7). The formalization of graduate programs in adult education began to emerge in the late 1920's and by the early 1930's the first doctorates were awarded (Rowden, 1934).

The handbook continued as the defining body of knowledge in the field of adult education and reflected the field's connection to societal events. The next edition of the handbook in 1948 reflected the influence of World War II, but continued the tradition of informing the reader about how people "in the conduct of their daily lives go about the business of informing and educating themselves" (Cartwright, p. xi). This edition also was the first to link to academia. It was published by the Institute of Adult Education at Teachers College, Columbia University where the first graduate program of adult education had been established. Wilson and Hayes (2000) reflect that this handbook was significant in demonstrating that "the field was beginning to develop a sense of its professional identity first through study of its practices and now through developing a body of knowledge to inform that practice" (p. 8).

The handbook continued to evolve and in 1960 when the next volume was edited by Malcolm Knowles, it included individual essays by adult educators in order to "provide an overview description of the current nature, characteristics, and trends in the field of adult education" (p. xii). Modern icons in the field of adult learning were being to emerge and the story of their interactions are a model for communication that moved the field of adult education forward. In his autobiography, Knowles (1989) credits a seminar led by Cyril Houle at the University of Chicago with initiating his own interests in the historical foundations of adult education. In 1961, Cyril Houle's classic "The Inquiring Mind" laid the foundation for Tough's seminal publication "Learning Without a Teacher" (1967) and "The Adult's Learning Projects" (1979). These introduced the concept of self-directed learning and later influenced Knowles. Tough's (1979) research indicated that adults were more successful learners if they were aware of the benefits of their learning and the negative consequences of not learning. This later became one of Knowles' (2005) six core andragogical principles: "the learner's need to know, self-directed learning, prior experience of the learner, readiness to learn, orientation to learning and problem solving, and motivation to learn" (p. 183). He also introduced the term "andragogy" in the United States. It was a term that he learned from a European colleague who defined it as the "art and science of helping adults learn" (Merriam, Caffarella, & Baumgartner, 2007, p. 84). While a great deal of discussion around these principles continues in the field of adult education, they provide a foundation for new theories and a guide for practice. These principles will be examined in the context of information technology later in this chapter.

Knowles continued to contribute to the 1970 handbook by summarizing the themes of the earlier handbooks such as "educating the public, collecting information, the elimination of 'profit makers', the debate between cultural and vocational adult education, and the tensions between self-actualization and educating a democratic citizenry" (Wilson & Hayes, p. 9). Wilson and Hayes describe this focus of the 1970's and the next 1980's handbooks as reflecting the "dominance of scientifically defined professional practice" (p. 12) of those decades.

Knowles' ideas formed the foundation for adult education but were also the subject of discussion by other noted adult educators, among them Stephen Brookfield. While Brookfield (1986) questioned Knowles ideas of self-directedness, his assumption of relating learning to particular social roles and his focus on the need of adult's for immediate application, he was also developing his own ideas on critical thinking and critical theory. Brookfield defined critical thinking or critical reflection as "reflecting on the assumptions underlying our and others' ideas and actions, and contemplating alternative ways of thinking and living" (Brookfield, 1986, p. x) and suggested that these were distinctive characteristics of adult learning and of adult education practice (2005).

Brookfield also offers a connection between critical reflection and transformative learning. Mezirow defines his own transformative learning theory as a process by which our taken-for-granted frames of references are transformed by making them more "inclusive, discriminating, open, emotionally capable of change, and reflective" (Merriam, 2007, p. 255). Brookfield explains that "although critical reflection is an ineradicable element of transformative learning, it is not a synonym for it. It is a necessary but not sufficient condition of transformative learning… .transformative learning cannot happen without critical reflection but critical reflection can happen without an accompanying transformation in perspective" (Brookfield as cited in Mezirow, 2000, p. 125). If one accepts the definition of critical thinking above, then it becomes obvious that critical reflection is not a process that is accomplished in a few minutes but might take hours or days or weeks. This chapter will examine the role of technology in facilitating critical reflection over time. For example, a face-to-face discussion relies on participants' instant insights and reactions. In contrast, an asynchronous discussion online affords everyone the opportunity to read others' comments, reflect on them, then return to the discussion at a later time with a thoughtful comment as the result of critical reflection creating a foundation for transformative learning.

Transformational learning has had a longstanding impact on adult education. Wang and King (2010) suggest that transformative learning has its roots in ancient Chinese and Indian philosophies and cite examples of writings by Confucian and Buddhist scholars to support this claim. On a more modern note, Sharan Merriam's (2008) review of the last three updates of her *New Directions for Adult and Continuing Education* revealed that a chapter on transformational learning was the only constant across these volumes that span fifteen years. Looking to the future, Kegan (2009) refers to transformational learning as having "genuinely landscape altering potential" (p. 41).

While Brookfield's and Mezirow's ideas on critical reflection provided a foundation, Illeris (2004) introduced a Danish perspective with his own theory of the three dimensions of adult learning: cognitive, emotional and social. His model consisted of an inverted triangle with the two psychological poles, Piaget's cognition and Freud's emotion, at the two corners at the top and society at the lower vertex. However, he stressed that "all three dimensions are always integrated parts of the learning process and in practice do not exist as separate functions" (p. 20). Jarvis (2009) continues with this theme by stating that "I was clear in my own mind that learning always started with experience and that experience is always social…"(p. 24). This theme is evident in the 2000

edition of the *Handbook of Adult and Continuing Education* in which Wilson and Hayes emphasized "adult education as a social practice of practical and prudent action, not just as an applied technical science" (p. 12). The emerging application of social networks such as wiki's and blogs will be discussed in the next section and surely influence these social aspects of learning.

Malcolm Knowles (2005) sees technology as being in the "andragogical tradition" (p. 237) and as consistent with the adult learning idea of self-directedness. "The creation of a learning community supports and encourages knowledge acquisition. It creates a sense of excitement about learning together and renews the passion involved with exploring new realms in education" (Palloff & Pratt, 1999, p. 163). As Kasworm and Londoner (2000) advise, "the challenge for adult education is to accept and embrace the possibilities of technology (p. 225).

The Emergence of Information Communication Technology

While today the term information communication technology seems to be synonymous with computers it is important to consider that technology in many forms has impacted the academic field of adult education for centuries. Lesgold (2000) reminds us that "prior to the 15th century, codified knowledge was extremely rare" and that "direct discussion with a wise person was the primary way of gaining knowledge" (p. 399). Books were not easily replicated so where expensive and rare. Even with the development of printing, only certain key books were reproduced widely. However, by the mid 1400's Gutenberg's invention of the first printing press with movable type and usable ink for the process would change the distribution of knowledge dramatically. Hewitt (2005) suggests that "the sixteenth and twenty-first centuries share a dramatic element in common – the birth of a revolution in communication technology" (p. 47). He credits Gutenberg's invention with the emergence of the Renaissance and notes that the "ability to publish books inexpensively decentralized the power of knowledge and forever changed the structure of society" (p. 47). He calls this "Gutenberg's gift" and suggests that while it was an "invitation to new understanding and human liberty" it also "bestowed upon its recipients new responsibility for critical reflection" (p. 48). This responsibility becomes even more important in the twenty-first century as the dissemination of knowledge becomes even more widespread at an accelerating rate. Lesgold (2000) offers another comparison between these two centuries by suggesting that just as the book "removed some of the need for memorization as a force for knowledge distribution, so the computer removes some of the need for over learning of routine information processing procedures, since these can be accomplished by computers" (p. 401). While numerous examples could be cited, we can agree with Knowles (1989) as he credits Gutenberg's invention with having a great "impact on the advancement of adult education" (p. 62).

But between the printing press of the mid 1400's and today's computers technological innovations abound. Therefore it is useful to reflect on their influences on adult education. In the courses that the author teaches at Teachers College/Columbia University, she often divides the class into groups and assigns each group a period in history. She then presents the scenario that the students are professionals in the field of adult education and have just been invited to attend a workshop on the latest technology in adult education. They are asked to identify what technologies they will expect to be presented at the workshop and how those technologies likely impacted the field of adult education at that time. Whether it was the printing press, telephone, copying machine or computer, new technologies have always presented opportunities and challenges to adult education professionals.

But following Hewitt's earlier jump from the fifteenth to the twenty-first century, we look to the

emergence of this new revolution in information communication technology. Shea-Schultz and Fogarty (2002) suggest that this new era began in the late 1960's when the U.S. Department of Defense initiated a project (Advanced Research Projects Agency Network: ARPA-NET) to create a nation-wide computer network using phone lines. For over two decades, this network became the "province of academic institutions, scientists, and government employees engaged in research and communications" (p. 7) allowing them to share data between their remote computers. Initially, lack of standards created communication difficulties. It wasn't until 1989 when "Tim Berners-Lee led a team at Switzerland's European Particle Physics Laboratory (CERN) in developing what he dubbed World Wide Web standards" (p. 8). In the following years, scientists at CERN conceptualized the World Wide Web (WWW) with the sole purpose of making research findings and scientific materials available to the academic and scientific community on a global network (Lau, 2000, p. i).

Shea-Schultz and Fogarty (2002) describe the next "great innovation for the Web" as occurring in 1992 when programmers at the University of Illinois' National Center for Supercomputing Applications (NCSA) developed the Mosaic browser that enhanced text with embedded graphics (p. 8). In the same year, the U.S. government made the decision to free the web for commercial use (p. 9). The expanded use of the Internet was fueled by a parallel advancement in the "rise of increasingly powerful, yet reasonably priced, personal computers fueled by silicon microchip processors" (p. 9). The next generation of the internet, Web 2.0, surfaces and discussions of wiki's and blogs and Facebook and Myspace fuel the growing area of online social networks. Kasworm and Londoner (2000) offer useful advice in suggesting that it is important "to accept and embrace the possibilities of technology" (p. 225) and accept Knowles (2005) acknowledgement of technology as being in the "andragogical tradition" (p.237), consistent with his adult learning idea of self-directedness. While information communication technology (ICT) has played an integral part in the development of the theories of adult information, it will more profoundly influence future development.

THE ROLE OF ICT ON THEORY BUILDING IN ADULT EDUCATION

Adult education like many academic disciplines advances through a series of steps involving new discoveries being made as old hypotheses are tested and confirmed or replaced by new ideas. Peter Jarvis (2009) recounts the personal experience of developing his own theory of learning. Beginning with input from workshop participants, he "recognized that all the psychological models of learning were flawed, including Kolb's well-known learning cycle, in as much as they omitted the social and the interaction" (p. 23). He continued to develop models and refine them based on analysis and new data.

Malcolm Knowles (2005), in his classic text "The Adult Learner", chronicles the historical development of learning theories in a summary of propounders and interpreters. His list includes 61 propounders and 33 interpreters who have influenced the development of learning theories over the past 130 years by their complimentary roles of putting forward new ideas for consideration and interpreting those ideas in light of practice. Not only did they influence each other but in fact they all developed as a result of societal influences and in turn had an impact on that very society. It was this interaction that moved adult education forward as a field of study. This chapter explores the role of technology in the development of the field of adult education and suggests how today's Web 2.0 technology can enhance the field's future growth.

This exploration begins by revisiting the discussion of the Renaissance in the previous section that chronicled the history of adult education. During the Renaissance, the familiar work of Galileo (1564-1642) and Newton (1642-1727)

built on the thinking of their contemporary Francis Bacon (1561-1626). Bacon is credited with the development of a new approach to scientific inquiry that has influenced the methodology by which every academic field advances. This disciplined approach to acquiring and managing new knowledge involves the following steps: an observation of phenomena or the formulation of a question; the development of a hypothesis and making a prediction; testing the hypothesis by experimentation; analyzing the data and drawing a conclusion; communicating the results. A detailed study of these steps reveals several threads that are woven through them and which will form the foundation of the discussion in this chapter. Those common threads are access to data, analysis and communication of results, and collaboration.

Access to Data

It is important to remember that the impact of technologies on data gathering is not new. A significant anniversary in 2009 commemorates the fact that 400 years ago, Galileo turned the newly invented telescope to the sky and began an amazing expansion of new data acquisition with this new optical technology. As the field of adult education advances, the data in this field requires access to previous research results and sources of new data in publications and people in practice. This data gathering stage can be a tedious and time-consuming effort as the researcher visits archives and libraries and locates experts and practitioners. But information communication technology has had a huge impact on this effort. Michael Moe (2000), in a publication entitled "The Knowledge Web" refers to the "richness" and the "reach" of the Internet (p. 3). In academic circles, this richness or depth of information becomes obvious in the plethora of digitized reports, texts, and publications from government agencies, academic institutions and private enterprises that are available online. The reach or breadth of the sources of information is obvious in the access to digital libraries across the planet. Moe (2000) also notes the importance of improved bandwidth for speedy access and comments that "cable companies, telco's, satellite/wireless companies and ISP's are locked in an epic battle over standards, protocols, open access and kilobits per second" (p. 63). This leads one to believe that this competition will result in even increased downloading speeds.

If the researcher needs to locate subject matter experts, increasingly sophisticated web browsers, university websites and the social networking sites of Web 2.0 facilitate this process. And once located, communication can be facilitated by phone, email, and web-conferencing to name just a few possibilities.

ANALYSIS AND COMMUNICATION OF RESULTS

Whether it is data gathering from online sources or newly acquired data that needs to be analyzed, technology again becomes instrumental in facilitating the task. Sorting through the references and the data can be an overwhelming task. However, software programs abound for the analysis of both quantitative and qualitative data. Excel and SPSS are only a sampling of those available for quantitative data analysis. Atlas and NVivo are just a few of those software programs available for data mining and qualitative data analysis. Once the data is grouped, analyzed, charted, graphed and tabled, it needs to be interpreted in the light of the research question and then the results communicated. Traditionally this communication took the form of a paper presented at a professional conference or publication in a scholarly journal. Rhoades, Friedel and Morgan (2009) cite the lag time from data analysis until the publication in a journal as being eliminated by several open source journals that allow researchers to share findings quickly with mass audiences. They also mention how the traditional workshops, seminars and

conferences are being supplemented by online communities of practice web sites.

The peer review process has always required communication between colleagues. Today that communication is facilitated by a number of new developments in the area of information communication technology. Global communication is easy and free using Skype. Information can be broadcast to groups in real time using podcasts and asynchronously by a post on Youtube, wiki's or blogs. The emergence of computer mediated communication (CMC) as a field of study suggests the level of impact that technology has had on communication. Just as the body of knowledge surrounding adult education has developed over almost a century to define that field, the literature on CMC is beginning to define this new field. The intersection of the field of CMC and adult education might be the topic of future studies.

COLLABORATION

Rhoades, Friedel and Morgan (2009) define collaboration as "the process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own (p. 24). The collaboration among members of a discipline has always existed in the form of face-to-face meetings and conferences or written communication. But information communication technology has added several new dimensions to this process and in fact has changed our social paradigm. Loader (1998) announces that "the emergence of the new information and communications technologies such as the Internet are said to herald the coming of the "information society": a new social and economic paradigm restructuring the traditional dimensions of time and space within which we live, work, and interact" (p. 3). This new social paradigm changes our entire sense of space and time. Sitting with an individual or group of colleagues in a room has been replaced by typing on a computer keyboard or on any of the numerous hand held internet accessable devices, reading text on a screen, or listening to voices on a phone. Instead of feeling the presence of other collaborators, participants are connected by voice or text and might be easily distracted by daily tasks.

Several authors address this environment that provides a new idea of space and society. Loader (1998) reminds us that numerous social scientists share the notion that "society is being transformed by a revolution in information technology which is creating an entirely new social structure" (p. 4). Hakken (1999) suggests that the @ symbol used to indicate an electronic domain in an email address, is also an indication of the social space to which one is connected. Web 2.0 technologies promise to improve social networks. Hakken (1999) advises that "we must come to terms…with an accelerated decoupling of space from place (p. 215). White and Bridwell (2004) concur by suggesting that new technology is "significantly altering the social role of learning" and that distance learning is only an intermediate step toward a "telelearning environment" in which distance and location become arbitrary (p. 287).

In this new societal paradigm, a new sense of community emerges. The adult education vocabulary around "learning communities" and "communities of practice" has been around for a few decades but their meaning has evolved with the new sense of space provided by information communication technology. Palloff and Pratt (1999) remind us that the words "community and communicate have the same root, communicare, which means to share" (p. 25). Now that sharing takes place outside of shared physical space. Daly, Fisher and Martin (2000) note that community can be defined as a "source of identity, of moral and social stability, of shared meaning and mutual cooperation" (p. 542) and also as a "group of people who are socially interdependent, who participate together in discussions and decision making, and who share certain practices that both

define the community and are nurtured by it" (p. 542). All of these describe professionals in a field such as adult education and none of them require shared physical space.

On a more philosophical note, Maxine Greene (1995) connects community to learning in her chapter, "The Passion of Pluralism". "We are in search of what John Dewey called 'the Great Community" but at the same time, we are challenged as never before to confront plurality and multiplicity" (p. 155). "To open up our experience to existential possibilities of multiple kinds is to extend and deepen what each of us thinks of when he or she speaks of a community" (p. 161).

Palloff and Pratt (1999) remind us that "the power of community is great. The power of a learning community is even greater, as it supports the intellectual as well as personal growth and development of its members" (p. 163). They also credit a learning community with being able to create "a sense of excitement about learning together" and renewing "the passion involved with exploring new realms in education" (p. 163). While these communities were originally place bound, today's writings about communities involve the discussion of the virtual community where physical distance and time difference are redefined. The challenge can be how to foster a sense of "community" among the participants without the comfort of physical proximity. But increasingly, the traditional whiteboard and flip charts are replaced by fax machines, computer files, email, telephones, and video and web conferencing. The instantaneous feedback between colleagues might be broken when using any asynchronous communication medium that could create a challenge in being able to sustain the individuals' participation and engagement. Another challenge occurs if the sophistication of the communication infrastructure differs from location to location so that accommodation needs to be made for these logistical constraints.

But aside from the challenges, participation in an online learning community offers a number of unique benefits. Students participating in such online learning communities offered the following reflections. One participant specifically mentioned community in her reflection. "A community emerged during the chat session as the group members experienced a sense of personal relatedness." Another mentions the virtual space. "I was enamored with the power of this medium. It gave me a sense of jointly occupying a temporary space (similar to a class room) and created the illusion of physical proximity and group cohesion through spontaneous conversation and sharing. At the same time it eliminated space restrictions—all four of us gathered from numerous locations, Carol from as far as the UK, to meet and discuss the topic in a real-time environment." Yet, another elaborates on this idea, including the flexibility of time in an asynchronous online discussion. "The discussion conducted here is very involving; everybody could get a chance to express his own ideas. Moreover, the discussion board online gives us a further opportunity to share ideas with all of the class. It has been developed into a real learning forum. Everybody chose their favorite articles about learning and training in their fields, and then shared their own ideas on the "blackboard", thus evokes a real open discussion. This learning style makes me feel that I can learn anytime anywhere from so many people of diverse fields. By posting, reading, and replying online, our learning location has burst out of the limited classroom and lecture time boundary, thus it has given us an authentic flexibility and motivation to learn." Community, power, flexibility are strong descriptors for this new social space and ones that could potentially have a very positive impact on the field of adult education.

It is important that these features of an online collaboration can be viewed as positive for some yet negative for others. While the lack of personal, non-verbal clues is often cited as a negative feature of one line learning communities, one student sees it as a positive. She notes "It is a medium that does promote engagement in discourse without

the normal bias of face-to-face communication (because our appearance is reduced to letters in a computer screen). And although we have the opportunity to influence and suggest tone, etc. by the use of color, sizes, etc. the initial barriers to traditional communication are somehow diminished. The use of discussion boards allows for a lot of reflection prior to committing to opinions. The student has the time and the resources to build a message that will convey every idea that s/he wants to communicate". One saw a chat room experience as more egalitarian. "The conversations were not superficial interactions but purposeful, focused and useful. The instructions preceding the chat in terms of reading position papers, preparing questions followed by chat on each paper allowed all group members an equal opportunity to have their "voices" heard, making the chat more effective. Setting up small groups of 4 allowed each one the time and opportunity to participate and understand each other's situations more closely and attentively. The archived feature of the chat that automatically creates transcripts of discussions make it useful for rereading and future reference." As more new participants venture into this virtual space, they might agree with the following comment. "The best part lies in my realization toward the end of the chat that a synchronous professional discussion isn't too difficult a thing for me. This is my first time to do a real one with international professionals. As a non-native speaker, I was very self-conscious and afraid I'd loose face before this highly learned group who seem to have a better and deeper understanding of all the theories we're learning. But the 2-hours went by fast and I felt more and more comfortable, even not nervous when it's my turn."

As this new space and society become more populated, the geographic distance encompassed by learning communities will demand more use of technology as the major vehicle for communication among professionals and between professionals and students. Technology will also increasingly enhance traditional face-to-face meetings and allow for the expansion of the dialogue before and after the event. Yet, there is still a great deal to be discovered as to the limitation, shortcomings and optimal utility of technology-enhanced and technology delivered communication. Professional adult educators and their colleagues in the emerging field of CMC mentioned earlier are poised at the doorstep of an exciting new journey. But there is a great need for researchers to delve into the many questions surrounding this methodology. The exploration of this new learning landscape in the literature and online venues will likely continue moving the field of adult education and its intersection with technology forward. Researchers and practitioners alike have only scratched the surface of possibilities. Maxine Greene (1995) assures us that "Learning to look through multiple perspectives, young people may be helped to build bridges among themselves; attending to a range of human stories, they may be provoked to heal and to transform. Of course there will be difficulties in at once affirming plurality and difference and working to create community" (p. 167).

FUTURE DIRECTIONS

In his publication "The Knowledge Web", Moe (2000) recounts that historically, "nations have developed based on their access to physical resources or their ability to surmount physical barriers" (p. 33). He mentions the ability of England and Spain to cross oceans, Germany's ability to turn coal and iron resources into steel, and the United States' utilization of agricultural and industrial resources. This physically based economy depended on the resources of coal, oil and steel. He then compares this to today's knowledge based economy in which the use of the Internet and electronic delivery of information relies on the "resources of brainpower and the ability to acquire, deliver and process information effectively" (p. 33). He suggests that the "Internet is to the Knowledge Revolution what the railroad was to the Industrial Revolution" (p.

14). He notes widespread optimism surrounding the twenty-first century with "futurists predicting a period of rapid growth at the magnitude of the industrial revolution, if not greater, with the advent of the knowledge-based economy" (p. 33). Alheit (2009) suggests the "communication and interaction networks of the IT age" will "create the "future form of knowledge" which is "*doing knowledge*, a kind of lifestyle that determines the structures of society far beyond the purely occupational domain" (p. 119).

As we look to the future we need to be prepared for a mindset very different from today. Moe (2000) sites an example that might give us an insight into this new mindset. He cites an example of a first grade teacher who collected well-known proverbs. She gave each child in the class the first half of the proverb and asked them to complete the phrase. One example was "No news is…". Some students completed the phrase with "impossible". The twenty first century will have students who expect information to be omni-present. Another example was "If at first you don't succeed…" The student ending was "get new batteries" (p. 121). The electronic age is an influence on how we think and solve problems. How this new mindset will influence the field of adult education is addressed by several authors.

Merriam (2008) notes two shifts in the focus of adult learning. One shift is from the individual learner to the learner within the various contexts in which learning takes place. This new perspective considers "learning as part of the system's cultural and historical norms…(and) how physical space and spatiality encourages or inhibits learning" (p. 94). The second shift is from learning as a purely cognitive activity to one that is multidimensional in nature. This might be considered to be a more holistic approach in which "learning is construed as a much broader activity involving the body, the emotions, and the spirit as well as the mind" (p. 95). This appears to be an expansion of the previous reference to Illeris' three dimensions of learning and Jarvis' inclusion of social and interaction as topics when developing a new model of adult education. Mazarr (1999) notes that "knowledge-era learning" must become more "holistic" and "high-tech"; must "emphasize creativity and participation" and be "characterized by more choice and competition" (p. 285). As technology has opened up previous boundaries on our learning, the new mindset seems to have opened the boundaries of our concept of adult education.

Fenwick (2008) adds to the discussion of the future by listing 4 emerging trends in adult education: areas of definitions, an increased emphasis on practice-based learning, the importance of identity and literacy and power and politics. Fenwick (2008) suggests that "people's sense of their own knowledge in work and the knowledge valued by the group to which they see themselves belonging form a critical element of their sense of identity" (p. 22) and there are "fundamental tensions related to what knowledge counts most and who says so" (p. 24). Finally, the traditional organizational power and politics are taking new forms in the virtual organizations and transnational sites. The importance of these new forms of power and politics is evident in Senge's (2006) concept of the learning organization that he proposed in the early 1990's and Wenger's (1998) communities of practice model that emerged in the late 1990's. The importance of their role will continue in the future. Walther and Ramirez (2010) recount the numerous social networking systems such as Facebook and MySpace and their role in establishing large social networks that "help individuals maintain a larger number of ties than people can typically maintain without such technology" but believe that "the greatest utility of social networking systems has yet to be explored" (pp. 278-79). Smith and Wilson (2010) note that today, "interpersonal relationships can be initiated, escalated, maintained, and dissolved either wholly, or in part, through mediated technology" and they predict that "as technology further evolves, the study of the establishment and main tenance of interpersonal relationships via Computer Medi-

ated Communication is an area that will thrive" (p. 14). Walther and Ramirez (2010) note that the "use of synchronous, text-based IM technology plays am important role in sustaining ongoing associations, and the growth of text-messaging via mobile phones also suggests that the centrality of text-only communication may not subside anytime soon" (p. 272).

Further future predictions follow two themes. The first cautions that emerging new technologies will not replace the old. Valmont (2003) reminds us that "oral storytelling did not die when Gutenberg created the printing press" and "novels did not go away when films became popular. Literacies simply evolve" (p. 298). In his predictions for the future, Mazarr (1999) delineates "three specific categories of technologies: biotechnology, renewable energy, and information technology" (p. 73). Under information technology he notes the "Pervasive Knowledge Network" and "nanotechnology" (pp. 82-83).

This chapter has connected decades old learning theories to today's technology rich environment. While the concept of the learning community in the world of adult education is only a few decades old, technology in the form of Web 2.0 is providing exciting options for enhancing and expanding learning communities across space and time. The ongoing collaboration within these learning communities will fuel the advancement of the field of adult education. The time has come for adult education to meet Web 2.0 technology in a world where Malcolm Knowles six principles of andragogy exist in cyberspace. The author's predictions might be a future with even more connections, more blurring of boundaries; a future that values personal philosophies but shared experiences and goals. Maxine Greene (2001) challenges us to see the future as an opportunity for "thinking of things as if they could be otherwise" (Greene, 2001, p. 127).

CONCLUSION

Heaney (2000) reminds us that "individual practitioners do not define the field of adult education, nor do experts. A definition of a field of practice is the social product of many individuals who negotiate the values and meaning of work they come to see as serving a common purpose over time" (p. 561). The interactions between these individuals that result in that social product have been and will continue to be impacted by information communication technology. This theme is supported by Rhoades, Friedel, and Morgan who define Web 2.0 as that second generation of the World Wide Web that "aims to enhance creativity, information sharing, collaboration and functionality of the web" (p. 25) and by Farmer (2010) who describes Web 2.0 technology as a place where "knowledge is collaboratively built and shared" (p. 272).

However, the development of this social product is not without its negative aspects. Farmer (2010) warns that "the issue of professional learning communities and advancement of knowledge has clashed with traditional copyright issues. On one hand, intellectual property and proprietary information has become an industry nightmare as employees shift from company to company, taking their brain power and corporate knowledge with them" (p. 274). Rhoades, Friedel, and Morgan echo this concern asking "how can we share more, do it more efficiently, and still get credit for the work we do?" (p. 27). A related issue surfaces. Is it collaboration or competition? A recent issue of Science reports a recent discovery in astronomy and "the ensuing race to publish observations" as a "high-stakes pursuit in which communications networks make possible worldwide, round-the-clock collaborations, and pressures for cooperation and competition often come into simultaneous play. 'This is extreme astronomy'" (Bhattacharjee, 2009). Today's technological advancement is characterized by electronics and digitization, by faster and farther. While the efficiency of

such a round the clock network is dramatically increased, the issues of ownership and credit can become more complicated. It seems that Web 2.0 with its podcasts, blogs, twitters, Youtube, virtual realities and global, non-stop researching will be a part of the future of adult education. Our greatest challenge as professionals in the field may be to ensure that the essential component of critical reflection finds a place in this world of "extreme adult education".

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KEY TERMS AND DEFINITIONS

Adult Learning: The process of gaining knowledge and expertise that is unique to adults

Communities of Practice: Learning communities whose members share a common field of practice or profession.

Critical Reflection: The process of analyzing and questioning experiences and assumptions

Learning Community: A group of students committed to learning collaboratively.

Social Networks: informal groups of learners who interact regularly for the purpose of learning.

Transformative Learning: The process of becoming critically aware of our assumptions which may result in a change in perspective and acting upon these new understandings

Web 2.0: The second generation of the internet particicularly known for its enhanced social networking features.

Chapter 1
The Role of Information Communication Technologies in Enriching Adult Education Theory Building

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ABSTRACT

Communication technology has influenced every aspect of our personal and professional lives. Yet, much of the literature on this influence focuses on the impact it has had on our actions and on the practice of teaching and learning. Little has addressed the impact of communication technology on the theory building in the field of adult education. How has it influenced the movement forward of the field itself? How has it changed the communication among professionals and between professionals and students? It has been almost 100 years since Adult Education made its entry into the arena of professions and fields of study. In recent decades, Malcolm Knowles is credited with popularizing adult learning theory, yet Stephen Brookfield, Jack Mezirow, Maxine Greene and Knud Illeris are among those who have moved the field forward. Along with this progression in theory, the utilization and sophistication of communication technology has escalated. This chapter will focus on the influence of communication technology throughout this history of adult education, particularly its influence on communities of learning and communities of practice for the experienced and the emerging adult educational professional and how it might enrich the future of the profession.

INTRODUCTION

Adult education traces its history to philosophical roots in ancient civilizations yet its emergence as an academic field is considered to have begun with the establishment of the American Association of Adult Education in the early 20th century. This chapter will begin by exploring the major theories and theorists in the field of adult education. While Malcolm Knowles is credited with popularizing adult learning theory in the 1970's, Stephen Brookfield, Jack Mezirow, Victoria Marsick and Knud Illeris are among those who have moved the field forward over the recent decades.

DOI: 10.4018/978-1-61692-906-0.ch001

Along with this progression in theory, the use of technology has escalated in popularity creating a need to frame its application in the foundational principles of adult education; an "Andragogy 2.0" focus is required. Technology has played an important part in the development and direction of the field. The Gutenberg printing press is often credited with being the beginning of the influence of technology on education and communication, however all early advances in transportation and communication have had an influence on the field of adult education. Any technology before and since Gutenberg that has facilitated the coming together of individuals and knowledge whether by transporting the individuals to a common place to share knowledge or by communicating the information to the individuals at remote locations has influenced adult learning. Today, wiki's and blogs are the norm. Some universities offer space behind password-protected firewalls, while others advocate the use of public spaces for these online collaborations. What impact does this have on confidentiality and intellectual property issues? A plethora of questions begin to emerge and answers are only beginning to follow.

BACKGROUND

This chapter explores the role of information communication technology in the development of the field of adult education and suggests how today's Web 2.0 technology can enhance the field's future growth. To understand the background of this influence, each of these two components will be explored individually.

The Development of the Field of Adult Education

It has been nearly a century since adult education made its entry into the arena of professions and fields of study. But the roots of the field extend through millennia. Malcolm Knowles (1989) describes himself as being "part of a long and significant historical movement" (p. 72) and assigns the role of adult educators to great teachers of ancient China, Rome and Greece. However, he suggests that "ancient teachers were following their intuitions rather than some prescribed doctrine such as pedagogy" (p. 61). He continues that because of their experience with adults, they "perceived learning to be a process of active inquiry, not passive reception of transmitted content" and therefore "invented techniques for engaging learners in active inquiry" (p. 61). He credits the Chinese sand Hebrews with methodologies such as the "case method or critical incident". Wang and King (2010) note that one of the hallmarks of adult learning, critical reflection, was advanced by Confucius over 2,500 years ago. They add that ancient cultures in India included the "development of intuition, aesthetics, and a futuristic and ecological perspective" (p. 14) in their view of learning. The "Socratic dialogue" which Knowles (1989) attributes to the Greeks consisted of posing a dilemma to the group who would then pool their knowledge and experience to develop a solution. The Romans were credited with the methodology that involved forcing the students to state positions and to defend them.

While Knowles (1989) notes a gap in the literature on adult education between the fall of Rome and the Renaissance he also indicates that the "institutionalization of education for children" (p. 62) developed during that same period. The Renaissance is also credited with an abundance of new scientific discoveries and the development of a new approach to scientific inquiry. Galileo first pointed the newly invented telescope to the sky in 1609 beginning the use of optical technology in the investigation of our universe. During this period, Francis Bacon formulated the scientific method, a disciplined approach to searching for new knowledge that has influenced the advancement of every academic research project since and therefore will be investigated further in the next section of this chapter. As we consider the field of

adult education moving forward, we will include the impact of technology on the elements of this new approach to acquiring and managing new knowledge. Following the Renaissance, examples of adult education institutions throughout Europe can be seen in the folk high schools, the workers' education movement and apprenticeships.

Elias and Merriam (2005) suggest that during the colonial period the United States transplanted a form of "elitist-classical education" from primarily France and England to American educational institutions, notably Harvard. Knowles (1989) suggests that Benjamin Franklin might have been the first American role model for adult learning. Franklin's "Junto, a discussion club …to explore such intellectual challenges as morals, politics, and natural philosophy" (p. 63) became a model for other discussion groups and study circles. Knowles (1989) continues to note the importance of adult education throughout and on history citing examples in the citizen involvement initiatives in the American colonies and during the Civil War" (p. 64). However, Knowles (1989) suggests that the adult education movement during the early 1800's "that had the greatest impact on the quality of life in this country is agricultural education" and cites local and regional agricultural societies and fairs as locations for farmers to learn new practices to improve productivity on their farms. He credits organizations such as the Grange, Farmers' Union, and the American Farm Bureau Federation in the last quarter of the 1800's with educating the farmers. The emergence of these formalized groups will open the doors for a more structured communication among group members and might be considered examples of the communities of learning and communities of practice that will be explored in more detail in the next section of this chapter. Additionally, the Land Grant Act of 1862 was significant in that it set aside land in every state for a "land-grant college for research and study in the agricultural and mechanical arts by average students" (Knowles, 1989, p. 65). After the Civil War, the new industrial society brought a "compulsion for knowledge" (Knowles, 1989, p. 64) and the secondary education curriculum even expanded to include "life-related subjects" (Elias & Merriam, 2005, p. 23).

At the beginning of the 1900's, the progressive education movement was prevalent and included "vocational education, university extension and cooperative extension, settlement houses for new immigrants and Americanization education" (Elias & Merriam, 2005, p. 58). The notable voice of John Dewey was associated with these ideas of pragmatism and progressive thought. Dewey's notion that practice is superior to theory was in direct conflict with the earlier theories of Aristotle and Plato who espoused the superiority of theory. Dewey argued that "education appropriate for American society must include both the liberal and the practical, both education for work and education for leisure" (Elias & Merriam, 2005, p. 62). This was a digression from earlier thinkers who suggested that primarily liberally educated leaders were required for the growth of America. This influenced education by implying that the experiences of the learners were at the heart of the educational process thus impacting the role of the instructor in the classroom and that curriculum should be expanded to include practical knowledge. This period between the Civil War and World War I is credited with the emergence of numerous organizations focused on practical adult education. The creation of the Cooperative Extension Service and the passage of the Smith-Hughes Vocational Education Act began the formation of vocational schools open to adults across the country (Knowles, 1989).

While James Watson is credited with founding behaviorism in the 1920's, (Elias & Merriam, 2005, p. 83), Edward Thorndike's ideas are connected with the behaviorist movement with a focus on performance and an emphasis on the scientific method and experimentation to arrive at truth. Thorndike's 1928 publication, *Adult Learning* is considered the first major report of research on learning with adults. He reported that

adults could be expected to learn at the same rate as younger students and that the best time to learn was just prior to using the knowledge (Elias & Merriam, 2005).

The formalization of this body of knowledge attributed to the field of adult education begins to solidify when the American Association of Adult Education, the forerunner of today's Association of Adult and Continuing Education, began to sponsor studies in the field in the 1920's. By 1934, this Association published the first *Handbook of Adult and Continuing Education* that "met the chief function of the Association as a clearinghouse for information about adult education" (Wilson & Hayes, p. 7). Wilson and Hayes (2000) explain that the "first attempts to define the field were to show its institutional and programmatic manifestations throughout society" and the "relation of knowledge and practice" (p. 7). This 1934 handbook and its next edition in 1936 were a directory of both national organizations and local initiatives of national significance in adult education including descriptions of the activities of the organizations such as "agricultural extension, workers education, and Americanization programs" (Wilson & Hayes, p. 7). The formalization of graduate programs in adult education began to emerge in the late 1920's and by the early 1930's the first doctorates were awarded (Rowden, 1934).

The handbook continued as the defining body of knowledge in the field of adult education and reflected the field's connection to societal events. The next edition of the handbook in 1948 reflected the influence of World War II, but continued the tradition of informing the reader about how people "in the conduct of their daily lives go about the business of informing and educating themselves" (Cartwright, p. xi). This edition also was the first to link to academia. It was published by the Institute of Adult Education at Teachers College, Columbia University where the first graduate program of adult education had been established. Wilson and Hayes (2000) reflect that this handbook was significant in demonstrating that "the field was beginning to develop a sense of its professional identity first through study of its practices and now through developing a body of knowledge to inform that practice" (p. 8).

The handbook continued to evolve and in 1960 when the next volume was edited by Malcolm Knowles, it included individual essays by adult educators in order to "provide an overview description of the current nature, characteristics, and trends in the field of adult education" (p. xii). Modern icons in the field of adult learning were being to emerge and the story of their interactions are a model for communication that moved the field of adult education forward. In his autobiography, Knowles (1989) credits a seminar led by Cyril Houle at the University of Chicago with initiating his own interests in the historical foundations of adult education. In 1961, Cyril Houle's classic "The Inquiring Mind" laid the foundation for Tough's seminal publication "Learning Without a Teacher" (1967) and "The Adult's Learning Projects" (1979). These introduced the concept of self-directed learning and later influenced Knowles. Tough's (1979) research indicated that adults were more successful learners if they were aware of the benefits of their learning and the negative consequences of not learning. This later became one of Knowles' (2005) six core andragogical principles: "the learner's need to know, self-directed learning, prior experience of the learner, readiness to learn, orientation to learning and problem solving, and motivation to learn" (p. 183). He also introduced the term "andragogy" in the United States. It was a term that he learned from a European colleague who defined it as the "art and science of helping adults learn" (Merriam, Caffarella, & Baumgartner, 2007, p. 84). While a great deal of discussion around these principles continues in the field of adult education, they provide a foundation for new theories and a guide for practice. These principles will be examined in the context of information technology later in this chapter.

Knowles continued to contribute to the 1970 handbook by summarizing the themes of the earlier handbooks such as "educating the public, collecting information, the elimination of 'profit makers', the debate between cultural and vocational adult education, and the tensions between self-actualization and educating a democratic citizenry" (Wilson & Hayes, p. 9). Wilson and Hayes describe this focus of the 1970's and the next 1980's handbooks as reflecting the "dominance of scientifically defined professional practice" (p. 12) of those decades.

Knowles' ideas formed the foundation for adult education but were also the subject of discussion by other noted adult educators, among them Stephen Brookfield. While Brookfield (1986) questioned Knowles ideas of self-directedness, his assumption of relating learning to particular social roles and his focus on the need of adult's for immediate application, he was also developing his own ideas on critical thinking and critical theory. Brookfield defined critical thinking or critical reflection as "reflecting on the assumptions underlying our and others' ideas and actions, and contemplating alternative ways of thinking and living" (Brookfield, 1986, p. x) and suggested that these were distinctive characteristics of adult learning and of adult education practice (2005).

Brookfield also offers a connection between critical reflection and transformative learning. Mezirow defines his own transformative learning theory as a process by which our taken-for-granted frames of references are transformed by making them more "inclusive, discriminating, open, emotionally capable of change, and reflective" (Merriam, 2007, p. 255). Brookfield explains that "although critical reflection is an ineradicable element of transformative learning, it is not a synonym for it. It is a necessary but not sufficient condition of transformative learning… .transformative learning cannot happen without critical reflection but critical reflection can happen without an accompanying transformation in perspective" (Brookfield as cited in Mezirow, 2000, p. 125). If one accepts the definition of critical thinking above, then it becomes obvious that critical reflection is not a process that is accomplished in a few minutes but might take hours or days or weeks. This chapter will examine the role of technology in facilitating critical reflection over time. For example, a face-to-face discussion relies on participants' instant insights and reactions. In contrast, an asynchronous discussion online affords everyone the opportunity to read others' comments, reflect on them, then return to the discussion at a later time with a thoughtful comment as the result of critical reflection creating a foundation for transformative learning.

Transformational learning has had a longstanding impact on adult education. Wang and King (2010) suggest that transformative learning has its roots in ancient Chinese and Indian philosophies and cite examples of writings by Confucian and Buddhist scholars to support this claim. On a more modern note, Sharan Merriam's (2008) review of the last three updates of her *New Directions for Adult and Continuing Education* revealed that a chapter on transformational learning was the only constant across these volumes that span fifteen years. Looking to the future, Kegan (2009) refers to transformational learning as having "genuinely landscape altering potential" (p. 41).

While Brookfield's and Mezirow's ideas on critical reflection provided a foundation, Illeris (2004) introduced a Danish perspective with his own theory of the three dimensions of adult learning: cognitive, emotional and social. His model consisted of an inverted triangle with the two psychological poles, Piaget's cognition and Freud's emotion, at the two corners at the top and society at the lower vertex. However, he stressed that "all three dimensions are always integrated parts of the learning process and in practice do not exist as separate functions" (p. 20). Jarvis (2009) continues with this theme by stating that "I was clear in my own mind that learning always started with experience and that experience is always social…"(p. 24). This theme is evident in the 2000

edition of the *Handbook of Adult and Continuing Education* in which Wilson and Hayes emphasized "adult education as a social practice of practical and prudent action, not just as an applied technical science" (p. 12). The emerging application of social networks such as wiki's and blogs will be discussed in the next section and surely influence these social aspects of learning.

Malcolm Knowles (2005) sees technology as being in the "andragogical tradition" (p. 237) and as consistent with the adult learning idea of self-directedness. "The creation of a learning community supports and encourages knowledge acquisition. It creates a sense of excitement about learning together and renews the passion involved with exploring new realms in education" (Palloff & Pratt, 1999, p. 163). As Kasworm and Londoner (2000) advise, "the challenge for adult education is to accept and embrace the possibilities of technology (p. 225).

The Emergence of Information Communication Technology

While today the term information communication technology seems to be synonymous with computers it is important to consider that technology in many forms has impacted the academic field of adult education for centuries. Lesgold (2000) reminds us that "prior to the 15th century, codified knowledge was extremely rare" and that "direct discussion with a wise person was the primary way of gaining knowledge" (p. 399). Books were not easily replicated so where expensive and rare. Even with the development of printing, only certain key books were reproduced widely. However, by the mid 1400's Gutenberg's invention of the first printing press with movable type and usable ink for the process would change the distribution of knowledge dramatically. Hewitt (2005) suggests that "the sixteenth and twenty-first centuries share a dramatic element in common – the birth of a revolution in communication technology" (p. 47). He credits Gutenberg's invention with the emergence of the Renaissance and notes that the "ability to publish books inexpensively decentralized the power of knowledge and forever changed the structure of society" (p. 47). He calls this "Gutenberg's gift" and suggests that while it was an "invitation to new understanding and human liberty" it also "bestowed upon its recipients new responsibility for critical reflection" (p. 48). This responsibility becomes even more important in the twenty-first century as the dissemination of knowledge becomes even more widespread at an accelerating rate. Lesgold (2000) offers another comparison between these two centuries by suggesting that just as the book "removed some of the need for memorization as a force for knowledge distribution, so the computer removes some of the need for over learning of routine information processing procedures, since these can be accomplished by computers" (p. 401). While numerous examples could be cited, we can agree with Knowles (1989) as he credits Gutenberg's invention with having a great "impact on the advancement of adult education" (p. 62).

But between the printing press of the mid 1400's and today's computers technological innovations abound. Therefore it is useful to reflect on their influences on adult education. In the courses that the author teaches at Teachers College/Columbia University, she often divides the class into groups and assigns each group a period in history. She then presents the scenario that the students are professionals in the field of adult education and have just been invited to attend a workshop on the latest technology in adult education. They are asked to identify what technologies they will expect to be presented at the workshop and how those technologies likely impacted the field of adult education at that time. Whether it was the printing press, telephone, copying machine or computer, new technologies have always presented opportunities and challenges to adult education professionals.

But following Hewitt's earlier jump from the fifteenth to the twenty-first century, we look to the

emergence of this new revolution in information communication technology. Shea-Schultz and Fogarty (2002) suggest that this new era began in the late 1960's when the U.S. Department of Defense initiated a project (Advanced Research Projects Agency Network: ARPA-NET) to create a nation-wide computer network using phone lines. For over two decades, this network became the "province of academic institutions, scientists, and government employees engaged in research and communications" (p. 7) allowing them to share data between their remote computers. Initially, lack of standards created communication difficulties. It wasn't until 1989 when "Tim Berners-Lee led a team at Switzerland's European Particle Physics Laboratory (CERN) in developing what he dubbed World Wide Web standards" (p. 8). In the following years, scientists at CERN conceptualized the World Wide Web (WWW) with the sole purpose of making research findings and scientific materials available to the academic and scientific community on a global network (Lau, 2000, p. i).

Shea-Schultz and Fogarty (2002) describe the next "great innovation for the Web" as occurring in 1992 when programmers at the University of Illinois' National Center for Supercomputing Applications (NCSA) developed the Mosaic browser that enhanced text with embedded graphics (p. 8). In the same year, the U.S. government made the decision to free the web for commercial use (p. 9). The expanded use of the Internet was fueled by a parallel advancement in the "rise of increasingly powerful, yet reasonably priced, personal computers fueled by silicon microchip processors" (p. 9). The next generation of the internet, Web 2.0, surfaces and discussions of wiki's and blogs and Facebook and Myspace fuel the growing area of online social networks. Kasworm and Londoner (2000) offer useful advice in suggesting that it is important "to accept and embrace the possibilities of technology" (p. 225) and accept Knowles (2005) acknowledgement of technology as being in the "andragogical tradition" (p.237), consistent with his adult learning idea of self-directedness. While information communication technology (ICT) has played an integral part in the development of the theories of adult information, it will more profoundly influence future development.

THE ROLE OF ICT ON THEORY BUILDING IN ADULT EDUCATION

Adult education like many academic disciplines advances through a series of steps involving new discoveries being made as old hypotheses are tested and confirmed or replaced by new ideas. Peter Jarvis (2009) recounts the personal experience of developing his own theory of learning. Beginning with input from workshop participants, he "recognized that all the psychological models of learning were flawed, including Kolb's well-known learning cycle, in as much as they omitted the social and the interaction" (p. 23). He continued to develop models and refine them based on analysis and new data.

Malcolm Knowles (2005), in his classic text "The Adult Learner", chronicles the historical development of learning theories in a summary of propounders and interpreters. His list includes 61 propounders and 33 interpreters who have influenced the development of learning theories over the past 130 years by their complimentary roles of putting forward new ideas for consideration and interpreting those ideas in light of practice. Not only did they influence each other but in fact they all developed as a result of societal influences and in turn had an impact on that very society. It was this interaction that moved adult education forward as a field of study. This chapter explores the role of technology in the development of the field of adult education and suggests how today's Web 2.0 technology can enhance the field's future growth.

This exploration begins by revisiting the discussion of the Renaissance in the previous section that chronicled the history of adult education. During the Renaissance, the familiar work of Galileo (1564-1642) and Newton (1642-1727)

built on the thinking of their contemporary Francis Bacon (1561-1626). Bacon is credited with the development of a new approach to scientific inquiry that has influenced the methodology by which every academic field advances. This disciplined approach to acquiring and managing new knowledge involves the following steps: an observation of phenomena or the formulation of a question; the development of a hypothesis and making a prediction; testing the hypothesis by experimentation; analyzing the data and drawing a conclusion; communicating the results. A detailed study of these steps reveals several threads that are woven through them and which will form the foundation of the discussion in this chapter. Those common threads are access to data, analysis and communication of results, and collaboration.

Access to Data

It is important to remember that the impact of technologies on data gathering is not new. A significant anniversary in 2009 commemorates the fact that 400 years ago, Galileo turned the newly invented telescope to the sky and began an amazing expansion of new data acquisition with this new optical technology. As the field of adult education advances, the data in this field requires access to previous research results and sources of new data in publications and people in practice. This data gathering stage can be a tedious and time-consuming effort as the researcher visits archives and libraries and locates experts and practitioners. But information communication technology has had a huge impact on this effort. Michael Moe (2000), in a publication entitled "The Knowledge Web" refers to the "richness" and the "reach" of the Internet (p. 3). In academic circles, this richness or depth of information becomes obvious in the plethora of digitized reports, texts, and publications from government agencies, academic institutions and private enterprises that are available online. The reach or breadth of the sources of information is obvious in the access to digital libraries across the planet. Moe (2000) also notes the importance of improved bandwidth for speedy access and comments that "cable companies, telco's, satellite/wireless companies and ISP's are locked in an epic battle over standards, protocols, open access and kilobits per second" (p. 63). This leads one to believe that this competition will result in even increased downloading speeds.

If the researcher needs to locate subject matter experts, increasingly sophisticated web browsers, university websites and the social networking sites of Web 2.0 facilitate this process. And once located, communication can be facilitated by phone, email, and web-conferencing to name just a few possibilities.

ANALYSIS AND COMMUNICATION OF RESULTS

Whether it is data gathering from online sources or newly acquired data that needs to be analyzed, technology again becomes instrumental in facilitating the task. Sorting through the references and the data can be an overwhelming task. However, software programs abound for the analysis of both quantitative and qualitative data. Excel and SPSS are only a sampling of those available for quantitative data analysis. Atlas and NVivo are just a few of those software programs available for data mining and qualitative data analysis. Once the data is grouped, analyzed, charted, graphed and tabled, it needs to be interpreted in the light of the research question and then the results communicated. Traditionally this communication took the form of a paper presented at a professional conference or publication in a scholarly journal. Rhoades, Friedel and Morgan (2009) cite the lag time from data analysis until the publication in a journal as being eliminated by several open source journals that allow researchers to share findings quickly with mass audiences. They also mention how the traditional workshops, seminars and

conferences are being supplemented by online communities of practice web sites.

The peer review process has always required communication between colleagues. Today that communication is facilitated by a number of new developments in the area of information communication technology. Global communication is easy and free using Skype. Information can be broadcast to groups in real time using podcasts and asynchronously by a post on Youtube, wiki's or blogs. The emergence of computer mediated communication (CMC) as a field of study suggests the level of impact that technology has had on communication. Just as the body of knowledge surrounding adult education has developed over almost a century to define that field, the literature on CMC is beginning to define this new field. The intersection of the field of CMC and adult education might be the topic of future studies.

COLLABORATION

Rhoades, Friedel and Morgan (2009) define collaboration as "the process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own (p. 24). The collaboration among members of a discipline has always existed in the form of face-to-face meetings and conferences or written communication. But information communication technology has added several new dimensions to this process and in fact has changed our social paradigm. Loader (1998) announces that "the emergence of the new information and communications technologies such as the Internet are said to herald the coming of the "information society": a new social and economic paradigm restructuring the traditional dimensions of time and space within which we live, work, and interact" (p. 3). This new social paradigm changes our entire sense of space and time. Sitting with an individual or group of colleagues in a room has been replaced by typing on a computer keyboard or on any of the numerous hand held internet accessable devices, reading text on a screen, or listening to voices on a phone. Instead of feeling the presence of other collaborators, participants are connected by voice or text and might be easily distracted by daily tasks.

Several authors address this environment that provides a new idea of space and society. Loader (1998) reminds us that numerous social scientists share the notion that "society is being transformed by a revolution in information technology which is creating an entirely new social structure" (p. 4). Hakken (1999) suggests that the @ symbol used to indicate an electronic domain in an email address, is also an indication of the social space to which one is connected. Web 2.0 technologies promise to improve social networks. Hakken (1999) advises that "we must come to terms…with an accelerated decoupling of space from place (p. 215). White and Bridwell (2004) concur by suggesting that new technology is "significantly altering the social role of learning" and that distance learning is only an intermediate step toward a "telelearning environment" in which distance and location become arbitrary (p. 287).

In this new societal paradigm, a new sense of community emerges. The adult education vocabulary around "learning communities" and "communities of practice" has been around for a few decades but their meaning has evolved with the new sense of space provided by information communication technology. Palloff and Pratt (1999) remind us that the words "community and communicate have the same root, communicare, which means to share" (p. 25). Now that sharing takes place outside of shared physical space. Daly, Fisher and Martin (2000) note that community can be defined as a "source of identity, of moral and social stability, of shared meaning and mutual cooperation" (p. 542) and also as a "group of people who are socially interdependent, who participate together in discussions and decision making, and who share certain practices that both

define the community and are nurtured by it" (p. 542). All of these describe professionals in a field such as adult education and none of them require shared physical space.

On a more philosophical note, Maxine Greene (1995) connects community to learning in her chapter, "The Passion of Pluralism". "We are in search of what John Dewey called 'the Great Community" but at the same time, we are challenged as never before to confront plurality and multiplicity" (p. 155). "To open up our experience to existential possibilities of multiple kinds is to extend and deepen what each of us thinks of when he or she speaks of a community" (p. 161).

Palloff and Pratt (1999) remind us that "the power of community is great. The power of a learning community is even greater, as it supports the intellectual as well as personal growth and development of its members" (p. 163). They also credit a learning community with being able to create "a sense of excitement about learning together" and renewing "the passion involved with exploring new realms in education" (p. 163). While these communities were originally place bound, today's writings about communities involve the discussion of the virtual community where physical distance and time difference are redefined. The challenge can be how to foster a sense of "community" among the participants without the comfort of physical proximity. But increasingly, the traditional whiteboard and flip charts are replaced by fax machines, computer files, email, telephones, and video and web conferencing. The instantaneous feedback between colleagues might be broken when using any asynchronous communication medium that could create a challenge in being able to sustain the individuals' participation and engagement. Another challenge occurs if the sophistication of the communication infrastructure differs from location to location so that accommodation needs to be made for these logistical constraints.

But aside from the challenges, participation in an online learning community offers a number of unique benefits. Students participating in such online learning communities offered the following reflections. One participant specifically mentioned community in her reflection. "A community emerged during the chat session as the group members experienced a sense of personal relatedness." Another mentions the virtual space. "I was enamored with the power of this medium. It gave me a sense of jointly occupying a temporary space (similar to a class room) and created the illusion of physical proximity and group cohesion through spontaneous conversation and sharing. At the same time it eliminated space restrictions—all four of us gathered from numerous locations, Carol from as far as the UK, to meet and discuss the topic in a real-time environment." Yet, another elaborates on this idea, including the flexibility of time in an asynchronous online discussion. "The discussion conducted here is very involving; everybody could get a chance to express his own ideas. Moreover, the discussion board online gives us a further opportunity to share ideas with all of the class. It has been developed into a real learning forum. Everybody chose their favorite articles about learning and training in their fields, and then shared their own ideas on the "blackboard", thus evokes a real open discussion. This learning style makes me feel that I can learn anytime anywhere from so many people of diverse fields. By posting, reading, and replying online, our learning location has burst out of the limited classroom and lecture time boundary, thus it has given us an authentic flexibility and motivation to learn." Community, power, flexibility are strong descriptors for this new social space and ones that could potentially have a very positive impact on the field of adult education.

It is important that these features of an online collaboration can be viewed as positive for some yet negative for others. While the lack of personal, non-verbal clues is often cited as a negative feature of one line learning communities, one student sees it as a positive. She notes "It is a medium that does promote engagement in discourse without

the normal bias of face-to-face communication (because our appearance is reduced to letters in a computer screen). And although we have the opportunity to influence and suggest tone, etc. by the use of color, sizes, etc. the initial barriers to traditional communication are somehow diminished. The use of discussion boards allows for a lot of reflection prior to committing to opinions. The student has the time and the resources to build a message that will convey every idea that s/he wants to communicate". One saw a chat room experience as more egalitarian. "The conversations were not superficial interactions but purposeful, focused and useful. The instructions preceding the chat in terms of reading position papers, preparing questions followed by chat on each paper allowed all group members an equal opportunity to have their "voices" heard, making the chat more effective. Setting up small groups of 4 allowed each one the time and opportunity to participate and understand each other's situations more closely and attentively. The archived feature of the chat that automatically creates transcripts of discussions make it useful for rereading and future reference." As more new participants venture into this virtual space, they might agree with the following comment. "The best part lies in my realization toward the end of the chat that a synchronous professional discussion isn't too difficult a thing for me. This is my first time to do a real one with international professionals. As a non-native speaker, I was very self-conscious and afraid I'd loose face before this highly learned group who seem to have a better and deeper understanding of all the theories we're learning. But the 2-hours went by fast and I felt more and more comfortable, even not nervous when it's my turn."

As this new space and society become more populated, the geographic distance encompassed by learning communities will demand more use of technology as the major vehicle for communication among professionals and between professionals and students. Technology will also increasingly enhance traditional face-to-face meetings and allow for the expansion of the dialogue before and after the event. Yet, there is still a great deal to be discovered as to the limitation, shortcomings and optimal utility of technology-enhanced and technology delivered communication. Professional adult educators and their colleagues in the emerging field of CMC mentioned earlier are poised at the doorstep of an exciting new journey. But there is a great need for researchers to delve into the many questions surrounding this methodology. The exploration of this new learning landscape in the literature and online venues will likely continue moving the field of adult education and its intersection with technology forward. Researchers and practitioners alike have only scratched the surface of possibilities. Maxine Greene (1995) assures us that "Learning to look through multiple perspectives, young people may be helped to build bridges among themselves; attending to a range of human stories, they may be provoked to heal and to transform. Of course there will be difficulties in at once affirming plurality and difference and working to create community" (p. 167).

FUTURE DIRECTIONS

In his publication "The Knowledge Web", Moe (2000) recounts that historically, "nations have developed based on their access to physical resources or their ability to surmount physical barriers" (p. 33). He mentions the ability of England and Spain to cross oceans, Germany's ability to turn coal and iron resources into steel, and the United States' utilization of agricultural and industrial resources. This physically based economy depended on the resources of coal, oil and steel. He then compares this to today's knowledge based economy in which the use of the Internet and electronic delivery of information relies on the "resources of brainpower and the ability to acquire, deliver and process information effectively" (p. 33). He suggests that the "Internet is to the Knowledge Revolution what the railroad was to the Industrial Revolution" (p.

14). He notes widespread optimism surrounding the twenty-first century with "futurists predicting a period of rapid growth at the magnitude of the industrial revolution, if not greater, with the advent of the knowledge-based economy" (p. 33). Alheit (2009) suggests the "communication and interaction networks of the IT age" will "create the "future form of knowledge" which is "*doing knowledge*, a kind of lifestyle that determines the structures of society far beyond the purely occupational domain" (p. 119).

As we look to the future we need to be prepared for a mindset very different from today. Moe (2000) sites an example that might give us an insight into this new mindset. He cites an example of a first grade teacher who collected well-known proverbs. She gave each child in the class the first half of the proverb and asked them to complete the phrase. One example was "No news is…". Some students completed the phrase with "impossible". The twenty first century will have students who expect information to be omni-present. Another example was "If at first you don't succeed…" The student ending was "get new batteries" (p. 121). The electronic age is an influence on how we think and solve problems. How this new mindset will influence the field of adult education is addressed by several authors.

Merriam (2008) notes two shifts in the focus of adult learning. One shift is from the individual learner to the learner within the various contexts in which learning takes place. This new perspective considers "learning as part of the system's cultural and historical norms…(and) how physical space and spatiality encourages or inhibits learning" (p. 94). The second shift is from learning as a purely cognitive activity to one that is multidimensional in nature. This might be considered to be a more holistic approach in which "learning is construed as a much broader activity involving the body, the emotions, and the spirit as well as the mind" (p. 95). This appears to be an expansion of the previous reference to Illeris' three dimensions of learning and Jarvis' inclusion of social and interaction as topics when developing a new model of adult education. Mazarr (1999) notes that "knowledge-era learning" must become more "holistic" and "high-tech"; must "emphasize creativity and participation" and be "characterized by more choice and competition" (p. 285). As technology has opened up previous boundaries on our learning, the new mindset seems to have opened the boundaries of our concept of adult education.

Fenwick (2008) adds to the discussion of the future by listing 4 emerging trends in adult education: areas of definitions, an increased emphasis on practice-based learning, the importance of identity and literacy and power and politics. Fenwick (2008) suggests that "people's sense of their own knowledge in work and the knowledge valued by the group to which they see themselves belonging form a critical element of their sense of identity" (p. 22) and there are "fundamental tensions related to what knowledge counts most and who says so" (p. 24). Finally, the traditional organizational power and politics are taking new forms in the virtual organizations and transnational sites. The importance of these new forms of power and politics is evident in Senge's (2006) concept of the learning organization that he proposed in the early 1990's and Wenger's (1998) communities of practice model that emerged in the late 1990's. The importance of their role will continue in the future. Walther and Ramirez (2010) recount the numerous social networking systems such as Facebook and MySpace and their role in establishing large social networks that "help individuals maintain a larger number of ties than people can typically maintain without such technology" but believe that "the greatest utility of social networking systems has yet to be explored" (pp. 278-79). Smith and Wilson (2010) note that today, "interpersonal relationships can be initiated, escalated, maintained, and dissolved either wholly, or in part, through mediated technology" and they predict that "as technology further evolves, the study of the establishment and main tenance of interpersonal relationships via Computer Medi-

ated Communication is an area that will thrive" (p. 14). Walther and Ramirez (2010) note that the "use of synchronous, text-based IM technology plays am important role in sustaining ongoing associations, and the growth of text-messaging via mobile phones also suggests that the centrality of text-only communication may not subside anytime soon" (p. 272).

Further future predictions follow two themes. The first cautions that emerging new technologies will not replace the old. Valmont (2003) reminds us that "oral storytelling did not die when Gutenberg created the printing press" and "novels did not go away when films became popular. Literacies simply evolve" (p. 298). In his predictions for the future, Mazarr (1999) delineates "three specific categories of technologies: biotechnology, renewable energy, and information technology" (p. 73). Under information technology he notes the "Pervasive Knowledge Network" and "nanotechnology" (pp. 82-83).

This chapter has connected decades old learning theories to today's technology rich environment. While the concept of the learning community in the world of adult education is only a few decades old, technology in the form of Web 2.0 is providing exciting options for enhancing and expanding learning communities across space and time. The ongoing collaboration within these learning communities will fuel the advancement of the field of adult education. The time has come for adult education to meet Web 2.0 technology in a world where Malcolm Knowles six principles of andragogy exist in cyberspace. The author's predictions might be a future with even more connections, more blurring of boundaries; a future that values personal philosophies but shared experiences and goals. Maxine Greene (2001) challenges us to see the future as an opportunity for "thinking of things as if they could be otherwise" (Greene, 2001, p. 127).

CONCLUSION

Heaney (2000) reminds us that "individual practitioners do not define the field of adult education, nor do experts. A definition of a field of practice is the social product of many individuals who negotiate the values and meaning of work they come to see as serving a common purpose over time" (p. 561). The interactions between these individuals that result in that social product have been and will continue to be impacted by information communication technology. This theme is supported by Rhoades, Friedel, and Morgan who define Web 2.0 as that second generation of the World Wide Web that "aims to enhance creativity, information sharing, collaboration and functionality of the web" (p. 25) and by Farmer (2010) who describes Web 2.0 technology as a place where "knowledge is collaboratively built and shared" (p. 272).

However, the development of this social product is not without its negative aspects. Farmer (2010) warns that "the issue of professional learning communities and advancement of knowledge has clashed with traditional copyright issues. On one hand, intellectual property and proprietary information has become an industry nightmare as employees shift from company to company, taking their brain power and corporate knowledge with them" (p. 274). Rhoades, Friedel, and Morgan echo this concern asking "how can we share more, do it more efficiently, and still get credit for the work we do?" (p. 27). A related issue surfaces. Is it collaboration or competition? A recent issue of Science reports a recent discovery in astronomy and "the ensuing race to publish observations" as a "high-stakes pursuit in which communications networks make possible worldwide, round-the-clock collaborations, and pressures for cooperation and competition often come into simultaneous play. 'This is extreme astronomy'" (Bhattacharjee, 2009). Today's technological advancement is characterized by electronics and digitization, by faster and farther. While the efficiency of

such a round the clock network is dramatically increased, the issues of ownership and credit can become more complicated. It seems that Web 2.0 with its podcasts, blogs, twitters, Youtube, virtual realities and global, non-stop researching will be a part of the future of adult education. Our greatest challenge as professionals in the field may be to ensure that the essential component of critical reflection finds a place in this world of "extreme adult education".

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KEY TERMS AND DEFINITIONS

Adult Learning: The process of gaining knowledge and expertise that is unique to adults

Communities of Practice: Learning communities whose members share a common field of practice or profession.

Critical Reflection: The process of analyzing and questioning experiences and assumptions

Learning Community: A group of students committed to learning collaboratively.

Social Networks: informal groups of learners who interact regularly for the purpose of learning.

Transformative Learning: The process of becoming critically aware of our assumptions which may result in a change in perspective and acting upon these new understandings

Web 2.0: The second generation of the internet particicularly known for its enhanced social networking features.

Chapter 67
Barriers to Adult Education Participation, Distance Education, and Adult Learning

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ABSTRACT

Volumes of research exist which explains adults' participation in adult education. Research suggests that adults participate in adult education for a variety of reasons. Nonetheless, adults also face a variety of barriers to their participation. Whether in a traditional or distance education format, adults may confront barriers to their learning. Now that technology plays such an important role in adult learning, new and returning adults may find additional barriers. Some barriers are within learners' control. On the other hand, institutions can take measures to eliminate other barriers and enhance learning.

INTRODUCTION

Although adult education was professionalized in the United Stated in the 1920s, adults have participated in adult education for hundreds of years. At one point, formal adult education was considered elitist (Stubblefield & Keane, 1994). Only those with the financial means could attend. On the other hand, many were legally prohibited from participating as a result of federal and state laws (Neufeldt & McGee, 1990). When formal education was unattainable or illegal, many adults participated in informal learning activities. Some of these activities were clandestine in nature, while others were offered to the general public. Earlier in our history, adults participated in adult education as a means to economic status. Others simply saw it as an escape from oppression.

With the establishment of land-grant institutions, evening colleges, and extension programs (Stubblefield & Keane, 1994), adults were able to participate in education like never before. Today, education is available to all adults. With the advent of new distance learning technologies, more adults can partake in adult education. It has opened the door for adults with busy schedules and those in rural areas to participate in adult learning activities.

DOI: 10.4018/978-1-61692-906-0.ch067

However, despite our advances, adults face barriers to participation as well as learning. The terms barriers and deterrents have been used interchangeably in the literature relative to adults' lack of participation in educational activities. Darkenwald and Valentine (1990) indicate that a deterrent is a negative or positive force that works in combination with other forces that impact participation. On the other hand, a barrier is an "absolute blockage" (p. 30) which prevents an adult from participating in adult education. Silva, Cahalan, Lacierno-Paquet, and Stowe (1998) suggest that "Factors that inhibit or prevent people from participating in activities such as AE [Adult Education] are sometimes referred to as barriers, constraints, deterrents, impediments, or obstacles" (p. 1). The terms barriers and deterrents will be used interchangeably throughout this chapter. Knowledge relative to participation barriers can assist program planners in attracting and retaining adult learners. In addition, addressing learning barriers can enhance the learning experience of adults in the classroom. In this chapter, a review of the literature on barriers to adult education participation and learning in traditional and distance education formats are examined.

BACKGROUND

Adult Education Participation

Numerous researchers have conducted studies to explain why adults participate in adult education (Boshier, 1971, 1991; Boshier & Collins, 1985; Morstain & Smart, 1977; Fujita-Stark, 1999; Hawkins, 2007). In general, job enhancement/professional development is cited as a motivation for participation. Other motivations have included a love of learning, social interaction, social stimulation, and enhancement of communication skills, just to name a few. However, the context of learning also impacts motivations. For example, in her study of childcare workers, Hawkins found that they not only participated for enhanced job performance, but they also participated to improve childcare programs. In an examination of African American churches, Isaac, Guy, and Valentine (2001) reported that spiritual and religious development, support in facing personal challenges, and family togetherness motivated adults to participate in church-based educational programs. In a study of soldiers, Covert (2002a, 2002b) found that they participated to prepare for their transition to civilian life, to get a credential, and for self-efficacy enhancement. Some motivations of older adults' are consistent with that of their younger counterparts, yet others are distinctive. For example, they participate to keep up with new technologies and information, to be fulfilled, to learn new skills, intellectual stimulation or a love for learning, to escape boredom, for social contact or interaction with others, and to pursue new interests or hobbies (Mulenga & Liang, 2008; Sloane-Seale & Kops, 2007). Adults have a variety of reasons for participating in adult education. Some are consistent among adult learners. However, some are unique based on the learner and the context. Although some adults may be highly motivated to participate in educational activities, others are confronted with barriers that impede or deter their participation.

Barriers to Participation

In a landmark study, Johnstone and Rivera (1965) identified two major types of barriers—external (situational) and internal (dispositional). Situational barriers to participation include transportation or costs of engaging in an educational activity, whereas a dispositional barrier may be someone's negative attitude or perception. Costs and time continue to be major barriers to participation (Chao, DeRocco, & Flynn, 2007). Furthermore, family and work constraints (Manning & Vickery, 2000; Martindale & Drake, 1989) can deter adults from participation. Wlodkowski (1999) contends that

educational background and age are the two most common components of dispositional barriers.

Somewhat akin to dispositional barriers are psychosocial (Darkenwald & Merriam, 1982) or sociocultural (Hayes & Darkenwald, 1988) barriers. Adults facing this barrier have "individually held beliefs, values, attitudes, or perceptions that inhibit" their "participation in organized learning activities" (Darkenwald & Merriam, p. 137). For example, someone could believe they have poor study habits or are too old to learn anything new. In addition, if an adult is still holding on to a negative schooling experience, it could prevent the person from participating. In her examination of low-income adults, Stanley (2003) found that fear and self-concept were psychosocial obstacles that prevented adults from acquiring computer literacy. It is further pointed out that, "Self-concept and attitude towards learning are important decision points" (Malhotra, Shapero, Sizoo, & Munro, 2007, p. 83) impacting participation. More importantly, psychosocial and sociocultural barriers consist of "the role of social forces generally, and membership and reference groups specifically, in forming and maintaining attitudes toward participation in education" (Darkenwald & Merriam, p. 137). "That is, the reflection of a social environment in which education is not perceived as important or useful" (Blair, McPake, & Munn, 1995). To illustrate, a family member may be discouraged from or ridiculed for participating in formal adult education if other family members have not participated. So, not only can a person's attitude be a barrier to participation, perceptions from members within cultural groups might influence participation.

Expanding on barriers to participation from an examination of Carp, Peterson, and Roelf's work, Cross (1981) concluded that there are three distinct barriers. In addition to situational and dispositional barriers, she categorized some barriers as institutional. According to Cross, these are "practices and procedures that exclude or discourage working adults from participating in educational activities" (p. 98). In other words, these are created by the institutions providing the adult learning activities. As such, she further delineates institutional barriers into five areas. They include location or transportation problems. Courses that do not catch the interests of learners or that do not meet their practical needs. Procedures and time requirements can be problematic. For example, if potential learners have to complete mounds of paperwork to enroll, they may become discouraged from participating. On the other hand, adults working a typical 8-hour shift (i.e., 9-5) would find it difficult to attend a course that begins at 4:30 p.m. Finally, a lack of information about programs offered and procedural matters is another institutional barrier. Similar to this barrier is the notion of informational barriers (Darkenwald & Merriam, 1982). According to Darkenwald and Merriam, they include an institution's lack of communication regarding program offerings and "the failure of many adults . . . to seek out or use the information that is available" (p. 137). Even though many adults have Internet access, this can still be problematic for those who are not Internet active.

Although it has been over four decades since Johnstone and Rivera (1965) first reported adult education participation barriers, institutions are still erecting barriers for adult learners. The "traditional structure and organization of higher education pose significant barriers" (Chao, et al., 2007, p. 3). Many adults no longer want to take years to obtain a degree or certificate. Thus, the traditional 16-week format of most universities is no longer attractive to some adult learners. Adults want to get their credentials as quickly as possible.

Most recently, Malhotra et al. (2007) developed a six-factor typology that identifies adults' barriers to participation. Their typology supports earlier findings on barriers. For example, bad experience included such things as being tired of school and a belief that low grades and lack of program requirements would prevent a person admission to a program. No place to study and too much red tape

were classified as institutional barriers. Although a lack of resources is often associated with a lack of money, Malhtra et al. found that a lack of energy or stamina as well as home and job responsibilities describe this barrier. Relative to course offerings, examples include unavailability of desired courses and "no information about the places or people offering" (p. 85) courses. Another barrier in their typology is the cost/benefit ratio. Some adults do not favor a strict attendance requirement. Others cannot get credit for the degree, and thus see no reason to participate. The last factor in the typology is child care. As would be expected, a lack of personal child care or institutional child care facilities reflects this barrier. However, it also includes costs of books and supplemental materials. Ironically, a large community college district in the Midwest, with four campuses, recently voted to close two of its child care facilities as a result of budget constraints (Cambria, 2009). All six barriers of Malhotra et al.'s typology coincide with situational, institutional, informational, and psychosocial barriers.

Some older adults are participating in adult education (Ford & Orell, 2005; Mulenga & Liang, 2008). Nonetheless, there are those who do not. However, there is a "dearth of research on older adults who do not participate in educational activities" (Sloane-Seale & Kops, 2007, p. 21). The little that does exist indicates that barriers for older adults coincide with other adult learners—time, lack of information, lack of motivation, lack of transportation and money. However, unique to this group is a fear of new technologies and physical disabilities (Sloane-Seale & Kops). Furthermore, a loss of vision, hearing, and motor skills can deter older adults from participation (Cercone, 2008; Chaffin & Harlow, 2005).As the aforementioned discussion suggests, barriers are often categorized by non-demographic variables. Darkenwald and Valentine (1990) used demographic variables to describe five types of adults deterred from participating in adult education. They are people deterred by (a) personal problems, (b) a lack of confidence, (c) educational costs, (d) no interest in organized education, and (e) no interest in available courses. Time constraints represented "profound deterrents for the population as a whole" (p. 35).

Research findings on barriers and deterrents demonstrate that deterrents is a multidimensional concept, the variables are influenced by prospective learners' perceptions of their magnitude; and the impact of variables on participation vary according to an individual's characteristics and circumstances (Kerka, 1986). While adult learners may face a number of barriers to participate in adult education, some do overcome them just to find barriers to their learning.

ADULT LEARNING

Adults engage in formal and informal learning throughout their lifespan. Whether intentional or not, adults engage in learning daily. Undoubtedly, learning is a central activity in higher education (McLinden, McCall, Hinton, & Weston, 2006). There are theories which explain how adults learn (Merriam & Caffarella, 1999, Merriam, Caffarella, & Baumgartner, 2007), tools to determine adults' learning styles, and assessments to determine, what, if anything, adults have learned (Boston, 2002; Kolb & Kolb, 2005). Many instructors use learning assessments to determine which instructional techniques to use in the classroom. Although these can be helpful, using assessments to determine students' best learning style can be problematic (Isaac, 2009). Instructors should seek to enhance learning by removing any barriers that may exist.

Barriers to Adult Learning

Despite the numerous barriers adults face to engage in adult learning activities, many are able to persist and participate. However, when they enter the learning environment, they may be confronted with additional barriers to their learning.

The learning environment is a crucial component in the learning situation. The physical environment can appear gloomy with rooms that are poorly lit. In addition, the seating arrangement can impact learning. Chairs arranged in rows are reflective of secondary schooling. They are not conducive for adult learners. Also, if an adult had a negative schooling experience, the room arrangement may awaken bad memories. Instructors can also make the learning environment unfriendly. They show little respect for learners and the knowledge and experience they have. Additionally, some instructors do not make the learning environment inclusive based on curriculum used. For example, if African Americans are portrayed in stereotypical roles, such as a housekeeper, some learners may feel uncomfortable in the classroom (Guy, 1999). Depending on the context, some learners lack a motivation to learn. And, instructors do not employ any techniques to motivate these adults to learn. Many instructors use instructional techniques they were introduced to, such as lecture. This can limit learners based on their preferred learning style.

Barriers to learning can impact learners in the traditional classroom as well as the distance education setting. However, as the next discussion indicates, there are barriers that are unique to online learners.

DISTANCE EDUCATION

Distance education has been described as a learning situation whereby a student and instructor are separated physically or geographically. According to Zirkle, Norris, Winegardner, and Frustaci (2006), distance education "is almost exclusively used to describe the transmission of instruction from one location to multiple locations via telecommunication technology that is either synchronous . . . or asynchronous" (p. 103). This is espoused by Yoon (2003) who states that, "the term highlights the media used and the intent to reach non-traditional students by overcoming geographical distance" (p. 20). Historically, distance education involved correspondence courses (Stubblefield & Keane, 1994). Teachers and students would send assignments and tests to one another, which could take weeks for either to receive. Since distance education now includes technology, correspondence courses are no longer relegated to written material (Parsad, Lewis, & Westat, 2008). Even though it no longer takes weeks for instructors and learners to communicate with one another, other barriers exist.

Barriers to Distance Education and Learning

Barriers to learning exist in the traditional classroom as well as the distance education setting. Most of us attended classes whereby we looked at our instructor for 50 to 90 minutes. We were able to see facial expressions and gestures and hear variations in tones. All of these are lost with the online learning. Hence, for some learners, the absence of an instructor is a barrier (Zirkle et al., 2006).

Isolation has been commonly cited as a barrier to online learning (Berge, 2002; Burgess, 2007). Although learners may be online in the comfort of their home, when they perceive a lack of feedback from the instructor (Galusha, 1998; Zirkle, 2004), they may feel that the instructor is not concerned about them. In fact, Stein and Glazer (2003) indicate that access to faculty has been "identified as critical to success" (p. 10). Some online instructors fail to recognize "that many students bring with them histories of imposed silence and marginalization" (Burgess, p. 52). This too, can cause feelings of isolation. Isolation is closely aligned to a lack of social presence.

According to Aragon (2003), social presence was birthed from the concept of immediacy and is widely discussed in communications literature. Immediacy is the psychological distance between a communicator and a receiver. A lack of immediacy would include the no presence of humor,

personal examples, or calling students by name. Some adult learners need to feel connected to the instructor and class participants. Social presence can "create a level of comfort" whereby adult learners "feel at ease around the instructor and other participants" (Aragon, p. 60). When a learning environment lacks social presence, it can appear impersonal to learners and decrease the information shared (Aragon).

Institutional barriers exist that impact learning. Sometimes the course content can serve as a barrier. In their examination of business education teachers and students, Zirkle, et al. (2006) discovered that educators believed "the ability to learn career/technical skill content outside of a traditional classroom appears to be the biggest challenge for learners at a distance" (p. 113). They specifically noted that skills needed in a lab could only be obtained through "actual interaction with the equipment" (p. 113). As with traditional settings, the instructor may be a barrier to learning. Faculty may have mastered the content, but can find it difficult to transfer that knowledge to an online format. In addition, some faculty lack the technological skills needed for an online format or find difficulty in keeping abreast of all the changes (Zirkle, et al.). Another barrier among faculty is the notion of intellectual reluctance, which questions the value of legitimacy of online learning (Mitchell & Geva-May, 2009). Faculty reluctance can manifest itself in a lack of preparation, limited course activities, and limited contact with learners. Furthermore, faculty are thrust into online teaching without the necessary training needed to facilitate an online course.

Similar to faculty, some students bring their own barriers to distance education environment. Some students are not technologically savvy enough to participate in online courses. Zirkle, et al. (2006) suggest that "many students learn best through direct interaction with the instructor and other students, a feature lacking in distance education" (p. 105).

Despite its popularity and increased use and need, adult learners can be confronted with barriers to their learning. Some barriers, like those in traditional settings, are institutional in nature. However, some students are not technologically prepared for online learning. Yet, there are measures which can be taken to reduce or limit these and other barriers.

Addressing Barriers

Barriers exist that prevent adults from participating in adult education. Additionally, adults have to contend with barriers to learning. Relative to institutional and informational barriers, costs can be reduced, financial aid provided and flexible payment plans provided. Institutes must keep abreast of the latest trends, such as employment opportunities, and offer courses of interest to adult learners. Support services must be provided for non-traditional learners. Courses should be offered at a time conducive for working adults.

Instructors, as part of the institution, play a critical role in addressing barriers. The instructor must show respect for learners. Knowles (1980) suggests that adults have a wealth of experience. Instructors should value and capitalize on that experience (Howell, 2002). This can be accomplished simply by including and building upon the "student's experiences in the learning process" (Howell, p. 3). In that sharing, however, instructors must not minimize the learners' experiences in any way. Another technique for learning enhancement is allowing students to reflect on their learning (Brookfield, 2006; Cranton, 2006; Howell, 2002; Mezirow, 1991; Mezirow & Associates, 2000). Brookfield (2006) suggests the one-minute paper, the muddiest point, the learning audit, and student learning journals. Another technique is the use of the Critical Incident Questionnaire. Students are asked to respond to questions relative to the class topic. It can be administered after each class period or periodically throughout the term. It allows the instructor to gauge learning and student introspec-

tion. Another tool for removing barriers is using a variety of instructional techniques. Galbraith's (2004) edited book provides many examples of instructional techniques that can be used in the classroom. Instructors should not be intimidated by new techniques. They are encouraged to step out of their "instructional" comfort zone to enhance learning for all adult.

A participative environment should be created and learners empowered (Howell, 2002). To empower learners, self-directed learning is encouraged (Atherton, 2009; Banz, 2008; Reder & Strawn, 2000; Terry, 2006). A common technique used for self-directed learning is a learning contract. Students determine their learning objectives, strategies and tools for meeting those objectives, and evidence of meeting their learning goals.

Motivating adults may enhance learning as well. There are motivational conditions or mental/emotional states of being which contribute or enhance a person's motivation to learn–inclusion, attitude, meaning, and competence (Wlodkowski, 1999, 2004). Inclusion is awareness by learners whereby they are respected by and connected to, not only the instructor, but other course participants. In other words, they feel that their experiences and opinions are valued and that a certain level of trust exists. This, for example, would be important for a female student in a predominately male classroom setting. The learning environment must be conducive to all people regardless of their background or ethnicity. Attitude is a combination of concepts, information, and emotions that cause adults to react one way or another toward a particular person or group of people, ideas, events, or objects. Attitudes are learned for the most part and influence adults' activities and environments. To illustrate, suppose a man was raised in a family where he was taught to believe that certain ethnic groups were inferior. If he enrolls in a course where the instructor is from one of those groups, he may decide not to participate in the school term. On the other hand, he may participate and challenge or disrespect the instructor throughout the course. In doing so, he is reacting to what he has learned from his home environment. So, a person's attitude about something or someone inevitably influences his or her motivations to participation. For learning to be meaningful, it must be connected to a goal or purpose. In other words, there has to be some derived benefit from the learning experience. "Competence theory assumes that people naturally strive for effective interactions with their world" (Wlodkowski, 1999, p. 77). In applying this theory, when adults feel that they are progressing from the knowledge they gain, they feel competent.

For older adults, a number of strategies can be employed to enhance their learning. In a traditional classroom, lighting is important. Using large fonts that are easy to read is helpful for this group of learners. In addition, offering courses during the day time is preferred. Online courses have to be more engaging "to create a more successful learning environment for online learners" (Notess & Lorenzen-Huber, n. d., para. 29). Furthermore older learners need a better evaluation of their achievement and satisfaction and "a clearer reward systems and incentives for completing online learning" (Notess & Lorenzen-Huber, para. 29).

Traditional formats should be one of many used for learning. Online and hybrid courses can also be used. "Learners and instructors both need to adapt and change as they learn how to use this new medium" (Cercone, 2008, p. 139). For any learning context, a number of strategies can be used to overcome learning barriers. A physical and social climate of respect (Howell, 2001; Knowles,) should be created and collaborative modes of learning encouraged. Johnson and Aragon (2003) provide a useful instructional strategy framework for online learning. They suggest instructors (a) encourage student reflection, (b) motivate students, (c) avoid giving students too much information, (d) create real-life contexts, (e) encourage and promote social interaction, (g) provide hands-on activities, and (h) encourage student reflection. Cercone further suggests that a variety of graphics

and images as well as graphic organizers be used. Additionally, she recommends chunking information "into 5-9 bits of information" (p. 140). For students in online settings instructors must serve as a "trusted source in areas beyond the content of the course" (Burgess, 2007, p. 52). Burgess further suggests that online instructors serve as mentors to students. Regardless of the context, faculty should provide timely feedback and respond to student emails in a reasonable amount of time. They must also be aware of student differences in the learning environment.

FUTURE TRENDS

As we move further into the twenty-first century, we can expect to see changes in adults' participation and distance education. Adults are no longer working with one employer over their entire career. Recent industry changes require adults to acquire new skills. Additionally, with our current economy, more adults have been forced to participate in adult education in order to make themselves marketable.

There are indications that changes in student enrollment are already occurring. According to Howell, Williams, and Lindsay (2003), student enrollments will continue to increase. Yet, current higher education infrastructures will be unable to handle the proliferation. Hence, distance education courses will become more important than ever. In fact, "the competition for students is moving from physical space to cyberspace" (p. Whiteman, 2002, p. 3). This is espoused by Cercone (2008) who states, "More distance learning programs are being developed annually; therefore, increasing numbers of adult learners will be tapping into this new resource for education" (p. 139). Programs may become shorter in duration, to meet the "get learning now" needs of adults.

The fortitude of faculty resistance to change will diminish, if institutes of higher learning intend to be competitive. Faculty must use different instructional techniques. This is inclusive of using Internet resources. They must engage in training and keep abreast of new technologies that impact distance education and learning. This may become of minimal concern in the future as more and more instructors believe that certain technologies aid them in reaching their teaching objectives (Howell, Williams, & Lindsay, 2003). Howell, et al. identified the following trends relative to distance education:

1. More courses, degrees, and universities will become available through distance-education programs;
2. Among other distance-education media, the Internet will become a dominant force;
3. The distinction between distance and local education will disappear;
4. The need for effective course-management systems and Web services will continue to grow; and
5. The need for learning and teaching strategies that exploit the capabilities of technology will increase

In addition to an increase in traditional and non-traditional student participation, older adults will continue to participate. Unlike their parents, baby boomers are living longer and engaging in educational activities like never before. Research indicates that their participation in educational activities contributes to their successful aging (Sloane-Seale, Kops, 2008). Programs must reflect topics of interest to older adults. Older adults will become more technologically literate and may require more distance education courses as well.

CONCLUSION

An understanding of adults' motivations and barriers to adult education participation and learning can assist programmers in recruiting and retaining adult learners. Some overcome personal,

institutional, or other barriers to participate. As the earlier discussion indicates, more adults will engage in learning. While some may prefer the traditional format, many will also be attracted to distance education. Institutions play a vital role in reducing barriers to participation. Regardless of the context, educators must also do their part to eliminate barriers to learning. Some barriers in the online format are different from the traditional setting and thus require different methods to resolve. According to Yoon (2003),

Regardless of different online learning settings, students' meaningful learning experiences come from a an effective online education program in which course instructors, instructional designers, learners, system developers, technical support staff members, managers, and administrators closely collaborate to use technologies for fostering active and interactive learning environments. (p. 28)

As more adults will engage in adult education, educators and providers must be aware of barriers confronting learners and take a pro-active role to eliminate them.

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KEY TERMS AND DEFINITIONS

Barrier: An "absolute blockage" (Darkenwald & Valentine, 1990, p. 30) which prevents an adult from participating in adult education.

Deterrent: A negative or positive force that works in combination with other forces that impact participation. (Darkenwald & Valentine, 1990, p. 30)

Distance Education: A learning situation whereby a student and instructor are separated physically or geographically. The "transmission of instruction from one location to multiple locations via telecommunication technology that is either synchronous . . . or asynchronous." (Zirkle, Norris, Winegardner, &Frustaci, 2006, p. 103).

Immediacy: The psychological distance between a communicator and a receiver. (Aragon, 2003)

Fortitude: Mental and emotional strength in facing difficulty, adversity, danger, or temptation courageously.

Knowledge: Acquaintance with facts, truths, or principles, as from study or investigation; general erudition