

## **Chapter Two: Literature Review**

### **Introduction**

Between 2002 and 2009, the number of college students taking online courses each semester increased from 9% to 30% of all college students (Bradley, 2011); due to this colleges and universities are trying to meet this rapidly growing demand. In addition, the number of adult learners has also risen from 6.2 to 7.4 million between 1994 and 2008 (Creighton & Hudson, 2002; Hussar & Bailey, 2011). This growing population of online adult learners has lower self-efficacy scores when asked about the tools they are using to complete the online courses in which they are enrolled in (McCoy, 2012). The effect lower self-efficacy with technology is that adult learners are more hesitant to enroll in online classes, have lower retention rates, and report lower levels of course satisfaction when lacking technology support (Allen & Seaman, 2013; Beaghan, 2013).

### **Theoretical Framework**

The theoretical framework used in this study is Knowles' (1980) theory of andragogy. A section of this theory provides four assumptions about adult learners that are particularly relevant to this study. These four assumptions are as follows:

1. As a person matures, his or her self-concept moves from that of a dependent personality toward one of a self-direction human being.
2. An adult accumulates a growing reservoir of experience, which is a rich resource for learning.
3. The readiness of an adult to learn is closely related to the developmental tasks of his or her social role.

4. There is a change in time perspective as people mature from future application of knowledge to immediacy of application. Thus an adult is more problem centered than subject centered in learning.

Each of the four assumptions that make up Knowles' theory impact the readiness of adult learners to learn about the technology they are using in an e-learning environment.

The first of Knowles' (1980) assumptions states that as people age, they become more self-directed. According to Knowles, older students are more likely to be self-directed in their learning; because of this they would make great candidates to participate in e-learning, as online courses are typically much more self-directed in nature (Cho, 2010; Robinson, 2008). The second of Knowles' assumptions explains that since adults have accumulated a wealth of knowledge over their lifetime, previous knowledge itself can be a rich resource for further learning. This idea about adult learners coincides with what Badke (2008) believes: adult learners' biggest barrier to using technology is making the transition between how things were done in an analog fashion to now, how they are done in a digital manner. This wealth of knowledge on how to perform specific tasks in an analog environment can then be used by educators to draw comparisons on how to do similar tasks in the digital world via computers and the Internet (Badke, 2008).

Finally, the last two of Knowles' (1980) assumptions relate to how adult learners' willingness to learn is closely related to their reasons for returning to college. According to O'Donnell (2005), 40% of adults returned to higher education for work-related reasons in 2003. These reasons include both the pursuit of a new career or a promotion in their current workplace. Thus, adult learners often have an immediate need to learn that is centered on their desire for a new or improved employment situation.

## Synthesis of Research Literature

**Defining the needs of adult learners.** According to the National Center for Educational Statistics, and using the current federal definition, the percentage of adult learners students has risen sharply since the late 1960s. In 1969, adult learners students made up for only 10% of the nationwide student body; in 1991 they rose to 38%; in 2001, they made up 46%, and in the most recent survey in 2009, they made up 54% (Eisenberg, 2011; Kim & Hudson, 2002). Based on these statistics, institutions of higher education have seen a drastic increase in the number of adult learners students arriving on campus.

The importance of employment in coming back to higher education is particularly significant for adult learners. A survey done by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) found that 91% of adult learners cited job related reasons for participating in higher education (Valentine, 1997). The importance of employment to adult learners is clear. In fact, 58% of those students who cited job related reasons for participating in higher education also said that they were going back to college for career or professional upgrading (Valentine, 1997). This number indicates that those students are attending higher education while at the same time working either a full-time or part-time job at the same time.

The fact that most adult learners are coming back to higher education for job related reasons has created a major barrier to entry: the lack of time. Citing the same UNESCO survey, Valentine (1997) wrote that 45% of adult learners have a hard time participating in higher education due to a lack of time. Beaghan (2013) also found that, although adult learners prefer the traditional classroom, the flexibility that online learning offers is the number one cited reasons for adults returning to higher education.

**The growth of e-learning.** The increase in online education has been significant over the last decade. In 2002, the Sloan Consortium found that 1.6 million or 9.6% of all college students took at least one online course. This number increased drastically to 6.7 million or 32% of all students in 2011 (Allen & Seaman, 2011). Bradley (2011) reveals many reasons for the growth in online education. Specifically, he cites the ability to contact faculty outside of the classroom, the wealth of information available outside of traditional book based education, and the concept of learning on demand (Bradley, 2011). These benefits of online learning are magnified for adult learners because they allow for them to learn in the limited amount of time they have between work and their personal lives (Beaghan, 2013).

Additionally, the rise of online education is not simply driven by the marketplace that is demanding it, but it is also happening because of the constraints on higher education today. Taylor (as cited in Sankey, 2006) argues that due to the incredible demand for higher education, institutions are being forced to move instruction online. He writes that financially, universities cannot expand in the traditional sense to accommodate these new students because of the overhead costs involved. Instead of building new buildings, paying more in operating costs, and hiring more staff, institutions are starting new classes online both to save money and accommodate more students (as cited in Sankey, 2006).

**Adult learner's technology deficiencies.** Traditional 18-24 year old college students are growing up in a world where they have been surrounded by Internet related technologies. Devices such as computers, cell phones, and video games have played an integral part in their upbringings (McCoy, 2012). This immersion with technology that

most millennial students have grown up in has led researchers to hypothesize that today's traditional aged college students feel they have better technology skills than their older peers (Beaghan, 2013; McCoy, 2012).

McCoy (2012) calls for institutions to understand their student's proficiency when it comes to technology because computers, the Internet, and other digital devices are being introduced into the classroom for a multitude of reasons, including student satisfaction and retention. McCoy found "a significant difference in self- efficacy scores among various age groups" (p. 1617). McCoy found that in each of her questions pertaining to students' proficiency with technology, the group of students aged 18 to 25 scored higher than their older classmates. This lower perceived skill level with technology among older adults is an issue institutions are facing as adult learners are returning to universities at an increasing rate.

In a larger study done by Rodriguez et al. (2008) they found that there was a weak correlation between age and a student's confidence with technology. The researchers surveyed 694 students, of which 38% were 18 to 25 years old, 39% were 26 to 35 years old, 13% were 36 to 45 years old and 10% were 46 years old or older. The survey asked students to rate their confidence in their ability to perform specific tasks required to participate in online courses.

Another focus of the study by Rodriguez et al. (2008) was to examine how motivated students were in online courses. The results of the survey show that there was a weak correlation between age and motivation to learn in an online environment. This weak correlation serves as evidence to support Knowles' (1980) assumption that adult learners are motivated by the immediate need to learn as well as their social role.

Beaghan (2013) examined adult learners' feelings towards online environments, comparing them directly to a traditional classroom setting. Sampling 96 adult learners, he found that while the students preferred the traditional classroom, they also had positive attitudes towards online learning, citing that online courses relieve time constraints outside of the classroom unlike traditional face-to-face courses. Additionally, he also found that adult learners perform equally as well in an online course as they do in a face-to-face class although they report to have taken longer to finish assignments in the online setting. Beaghan (2013) hypothesizes that this may be because adult learners are not comfortable with the technology used in the course, which leads to lower rates of student satisfaction.

### **Institutional responses to adult learners lack of confidence with technology.**

The lack of technology skills among adult learners presents challenges for universities. Institutions are experiencing a considerable rise in adult learners who are demanding online courses because of time constraints, but at the same time, a large portion of those students are not proficient with the technology used to participate in those classes (McCoy, 2012; Rodriguez et al. 2008). Sankey (2006) writes that "relying on text-based instruction may be disenfranchising many students, whilst technology enhanced environments can provide significant advantages to a growing market of non-traditional learners" (p. 82).

Sankey (2006) discusses how the University of South Queensland in Australia is going about giving support to its adult learners who are enrolled in online classes. She writes that the university implements multiple approaches, such as providing blended courses where face-to-face interaction happens in addition to an online portion, as well as

supplementing the online resources with traditional paper based texts. While these solutions provide traditional resources to students, they do not deal with the long-term problem of adult learners having deficiencies with technology (Lei, 2010).

Some universities have created orientation programs to help students become more confident in using the technology tools found in online courses (Hagle et al., 2009). At a Midwestern university, Cho (2010) helped to create and evaluate an online student orientation with the goal of making students more comfortable learning in an online setting. Online courses represented 12.5% of all credits at the researched institution, which highlights the need to ensure that students are confident using the technology tools that are used in these classes (Cho, 2010). Cho reviewed the literature to design the orientation as well as collected input from faculty who frequently taught online courses. The orientation was created as a webpage and students were sent a link via email to complete the orientation.

Cho's (2010) orientation contained four modules. The first module pertained to the nature of online learning, including how to communicate online and turning in assignments via the Internet. The second module dealt specifically with the LMS used, which was *Blackboard*, and provided information on how to use various features of the LMS that would be used in online classes. The third module addressed the technical requirements that need to be met in order to take an online class such, as computer and Internet access. Finally, the fourth module covered tips for self-directed and asynchronous learning, which Cho explains are prominent in online education. After creating these modules, Cho had the content of this orientation examined by experts to validate it's content.

After the implementation of the orientation, Cho (2010) surveyed the students who participated. Results from the survey revealed that students found the tutorials and other resources provided in the orientation to be useful. Additionally, students who participated in the orientation said that they felt more confident in their ability to participate in their online course after taking part in the online student orientation. Cho called for more research to be done to determine which technology skills should be covered in similar orientations in order to enhance the content of these programs with research.

In a larger study conducted by the Online Consortium of Independent Colleges (OCIC) and universities, Hagle et al. (2009) examined whether there was a connection between its member institutions' orientation materials and their students' satisfaction in online courses. Out of the 64 member institutions of the OCIC, 13 of the schools in this consortium responded to the survey. In the group of responding schools, two thirds of institutions had orientation materials specifically for students in online classes while one third did not. The authors also found that the content of these orientations focused on the technical skills required for online education as well as information on campus resources to assist students with e-learning, such as the IT help desk (Hagle et al., 2009).

In addition to surveying its member institutions, the OCIC also surveyed the students who took online courses at these colleges and universities. Of the students surveyed, 50% said they received orientation materials; of those 68% via email and 23% through the postal service (Hagle et al., 2009). When asked about the effectiveness of the orientation materials, students responded positively, with 78% of respondents saying that the orientations matched what they needed to know in order to participate in an online

class (Hagle et al., 2009). Lastly, Hagle et al. (2009) suggested that schools create their own independent orientation materials, as the e-learning environment differed between schools in the OCIC.

Taking another approach to ensuring students have the technical computer skills needed to participate in online courses, Belmont Abbey College in North Carolina created an introductory level computer science class that is a part of its general education program (Gupta, 2006). The course covers basic computing functions, such as creating documents, organizing and transferring files, and the use of email, all of which Gupta (2006) explains are needed to be computer literate. Although this class is not a required course for graduation, it was a recommended by most departments in the general education program (Gupta, 2006). Additionally, using this participatory approach to orientation required students to create documents and presentations as a part of the introductory computer science course, unlike the orientation materials created by Cho (2010) and Hagle et al. (2009).

**Gender and self-efficacy.** Studies done by Cooper (2006) and Mayall (2008) have shown that gender impacts a student's confidence with technology. Mayall surveyed 248 middle school and high school students (48% female, 52% male) from 10 schools around the United States. She asked students to answer how confident they were performing various tasks with technology. Mayall (2008) found that while there was no significant difference in the self-efficacy scores of middle school girls and boys, there was a difference in the scores of high school students. In her discussion, Mayall suggests that the difference in confidence between boys and girls starts to present itself when students get older because these students have more exposure to technology. This data is

also consistent with a study done by Mitts (2008), who found that while half of students in technology courses in middle school are girls, that figure drops to 17% in high school.

In a meta-analysis done by Cooper (2008), he also found that there is a gap between the confidence levels of boys and girls who use technology. Unlike the study by Mayall (2006), Cooper found that girls of all ages report lower self-efficacy scores with technology than their male peers. This gap continues to exist as students age and move from primary and secondary education into colleges and universities. Additionally, Cooper also found that the gap in self-efficacy presented itself in multiple regions around the world. He suggests that societal issues present around the world cause girls to feel less confident with technology.

## **Summary**

Age is shown to have an impact on how students view technology as well as how confident they are using devices in the classroom and in the workplace (Beaghan, 2013; Cooper, 2008; Mayall, 2008; McCoy, 2012; Rodriguez et al., 2008; Scheckelhoff, 2006). Research has demonstrated that adult learners view technology in the classroom differently than their younger classmates (Beaghan, 2008; McCoy, 2012).

Instructors' lack of understand about these differences has led to adult learners having lower retention and satisfaction levels in online courses compared to their traditionally aged classmates (Allen & Seaman, 2013; Beaghan, 2013). Additionally, adult learners are increasing in numbers; therefore, addressing the issues of adult learners and technology is more critical than ever (Eisenberg, 2011; Creighton & Hudson, 2002). Currently, institutions are attempting to remedy this problem by offering technology tutorials and orientations that are targeted at the entire student population (Cho, 2012).

## **Conclusion**

Institutions need to address issues around age, gender, and technology in order to create learning opportunities for all students. When teaching adult learners, instructors need to be aware of the different ways that older students learn and the difficulties they may have with using technology (Badke, 2008; Knowles, 1980). To cope with these differences between generations of students, instructors need to be aware of these differences and provide support materials that explicitly cover the technology tasks that adult learners are least confident with (Cho, 2012). In order to create these types of programs, research is necessary to assess the differences between traditionally aged students and adult learners as well as to identify the technology tasks each group of students has the most difficulty completing. With this knowledge, institutions can then create more targeted technology resources that will instruct adult learners on the tasks they are least comfortable performing.