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This exploratory research addresses the role of motivation in Internet adoption and use among beginning computer users, and considers the perceptions, expectations and affective states of adult learners in a free, collaborative, volunteer-based public library computer-skills program. Focus groups and interviews were used to examine positive and negative affective characteristics among adult learners and instructors who had participated in a collaborative, volunteer-based, public library basic computer skills program, and narrative data was analyzed for themes and patterns. Two main themes were found: First, beginning computer users sought learning experiences that minimized negative affective characteristics; and second, supportive learning programs increased confidence and independent learning. Patrons encouraged libraries to: (1) offer classes in a convenient, safe, trusted, familiar location; (2) provide a group setting with other beginners; (3) provide multiple instructors and floaters.

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Adult Learners, Emotions, and Digital Literacy

by
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Table of Contents

When adults decide to gain basic computer skills, they embark on a proactive, pro-social and somewhat intangible act that can be thwarted by uncertainty, anxiety, and even shame. Being able to access and use the Internet affects people's life chances (DiMaggio et al., 2004), whether economically or civically. The digital divide, simplified as the gap between "haves" and "have-nots," initially characterized Internet use as an issue of access: Citizens either had access to networked computers, or they did not. More recent research recognized that access, while important, did not explain uneven Internet adoption. For this reason, digital inequality has become a more accurate way to express disparity, as it better represents the "equipment, autonomy, skill, support and scope of use" (Dimaggio et al., 2004) necessary for digital literacy. This study expands on theories of Internet adoption, and explores the role of affective characteristics, perceptions, motivations and expectations of beginner computer users in a public library setting. Conducting focus groups with adult public library patrons in a volunteer-based computer learning program helped generate themes and patterns that could contribute to theories of Internet adoption. Using the themes and patterns identified in this exploratory study, future researchers could find useful questionnaire items for subsequent studies.

One motivation for this study was to better understand beginning computer learners, a demographic easily overlooked in library and information science (ILS) curricula and library user education research. For ILS students, faculty, and librarians, computer literacy is assumed; however, when proficiency is the norm, it takes purposeful steps to understand those who are not. Observing intelligent, determined adults struggle

with cognitive abilities, conceptual comprehension, and stigma can change baseline assumptions about information-literacy norms. It is well-documented that service-learning can be a valuable pedagogical tool for ILS schools, and yet equally well-documented is its lack of use (Riddle, 2003; Rhodes, 2001; Elmborg, 2001; Mehra, 2004; Westney, 2006)[1]. At the core of this research is the belief that faculty, librarians and future librarians gain immeasurable insight when immersed in the community, and that their expertise and influence are invaluable change-agents to existing information problems.

A lack of time and resources limited the scope of this study, and although the focus was on affective states of beginning computer users, it would be useful to compare ILS graduate student perceptions of adult computer learners before and after participation in the program. Evaluating ILS faculty perceptions about beginning computer users might also generate interesting results, to help gauge professional and academic assumptions about digital equality and computer literacy. Information and library science faculty intersect with the next generation of librarians, and their perceptions and assumptions can have far-reaching influence on the way the profession responds to information needs across all of society.

For this study, focus groups and interviews were used to evaluate the motivations, expectations and changes in affective characteristics of adults and instructors involved in an established computer learning program. Data were gathered from six graduate student volunteers during one-on-one interviews, and 16 library patrons in three separate focus groups. Qualitative analysis techniques helped discover primary themes and insights that might impede or facilitate adult computer skill acquisition. Graduate students were

interviewed using similar guides of inquiry, with the intent to find themes and patterns to support public library patron experiences. Interviews with library administrators provided background, and added insight into different library missions motivating the partnership.

For adult learners, exploratory themes indicated that successful learning experiences—loosely defined as an increase in confidence and independent learning— were based on the avoidance of negative affective states. Most significantly, adult learners preferred a low-risk social learning experience in a trusted, convenient location with approachable, supportive instructors. Among graduate student volunteers, community service motivated them to participate, with the added value that they would gain instructional experience. Two library administrators indicated there were different motivations for wanting to partner and collaborate, but both were motivated to fulfill their library's missions; for the public library, to provide adult learning opportunities, and for the university library, to provide community outreach.

For background, the following section will review the program's basic structure and organizational partnerships.

Overview of a Collaborative Computer Learning Program

The collaborative, volunteer-based computer learning program was located in a town with a large, public university, and was run as a partnership between the university and four public libraries spanning two counties. The university had an information and library science graduate program that was not an official partner; however, it provided a pool of graduate student volunteers interested in teaching free computer classes to public library patrons. From 2005 to 2008, the program offered over 500 classes, reached

approximately 3,000 community members, and involved approximately 70 volunteer instructors.

Throughout the year, the volunteer graduate students instructed a variety of basic computer workshops: E-mail, Internet, Microsoft Word, Excel and PowerPoint. Periodically, graduate students also taught patrons about online social networks, Internet privacy and security, eBay and Craigslist, finding health information, online job application skills and other custom classes over the years. At times, classes were offered on the university campus, and a series of basic computer classes for Spanish-speaking parents were offered at a nearby elementary school. Administration and supervision of the graduate student volunteers was handled by the Director of Public Services for the university libraries. A paid graduate student recruited volunteers and was responsible for scheduling classes and periodic information orientations. Using a listserv, flyers, guest visits to graduate classes in library science, and word of mouth, the computer learning program was able to attract instructors and assistants (floaters) to teach an average of seven classes a week for 41 weeks per year over a three-year period.

Class sizes ranged from one or two patrons, up to 25 at one public library, which had the largest computer lab. Depending on arrangements with the different public libraries, classes were offered evenings, mornings or weekends. At the public library where the focus groups took place, classes were offered 8:30am to 9:30am before the library opened. Most classes had at least one instructor and one or two floaters. Reference librarians at the public libraries handled patron registration and promotion of classes. Another university libraries administrator designed and maintained the Web site[2].

There has been limited assessment of the program due to time and funding constraints; however, there are several community indicators of sustainability. Once the program was established at one public library, word spread and other local libraries asked to be included. In terms of professional recognition, the Association of College and Research Libraries awarded the computer learning program an Instruction Section Innovation Award in 2007. Perhaps most notable, however, was the sustained willingness of graduate students to volunteer while juggling jobs and school. Given that the program was not part of the library school's curriculum as a service-learning opportunity, this indicated student interest in instructional skill development or community service.

Ultimately, however, library patrons determined whether the program was worth continuing, and their attendance over the first three years demonstrated a genuine community need and interest. Registration for classes regularly filled to capacity, and patrons repeatedly took classes as the schedule cycled through rotating 7-week sessions.

Literature Review

There is great enthusiasm about the participatory, social, and informational nature of the Internet; those who are proficient online can participate in the public sphere in distinctly advantageous ways (Dimaggio et al., 2004, Wilhelm, 2004, O'Hara and Stevens, 2006). However, not all citizens are online, due to a lack of access or ability, and real barriers exist, largely expressed as the digital divide or information illiteracy. The following section evaluates the digital divide, information literacy in public libraries, user education research, and motivation, self-efficacy and psychological well-being among computer users.

Digital Divide Recast

Remarkably, the Internet has been part of our collective lives for fewer than two decades. And yet UNESCO, the International Federation of Library Associations and the National Forum of Information Literacy[3] already consider access and use of the Internet to be a basic human right. As Wilhelm (2004), O'Hara and Stevens (2006) argue, information literacy is essential to a deliberative democracy and is inextricably linked to citizenship. DiMaggio et al (2004) note that digital literacy[4] increases economic advantage and political agency. As Freese, Rivas and Hargittai (2006) wrote, the Internet has become *proto-normative*, in that there is an expectation that citizens are information literate. It is telling, for example, that senior citizens are expected to have sufficient skill levels to use government-developed online tools explaining Medicare D benefits. (New York Times, 2005). When the government expects its citizens can, will, and do go online, it privileges those with access and skill, creating a potential knowledge gap that can disadvantage the very citizens it seeks to help. Data indicate that more seniors are going online (DiMaggio et al., 2004), but that they are primarily using their computers for e-

mail (Fox, 2004), an activity that does not necessarily translate to broader Internet skills (Freese et al., 2006).

The U.S. government's National Telecommunications and Information Administration (NTIA) defined the digital divide as the gap between people with and without Internet access, based on the principle of universal telephone service (Freese et al., 2006). While the NTIA's reports have provided valuable research on Internet access, particularly on the influences of geography, income, race, gender, age and family structure, they have also helped perpetuate the idea that access is commensurate with ability. Because early studies conflated access and use, there is more research about Internet access than usage. However, scholars such as Hargittai, Freese, and DiMaggio have explored more meaningful impediments to digital equality, such as uneven access, and varying levels of skills, motivations, support, knowledge and use among citizens.

Lenhart and Horrigan (2003) reported that education, income and race were the largest predicators of who was likely to be online (those who are white, educated and have higher incomes are more likely to use the Internet), but for Internet nonusers, Lenhart and Horrigan found, "a picture of Internet access that is more nuanced than captured by the historic metaphor of the digital divide." The digital spectrum, as they proposed to rename it, suggested that nonusers were characterized more by instability and inconsistency in use than any binary definition of the digital divide, and observed that "the road to Internet use is so paved with bumps and turnarounds." By evaluating the demographic and psycho-social predictors of nonusers and intermittent users, a much less homogenous depiction of users emerged.

On the digital spectrum, Lenhart and Horrigan identified four groups of nonusers: Net Evaders, Net Dropouts, the Truly Unconnected and Intermittent Users. Of these groups, the latter might represent a likely computer class participant. In general, Intermittent Users ceased using the Internet because they were unsure how to solve a technological challenge, or they found it "too hard to use, too confusing and too information-laden." Fear about online crime, worries about loss of privacy and other Internet safety concerns were also cited as reasons Intermittent Users dropped offline. These tended to be different reasons than what the Net Dropouts, Net Evaders and Truly Unconnected cited for nonuse, most of which indicated intentional reasons unrelated to technological frustrations.

While the Intermittent Users might be likely computer class participants, it is worth considering Lenhart and Horrigan's (2003) research on non-users, particularly their perceptions and thoughts about the Internet. Embarrassment was mentioned as a factor during focus groups; older adults, in particular, felt embarrassed to know less than children or spouses. Fear was also a prevailing impediment: 56 percent of non-users thought the Internet was dangerous, whether because of online predators, identity theft, consumer fraud, or an unspecified fear of the unknown. Two in five non-users (40 percent) thought that the Internet was "too complicated and hard to understand." Cost was also a disincentive for many users, and while 43 percent agreed that "Internet access is too expensive," Lenhart and Horrigan (2003) noted that a high number of survey participants did not answer that final question, which suggests that high costs may be a bigger impediment than indicated by survey results.

Working with beginner computer users can be an eye-opening experience for the digitally literate. Moving a mouse, clicking the correct icon, opening a new document, typing, saving the document, opening a browser in a new window, launching an e-mail program, composing an e-mail, and browsing, finding and attaching the document before sending—these 12 rudimentary steps cover skills with the operating system, file management, , typing, word processing, Internet and e-mail programs. Moving seamlessly between these tasks can be a daunting set of challenges for beginning computer users.

Computer literacy rubrics exist for K-12[5], technical, community and university[6] students, although no national standards are used for assessment. When considering the time and resources traditional K-12 and college students receive to become computer literate, it underscores the additional challenges that adult learners face as they attempt to catch up, usually with less help and peer support. Exacerbating the problem, proto-normative views of the Internet can make it easy for instructors and librarians to overlook the fears, cognitive abilities and conceptual comprehension necessary beginning computer users must confront in order to become novices.

Beginners are more likely to lack the social support others have, or the self-efficacy necessary to teach themselves (Freese et al., 2004). As Massey-Burzio (1998) discovered, "The most common way that [university] students learned how to use the Internet is through friends and experimenting…coupled with their expectation that they should be able to figure things out for themselves." In comparison, Intermittent Users had a tendency to drop offline in frustration when confronted with computer challenges (Lenhart, 2003). These users may lack social networks that predict successful Internet

adoption; according to Lenhart (2003), 27 percent of nonusers, compared to 4 percent of users, report that none or very few of their acquaintances were online. As DiMaggio and others noted (2004), there was perhaps a tipping point among social groups in which going online became essential to participation in the online and offline network. While beginners may have felt it necessary to learn computer skills, they may have also lacked the support needed to overcome computer problems. As a result, they could give up in frustration and drop offline.

Information Literacy and Public Libraries

Information literacy is an essential skill in the 21st century; school educators and librarians have made concerted efforts to produce K-12 and college students who can search, find, and critically analyze information online. Several indicators make it clear that there is no equivalent effort to produce information-literate adult citizens. The American Library Association (ALA) originally stated that, "an information literate person is empowered...for effective decision making, freedom of choice, and full participation in a democratic society." (ALA, 1998). Yet in the *Final Report from the Presidential Committee on Information Literacy* (1998), the ALA wrote that "producing such a citizenry will require that *schools* and *colleges* integrate the concept of information literacy into their learning programs." Students need to be information literate, but so do people with less education, lower socio-economic scores, older adults, and those already disadvantaged by the digital divide. Disadvantaged citizens who experience digital inequality are more likely to rely on public libraries, not just for access, but for basic computer learning. Including traditional and non-traditional learners in discussions of information literacy would, at a minimum, communicate a professional awareness that public, school and academic libraries share a collective goal.

In the past, public libraries focused more on issues of access than information literacy and learning. Understandably, as the National Telecommunications and Information Administration (NTIA) addressed the digital divide in terms of access to the Internet, public libraries became important focal points. Information literacy for public libraries manifested as a race for funds to support computer hardware, Internet connectivity, IT support, maintenance and upgrades, and more recently, broadband and hi-speed connections to handle greater multimedia. There is an opportunity to pair this focus on access with information literacy needs in public libraries, beginning with an assessment of the ALA's perspective.

Ten years after the *Final Report on Information Literacy* (1998) was published, the ALA wrote that "the abilities to know when there is a need for information, to identify information for that need, and to be able to locate, evaluate and effectively use that information are not new abilities that have emerged as a result of the Information Age." Beginning computer users might disagree with that statement. Understanding the concept of a browser, using tabbed browsing, cutting and pasting content, sending hyperlinks by e-mail, scrolling, opening attachments, installing software, downloading software, customizing privacy settings, and even knowing what a desktop is—these are just a handful of the building blocks that lead to information literacy and are, for many, new abilities and skills necessary for the Information Age.

Further, the ALA declared that "the only thing that has changed is the amount and variety of information that is now available." (ALA, 2008). For beginner computer users, the amount or variety of information is daunting, but without basic skills, that information is unavailable to them. In public libraries, information literacy starts at the

most rudimentary level for the digitally disadvantaged; computer skills are the basic alphabet of information literacy. Fortunately, this is something that public libraries address. Xie and Jaeger (2008) identified public libraries as ideal sites for providing computer training, and surveys showed that public libraries have become leaders in providing computer training (Bertot et al., 2006).

Poustie (1999) found that public libraries often served the most vulnerable socioeconomic groups, particularly those with less education and lower incomes. In America, the digital divide and public libraries naturally intersect. In Poustie's report on the role of public libraries, researchers found that over 40 percent of Americans lacked Internet access, and over 10 million people relied on public libraries to provide connectivity. According to the 2008 report on *Public Libraries and the Internet*, more than 98.9 percent of all libraries offered free access to computers and the Internet (up from 72 percent in 1996). The report also found that a majority of libraries offered some kind of technology training (73.4 percent) to their patrons, noting how difficult it was to meet those growing needs.

Pew Internet researchers reported an increase in public library visits between 1996 and 2001, a trend attributed in large part to free Internet access (Pew Internet, 2008). While the Pew report did not survey the number of libraries offering computer training programs, it did note that libraries taught basic computer instruction to patrons, whether formally or not.

Library User Education and Information Literacy Research

Despite public libraries' efforts to provide computer training, research on user education, compared to college, special and school libraries, is limited. According to Rader (2000), only 2 percent of 3,898 publications from 1973 to 1998 focused on library

user education and information literacy in public libraries. Academic libraries contributed most of the research, with 2,428 publications (62 percent) covering some aspect of user education services. School libraries produced 769 publications (20 percent) and special libraries 360 and 9 percent, respectively. While Rader's research is nearly a decade old, it does suggest a pervasive absence of public libraries in user education literature.

In Rader's identification of the 32 most influential publications written over a 25-year period, none focused on the special user-education requirements of public libraries (2000). Most user-education publications looked at ways to assess student outcomes, evaluate bibliographic instruction methods and consider how best to define information literacy for academic and school libraries. Even so, public libraries have a rich history of user education. Tiefl (1991) has written widely about the history of user education in public libraries, pointing out that library orientation, user education, bibliographic instruction, and information literacy is not new to library services. Tiefl and Leech (1995) wrote that information literacy belongs on a continuum of user education in public libraries, preceded by a long history of reference services, bibliographic instruction and adult, youth and children's learning programs. Public libraries may not share school and academic library mandates to teach, but they have explicit missions to meet the information and learning needs of patrons. In a technologically sophisticated Information Age, user education, computer training, and information literacy increasingly go hand-in-hand with public libraries.

User education does have a price, however. As Xie and Jaeger (2008) wrote, public libraries are often short on staff and resources, and struggle to maintain and upgrade existing technology; consequently, funds are not always been available to

provide information literacy programs. Tiefl (2000) observed that public and academic libraries have historically functioned as standalone operations, but predicted that the 21st century would make cooperation, IT skills, and services to patrons more important than collection development. The collaborative, volunteer-based computer learning program is one example of a sustainable partnership. Xie and Jaeger suggested public library-based computer clubs, and while not as beneficial to beginner computer users, online tutorials like those created by Goodwill Community Foundation[7] are available to address some types information literacy needs to the general public.

Beyond library user-education literature, scholars have researched mature adults and new computer technology in certain settings (Kraut et al., 1998; Illeris, 2003; Crosnan et al., 2003). Much of this research has focused on community college, continuing education and distance-learning environments, which tend to have curricula, syllabi, and assessment. Xie and Jaeger (2008) advocated more informal, peer-led computer clubs for adult learners in tandem with public library computer classes. Combining an informal yet deliberative learning process with a participatory and collaborative social interaction offered a more situated learning experience. Xie and Jaeger also observed that this kind of learning had a positive influence on adult learners' psychological well-being, which helped increase their interest in the material.

Chickering and Gamson (1997) found that adult learning could create heightened levels of emotional intelligence, "Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated." In many ways, the learning opportunities afforded by public

libraries could be ideal for adults and beginner computer users, particularly if the patrons were intimidated or anxious about learning new skills.

Further, public libraries are considered social institutions that "seem almost immune to the distrust that is associated with so many other institutions (Public Agenda, 2006). According to Xie and Jaeger (2008), social trust of public libraries offered comfort to computer users who otherwise felt anxious. In seeking help with online activities, patrons often turned to public libraries before anywhere else, even if they had computers and Internet access at home (Bertot et al., 2006). This perception of public libraries may play a significant role in whether adult learners overcome fear, anxiety or discouragement about computers, particularly if the library offered continuous training and a regular support network.

Research on more traditional library interactions can also apply directly to computer training programs in public libraries. As Tiefl wrote (1991, 1998), library user-education covered a variety of learning situations, some of which have implications for 21st century information-seeking adult learners. In a study on learners' advisors who assisted adult patrons, Carr (1981) observed that "the helping relationship incurs affective qualities; its success has to do with meanings and emotions." While the advisor/adult learner relationship takes place one-on-one, the interaction, reciprocity, mediation, risk taking, collaboration and communication of that one-on-one relationship is similar to what occurs among computer learners and instructors in a public library. Carr's description of an "intricate, interdependent network" may also be present in an instructor/learner relationship, and could have a positive affect on motivation, expectations, perceptions and affective characteristics in the learner.

Anxious adult learners may benefit from altruistic forms of helping. "To serve and to help are different acts," wrote Carr (1983). "The first may be seen as reactive, the second as proactive." When instructors are volunteers, they perform a proactive act that may be more about helping than serving or teaching. Carr's analysis of mentoring literature found recurring adjectives that described a helper as someone who was "accurate, altruistic, analytic, emphatic, engaged, ethical, flexible, mature, nurturant, realistic, self-aware, supportive, uncoercive." An adult who wants computer skills is an adult who needs help, a state that Carr described as "dependent, wanting, impelled, sometimes stressed, and reticent." Helping and mentoring add a new dimension to what is often treated as a simple transaction; in this example of user education, the quality of the instructor/learner interaction is central to successful learning. In fact, "the quality of giving may be far more critical to effective learning than the array of information given" (Carr, 1981).

Motivation, Self-Efficacy and Psychological Well-being

Beginning computer users may have Internet access readily available at home and lack the confidence or social support to become proficient. Scholars who developed theories of Internet adoption recognized that access did not necessarily lead to use (Freese et al., 2006); at one point, one-fifth of adults who did not use the Internet had access at home (NTIA, 2002). Instead, motivation and skill appeared to be primary indicators of Internet adoption (de Haan, 2004; Reddick and Boucher, 2002; Nurmela and Vihera, 2004).

Studies have gauged motivation in various ways; one measure included computer self-efficacy, defined by Compeau and Higgins (1995) as "an individual judgment of one's capability to use a computer." Bandura's (1997) research observed that efficacy

originated from progressive trials (such as success or failure with computer tasks), which in turn influenced subsequent use or disuse of the computer. Agarwal, Sambamurthy and Stair (2000) observed that self-efficacy can be manipulated through training and other interventions. As Eastin and LaRose (2006) wrote, computer users apply considerable skill and training in order to operate software and access online information; therefore, self-efficacy and skill mastery often helped overcome any anxiety or fear that novice users experienced. Beas and Salanova (2006) found that many variables impacted student self-efficacy and psychological well-being, such as specific training content, prior exposure to computers, previous attitudes toward technology, duration of training, and location. In a study that most resembled the collaborative campus-community partnership described here, Xie and Bugg (2009) found through pre- and post- test results that participants experienced a decrease in anxiety, an increase in interest, and that they felt they "learned a lot."

Existing research on computer use and well-being has focused primarily on the advantages of Internet connectivity (Xie and Jaeger, 2008) and the networked potential for socio-technical capital (Resnick, 2001). Dickinson and Gregor (2006) found that research on computer use and psychological well-being varied. In aggregate, studies indicated that an increase in psychological well-being depended on types of exposure to technology (i.e., frequency of use, methods of training and level of expertise) (Beas and Salanova, 2006). And while some empirical evidence suggested that computer-use contributed to well-being (Bradley and Poppen, 2003), Xie and Jaeger (2008) argued that much of the research focused on the benefits of being online, overshadowing positive emotions derived from face-to-face social interactions such as computer classes. In a

review of research from 1980 to 2005, Dickinson and Gregor (2006) found that contact with trainers and the quality and content of training was more likely to influence well-being than actual computer use. This criticism of computer use and well-being pointed to an unintended yet helpful insight into adult learner motivation: social support matters for beginning computer users.

Not surprisingly, much of the research on anxiety and computer training has focused on senior citizens, since they are the age group least likely to be online (Morris, 2007; de Ruiter, 2002; Illeris, 2003). As Dyck and Smither (1994) wrote, the learning curve is steep and the benefits can be immense for seniors. Yet according to some scholars, high levels of fear and anxiety prevented seniors from going online[8]. Gerontology research may not be representative of all adult learners, however. Lenhart and Horrigan (2003) found there were adults who expressed an interest in being online, had other people to turn to for support, and exhibited "a positive and outward orientation toward the world." Freese, Rivas and Hargittai (2004) found that Internet use among older adults was associated with cognitive ability, which was positively related to having someone help them with computer problems. Xie and Bugg (2009) found that 97 percent of adult library patrons experienced a decrease in computer anxiety after 16 hours of instruction to help locate high-quality online health information. Having a supportive social network would appear to influence affective characteristics for adults engaged in computer learning.

Methodology

Theories of Internet adoption have focused on the importance of motivation, skill, and cognitive ability (DiMaggio et al., 2004) among adult learners. This exploratory research expands on the role of motivation in Internet adoption, and considers perceptions, expectations and affective states of adult computer learners. Two main objectives inform this research: first, to identify themes and patterns of affective characteristics, motivations, perceptions, and expectations; and second, to identify qualities of the learning passage that elicited negative or positive affective characteristics. These objectives were met through several qualitative methods:

(1) Sixteen self-selecting public library patrons participated in one of three small focus groups for an hour following computer classes to discuss negative and affective characteristics of the learning experience (Appendix A);

(2) Six self-selecting graduate student volunteers were interviewed individually for an hour to discuss their motivations and perceptions of engagement with the adult learners (Appendix B);

(3) Two library administrators were selected for individual interviews to discuss the motivations, perceptions and insights relevant to their collaborative learning program (Appendix C).

Several factors may have influenced the results of the focus groups. Public library patrons participating in the focus groups had taken at least one computer class with the person conducting the research; this may have influenced their willingness to participate or affected what they chose to say. Public library patrons who had negative experiences during class may have opted out of the focus groups, or found the format lacked

sufficient anonymity and objectivity. As a result, data may not represent those who had contrary points of view.

Only narrative data was collected; therefore, there is no way to gauge diversity in the sample. For example, job-seekers, homemakers, retired adults, empty nesters, homeless, immigrants and other types of groups may offer additional or competing views. Last, sixteen participants in three focus groups at one public library over a three-week period is not likely to provide the necessary sample size or range needed to provide more conclusive results. A more probing study would sample more focus groups from a variety of participating public libraries over a longer of period of time.

Similar constraints applied to the graduate student volunteers. Students who offered to participate in the study may be more civic-minded than other students, and their interest in community service or "giving back" may be overrepresented in such a small sample size. A more thorough study would seek to interview graduate student volunteers who no longer participated in the program, as a way to gauge possible negative experiences.

With those limitations in mind, the following sections provide an overview of qualitative research methodologies used and results reported, divided into public library patrons, graduate student volunteers, and library administrators.

Public Library Patrons

Sixteen self-selecting public library patrons met in one of three small groups for an hour after a public library computer training program. Participants discussed their expectations, motivations, perceptions (of other and of self), and affective characteristics (confidence, interest, enjoyment, surprise, frustration, shame and discouragement) as a

result of participation in basic computer classes at the public library. No biographical data

was requested or collected, although participants had to be 18 and over to take part in the

focus groups. Respondents were asked to discuss, as a result of taking computer classes

at the public library: (1) their expectations of the class, (2) what motivated them to take

computer classes in a public library, (3) why they thought the classes were being

provided, (4) their perceptions of themselves as result of taking the classes, (5),

confidence levels before and after attending classes, (6) whether they experienced

interest, enjoyment or surprise from taking classes, (7), or whether they experienced

frustration, shame, or encouragement as a result of taking classes.

Responses to each of the seven discussion points were sorted and categorized

according to prominent themes. Focus group discussions followed the public library

patron guide (Appendix A), and responses were examined as a separate entity before

being coded, compared, and sorted into categories representing positive or negative

affective states. Categories were based on factors that either impeded learning: (1)

programmatic elements, (2) self, (3) social, (4) computer; or factors that supported

learning: (1) programmatic, (2) self, (3) social (4) computer. As an example of the first

category, patrons attributed positive or negative affective states to specific programmatic

elements, such as location, convenience, accessibility, class length, number of instructors,

schedule, handouts, instructor expertise, and other class design elements. Items in the

"self" category included responses pertaining to intelligence or ability, such as ignorance,

stupidity, panic, shame, embarrassment, fear, anxiety, pride, and confidence. "Social"

items included responses pertaining to relationships with other patrons, instructors, or

assistant instructors. In the "computer" category, items that patrons used to describe the

computer were sorted, such as "whole new language," "magical," "puzzle," "easy to break," "powerful," "full of surprises," "mystery," "not physical," or "overwhelming."

Once items were sorted and categorized, each category was compared and organized along a continuum to provide a framework that maximized discovery. From this analysis, two main themes emerged. First, beginner computer users sought learning passages (programmatic, social) that minimized negative affective characteristics (self). Second, positive learning experiences (programmatic, social) did not change learners' perception of computers, but they did increase confidence (self) and independent learning. Even though patrons viewed the computer as something "magical," "powerful," and "easy to break," it alone did not impede learning as much as negative affective characteristics did.

In the following section, patrons described in natural language three social and programmatic elements that minimized negative affective states:

(1) Being able to access a convenient, familiar, safe, and trusted location.

> I knew I wouldn't be intimidated like taking it at a tech school or somewhere else.
> At the university, with my ignorance, that would just be too much.
> It is so peaceful and quiet here, very convenient. And very safe, very comfortable.
> If the classes were held at the university, I would feel more intimidated.
> At the tech school, that's an intense kind of learning. Tests, homework, all that.
> I knew the library, knew I would be okay here.
> I left class at community college, it was too intimidating. Here is very relaxing.
> I look forward to coming here, to be at the library just makes it nice and easy.
> I took a while to come, but I know the library well, and that made me try it out.
> I love the library, this is perfect to have them here.
> A librarian told me it was a good class, and I felt I could come, and be okay.
> It's the library, you know you're going to be comfortable here.
> Please, please do not move these classes to the university. I would not go.

(2) Participating in a group environment with other beginners.

> I can ask questions and sometimes someone next to me knows.
> This has been a very safe place to ask questions, everyone's in the same place.

I feel like this is such an efficient way to be learning, to be in a group like this.
If I have to ask somebody else here, that to me is great. We help each other along.
There's no discouragement here.
I took a computer class with one person teaching me, that was a lot of pressure.
Being with people like me took away a lot of shame, so that I look forward to
     coming.
People ask questions, and it makes the instructor maybe repeat something. That's
     good.
People watch from behind you, see you get stuck, and boom, they help you.

(3) Having access to instructors and extra floaters who could help learners get "unstuck."

With a book, it never worked, I got frustrated. Not like here, all this help is great.
You have the back-up person who can sort of watch what you do and help you.
That's a big difference when that person keeps the whole group going together.
I love it when the instructor asked the other floaters how to do something.
When the teacher is teaching, you can wave to have the floaters come over.
Help me get unstuck, and move on without holding up the class. So nice.
They all know a lot, and teach it so well, but don't try to pretend to be experts.
I raise my hand and I've got two floaters who will come get me out of the loop.

In the second theme, positive learning experiences increased (self) confidence and

independent learning. Below are expressions of negative affective states connected to

computer learning, followed by expressions of confidence and independent learning:

(1) Negative affective characteristics

I came in for survival.
It's scary. It's like a whole other planet living in that computer.
I was so nervous, and I mean almost paralyzed, thinking that I better memorize all
     this stuff with the computer.
I felt really embarrassed.
It is pretty scary out there.
Computers were extremely frustrating.
I felt very nervous about whether I was doing the wrong thing.
Computers have been one huge puzzle, just the intimidation of it.
It's embarrassing to be middle-aged and not zoom through computers like young
     people.
I was quite anxious about computers.
I didn't know how I would function, and that made me panic.
Everyone said you can learn on your own, just play with it. But I was too nervous.
I had a computer but I didn't explore it, I was intimidated.
I wanted more knowledge, not be so overwhelmed.

My husband doesn't understand why it is so intimidating for me
Everything is so centered around the computer, it made me so nervous.
I felt really embarrassed to ask about computers.
I felt so stupid, so ignorant. And then I just worried I would get left behind.
What a huge hurdle, what a challenge to learn computers. And I didn't trust them.
I tried it on my own, but I felt so stupid. And too embarrassed to ask sometimes.

(2) Positive affective changes

I have been able to pull everything together and I just feel a lot more confident.
Now I go back and play with the computer at home some.
I didn't think I would gain so much confidence.
I have learned significantly more than I ever thought I would.
I remember very well what I learn here.
I feel excited about learning it now and very confident learning it.
A class like this helps me get over that feeling that I'm anxious.
I see now that you don't need to know everything, that no one does.
I know I can go home and work on it, and know I can get help here.
I admire all of us, what we did to better ourselves. It gave me confidence.
I haven't learned anything new in a long, long time, and I love it, it interests me.
If I didn't have this class, would I use a computer? No, probably not.
I have a desire to play on it on my own, and I never had that before.
I'm thinking on my own now, just going over what we did, trying things out.
I'll tell my husband another way to do it, that there's not just one way.

Graduate Student Volunteers

Six graduate student instructors were interviewed one-on-one to discuss their expectations, motivations, perceptions and affective characteristics (Appendix B.) As mentioned above, students were primarily interviewed to explore motivations, perceptions, and affective states that support public library patrons' insights. Respondents were asked to discuss, as a result of teaching or assisting computer classes at the public library: (1) their expectations, (2) motivations, (3) perceptions (of the program), (4) perceptions (of themselves), (5), confidence about teaching, (6) positive affective characteristics such as interest, enjoyment or surprise, (7), or negative affective characteristics such as frustration, shame, or discouragement.

Similar to methodology for the public library patrons, responses were sorted and categorized to help identify prominent themes. Responses were examined as separate entities before being coded, compared, and sorted into categories. Categories were more simplified than the public library patrons since sample size was smaller and responses were more uniform. Two themes emerged; first, graduate student volunteers were motivated by altruistic goals. All six graduate students were motivated to volunteer-teach by a desire to "give back," or to offer a service to the community. Gaining experience was valuable, but was considered secondary to more altruistic goals. A second theme indicated that positive affective states were very high as a result of teaching public library patrons. Graduate students found teaching to be "extremely satisfying," "a real high," "so enjoyable," "fulfilling," and "addictive," affective states that made volunteering something they willingly made time to do. None of the graduate student volunteers reported any feelings of frustration, shame, or discouragement as a result of teaching, and confidence levels increased marginally as they became familiar with the program. Three of the graduate student volunteers provided instructional services to university students and felt that their experience with public library patrons made them more aware of skill disparities in general.

These two themes could have far-reaching implications for beginner computer users. Engaged, empathic and altruistic instructors who enjoyed their work might be more likely to minimize negative affective characteristics in adult learners. A cycle of reinforcement between instructor and learner could provide necessary sustainability to a program dependent on volunteer service.

The following section explores graduate student responses that reference many of the themes mentioned by public library patrons. What is evident is a pattern of reflection that seemed to suggest a more empathic teaching approach. Four of the graduate students reflected on their experiences with beginner computer users:

> I was really pretty shocked. The first couple of classes I did were setting up email, which took us two solid hours to get through. I was really surprised how long it took. I had forgotten just how steep that learning curve is and how the technology can be so intimidating. I found myself spending a lot of time just encouraging and congratulating and praising and trying to slow myself down, not clicking all over the screen, which takes a lot of patience. Especially since these are adults, and I didn't want to be patronizing, but at the same time, you can really overwhelm people pretty quickly.

> For an audience like this, you don't want to be intimidating with these people, because a lot of them come to these classes already afraid of computers. They already have anxiety, and so as an instructor you want to be warm and welcoming and help them see how this tool can help them. If you were to be imposing and egotistical, you would lose them.

> Their needs are so strong, and so basic. These people are afraid to log on, they don't really know what they need to do or what's happening. I don't attribute any kind of lack of motivation on their part or lack of ability. Maybe it's just lack of opportunity and exposure. And I found that heartbreaking. Everyone should have to teach one of these classes just to get out and see how people are trying to learn.

> You have to think even more about being approachable with this kind of group. Not that you don't have to think about that with high school or college classes either. But college, high school students, they are not as likely to feel the social divide. People in these beginner classes don't know this stuff, and they think everyone else in the world knows how to go online and check their email. So you have to be much more approachable and make them feel okay about not having basic skills.

Five of the six graduate students offered their own insights about the importance of having floaters in a beginning computer class, an observation that the focus group participants shared.

> Putting the students at ease comes naturally when you have plenty of floaters, so if you have two floaters and an instructor, you can pretty much keep an eye on

people and see who is having trouble. So it is easy to slip in and say, That's great, why don't you try going over this, or, This used to confuse me too, I can't tell you how often I've done that. That kind of thing. You don't have to hover over them, just share a few tips. The presence of the floaters really helps set the tone in the classes and makes people feel comfortable. They can go more at their own pace.

One graduate student volunteer spent more time as a floater, and spent more time watching the class from behind, gauging how well patrons were doing by watching their screens. She noticed what some of the library patrons mentioned:

One thing that was interesting as I was watching the class, I found that there was a lot of collaboration between the students, so the students felt comfortable with each other as well, and I think that really helped set the tone.

Being motivated by a sense of community service was a recurring theme with all of the graduate students, expressed here by four comments:

What was interesting about this for me is the community service aspect of it. Personally, community service hasn't been a big part of my life. I broke through that barrier a few years ago, by volunteering at a library in my neighborhood, so this kind of comes back to that. This is a place where I can do some community service in an area that's a skill and strength for me, and I enjoy it, it provides value to an audience that really needs it.

I always thought that the university's mission should make every effort to do things like this in the community. There should be an obligation to give back to the community and help town/gown relations. There is a big divide and the university should definitely give back, realize that the university wouldn't be there without the people supporting them in the community.

I had had some exposure to instruction and knew that I was going to like it. And I had some other service-type experience in college and really liked it, so that's what made me want to be involved.

This last observation summarizes the sentiments shared by each of the graduate student volunteers:

This was the most grateful group of patrons you have ever met in your life, nothing I did was wasted. This was not a critical group—this is a group that was appreciative of anything offered to them. It made me feel good, I felt like I had done something great for these people. I didn't have to worry about stumbling

over terms, or if I didn't know everything, these were not people who were going to criticize me or hold me up to be the perfect teacher. It was addictive teaching them, seeing how grateful they were.

Library Administrators

While library administrators were interviewed one-on-one and asked a series of questions on expectations, motivations and perceptions (Appendix C), their feedback was more useful as background context and was not used to generate themes or patterns. However, it was useful to learn what motivated both parties (public library and university libraries) to create the partnership. For the university library director, the motivation was driven by a mission of outreach:

> It came out of a need that was expressed to us from the public libraries and it just seemed like the right thing to do, and we wanted to help, if we could. It started as our attempt at helping the public libraries offer a service that they couldn't otherwise do themselves. From our perspective, we always viewed, or at least I always viewed it as a part of our mission of outreach to offer some kind of information literacy out into the community.

The public library administrator viewed the classes as fulfilling the library's mission to provide learning opportunities:

> I think these classes help the community by providing free computer skills classes, and there is definitely a need for that based on participation here and in other libraries where I've worked. It's meeting a critical need. It helps the library, since our mission is to provide workshops, classes, help bridge the digital divide, so I think this meets those goals. I believe this is part of our mission, our service, and it's wonderful that we can offer this and especially because it's in partnership. I'm not sure how we could accomplish it without having this community partnership.

What is notable about both of these statements is the alignment of library missions with the services they provide. The university and the graduate students both sought service to the community as the primary motivation. For the public library and the adult learners, the mission aligned with shared goals of meeting a critical information need.

Discussion

As mentioned in the introduction, one motivation for this study was to better understand beginning computer learners. Asking adult learners to discuss how they felt about the Internet provided insight into the motivations, perceptions, expectations and affective states of beginning computer users. Having them discuss the changes in their affective states after taking classes at the public library provided insight into what adult learners needed to become more confident, independent computer learners.

Several implications followed from this exploratory study. First, affective states appear to play a critical role in Internet adoption, independent learning, and skill acquisition among beginning computer learners. Recognizing that beginning computer users experience profound feelings of fear, embarrassment, and intimidation could go far to help librarians who encounter them. When an intelligent, capable patron feels "…so nervous, and I mean almost paralyzed, thinking that I better memorize all this stuff with the computer," it underscores how a negative affective state could prevent basic skill acquisition, even when access and training was available. Understanding the existence of negative affective states and analyzing methods to minimize those feelings should be a topic of discussion and study for public libraries. Seeking ways to support beginners in a welcoming, trusted environment could give an adult learner the necessary confidence to continue learning.

A second implication of this study suggested that public libraries should seek collaborative partnerships and learning environments that minimize negative affective states for adult learners. A collaborative, volunteer-based computer training programs provided the ideal conditions for adult learners: the public library was a trusted

institution, classes were social, and volunteer instructors were largely motivated by altruism and empathy. Providing an environment devoid of curricula, syllabi, and assessment were necessary for these beginner users, since formal instruction increased stress and added to feelings of "being left behind."

Analyzing the specific affordances of basic computer classes in subsequent studies could contribute to theories of Internet adoption, library user-education research, and best practices for libraries seeking similar programs. Out of this study came new research ideas: ILS faculty and students may be ignorant about the information needs of beginning computer users, and subsequent studies should seek to investigate how well the profession understands the affective characteristics and computer skills of adult learners. As mentioned earlier, at the core of this research is the belief that faculty, professional librarians and future librarians have a unique view of information literacy that can change, in real terms, how digital inequality is addressed. Investigating the different perceptions between ILS schools that offer service-learning courses, and those that do not, could identify whether experiential pedagogies affect perceptions of non-normative populations and Internet use.

Appendices

Appendix A: Focus Group Guide for Public Library Patrons

Objectives of the focus group:

The purpose of this study is to evaluate the motivations, perceptions, and expectations of library administrators, graduate student volunteers and library patrons who participate in a collaborative campus-community effort that offers free face-to-face computer classes.

Topics for focus group members (presented as menu items):

Menu (for focus group participants)	Explanation (for facilitator)
Expectations	"What were your expectations of coming here for a class today? How do you see these experiences helping you?" "What aims or goals caused you to choose the library as a place for learning? Are there aspects of these classes that make you feel open and willing to participate in them?" [library setting, instructor, familiar building and environment, free]
Motivations	"You could learn about computers from friends or manuals, or from observing others and finding your own way. What reasons led you to choose this kind of training instead of another way to learn?" [Or: "If you were encouraging someone who trusts you take these classes, what would you say to them, positive or negative, about the experience?"
Perceptions - Other	"Why do you think the university wants to offer classes like this one, in a community, at a public library? What does the university offer to you when it does this?" [service to the community, interest in improving job skills, desire to make the web/internet/email available]
Perceptions - Self	"Thinking about the experience you have had as a participant in the computer classes, how do you view your computer skills now? Looking back at yourself before taking this class, how do you see yourself as a computer user right now?" "Are there

	specific things you learned that surprised you? Are there things you wish you had learned in the workshop, but didn't?"
Affective Characteristics – General, Confidence	Thinking about your computer abilities before and after participating in these workshop, how would you describe your confidence level in terms of general, overall abilities with computers? If you have experienced changes in confidence, how would you characterize these?
Affective Characteristics – Interest, Enjoyment, Surprise	[Interest] Thinking about your experience in the computer classes, describe how often you feel like what you're doing or watching is interesting. [Enjoyment] Describe whether you feel glad about something. [Surprise] How do you feel when you learn something unexpected, or, when something unexpected happens as you follow along in class? Describe how, or whether any of these feelings have changed as a result of participating in these computer classes.
Affective Characteristics – Frustration, Shame, Discouragement	[Frustration] Thinking about your experience in the computer classes, describe how often you feel like what you're doing or watching makes you frustrated. [Shame] Describe whether you feel shame about your abilities. [Discouragement] Describe whether you feel discouraged about your ability to learn basic computer skills. Describe how, or whether any of these feelings have changed as a result of participating in these computer classes.

Appendix B: Interview Guide for Graduate Student Volunteers

Objectives of the interviews:

The purpose of this study is to evaluate the motivations, perceptions, and expectations of library administrators, graduate student volunteers and library patrons who participate a collaborative campus-community effort that offers free face-to-face computer classes.

Topics for interviews (presented as menu items):

Menu (for interview participants)	Explanation (for facilitator)
Expectations	"What were your expectations of teaching or assisting these classes? How do you see these experiences helping you?" "What aims or goals caused you to choose to offer your skills to the Community Workshop Series? Are there aspects of these classes that make you feel open and willing to participate in them?" [library setting, patrons, familiar building and environment, work experience]
Motivations	"You could gain instruction experience in other ways. What reasons led you to choose this kind of training instead of another?" [Or: "If you were encouraging someone who trusts you teach these classes, what would you say to them, positive or negative, about the experience?"
Perceptions - Other	"How do you think the university or public library benefits from having you teach or assist computer classes? What does the university offer to you when it makes this experience possible?" [service to the community, interest in improving job skills, desire to make the web/internet/email available to others]
Perceptions - Self	"Thinking about the experience you have had as a participant in the computer classes, how do you view your instruction skills now? Looking back at yourself before teaching these classes, how do you see yourself as an instructor right now?" "Are there specific things you learned that surprised you? Are there things you wish

	you had learned from teaching, but didn't?"
Affective Characteristics – Confidence, General	Thinking about your teaching experience before and after participating in these workshop, how would you describe your confidence level in terms of generalized, overall teaching abilities? If you have experienced changes in confidence, how would you characterize these
Affective Characteristics – Interest, Enjoyment, Surprise	[Interest] Thinking about your experience in the computer classes, describe how often you feel like what you're doing is interesting. [Enjoyment] Describe whether you feel glad about something. [Surprise] How do you feel when you learn something unexpected, or, when something unexpected happens as you lead the class? Describe how, or whether any of these feelings changed as a result of participating in these computer classes. How would you characterize a change in your feelings from before class to after?
Affective Characteristics – Frustration, Shame, Discouragement	[Frustration] Thinking about your experience in the computer classes, describe how often you feel like what you're doing makes you frustrated. [Shame] Describe whether you feel shame about your abilities. [Discouragement] Describe whether you feel discouraged about your ability to teach a class of beginner computer users. Describe how, or whether any of these feelings changed as a result of participating in these computer classes. How would you characterize a change in your feelings from before class to after?

Appendix C: Interview Guide for Library Administrators

Objectives of the interviews:

The purpose of this study is to evaluate the motivations, perceptions, and expectations of library administrators, graduate student volunteers and library patrons who participate in a collaborative campus-community effort that offers free face-to-face computer classes.

Topics for administrators (presented as menu items):

Menu (for library administrators)	Explanation (for facilitator)
Expectations	"What were your expectations of offering these classes? How do you see these classes helping the library, the community, or you?" "What aims or goals caused you to choose to offer the Community Workshop Series? Are there aspects of these classes that make you feel positive or negative about offering them?" [reputation, the "right" thing to do, raising money and promotion, etc.]
Motivations	"How would you describe your interest in offering free face-to-face computer classes? What motivates you to offer this service?" [Or: "If you were encouraging other librarians to implement this program, what would you say to them, positive or negative, about the experience?"]
Perceptions	"How do you think the university or public library benefits from offering these computer classes? What does the university or public library receive in return for offering these classes? [service to the community, interest in improving job skills of graduate students, desire to make the web/internet/email available to patrons, relieving staff services]
Affective Characteristics, General	"Thinking about the experience you have had administering these computer classes, are there specific things you learned that surprised you? Are there things you would like to improve but cannot due to limitations? "

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Notes

[1] Roy, Jenson and Meyers' (2009) work on service-learning in ILS programs was in press at the time of writing.

[2] Website for this particular library computer program: http://www.lib.unc.edu/cws

[3] National Forum of Information Literacy (http://www.infolit.org/2005_language.html)

[4] Digital literacy is a more optimal choice of words than information literacy, in that it puts an emphasis on the basic computer and Internet skills necessary to perform more higher-order forms of cognition during information seeking and analyzing.

[5] A computer literacy rubric from the Oxnard Union High School District in California shows the expected skills and proficiencies needed for successful graduation.

[6] The following computer literacy rubric from North Central State College in Ohio shows a breakdown of skills from novice to proficient: l One example of a community college computer literacy rubric: http://bit.ly/zTkJA

[7] http://www.GCFLearnFree.org

[8] DiMaggio et al. note that there are increasing numbers of older adults online; even though it is increasing, this group is the least likely age group to be online. According to the Pew Internet & American Life Project for 2000-2008, data shows that only 41 percent of all adults over 65 years are online.