

# Older Adults, Instructors, and Social Workers' Perspectives of Computer Training for Older Adults

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**Abstract:** An increasing number of classes with varying formats, content, and instructional approaches have been developed to enhance computer learning among older adults. Evaluation studies on the best practices in training older adults (OA) computer skills have been limited to the perspective of the researchers, professionals, or consumers. This research uses a multidimensional framework, which conceives of best practices as an approach that incorporates empirical research with the experiences of consumers and practitioners (Petr & Walter, 2005). We assessed best practices for teaching computers from OA, computer instructors, and geriatric social workers. The goal was to assess similarities of the instructional practices OA consider helpful and to compare them with social workers and computer instructors. The ultimate goal was to contribute to the discussion on enhancing lifelong learning for OA with technology from a multidisciplinary perspective. The study utilized surveys and interviews with 58 geriatric social workers, 48 computer instructors, and 84 OA. The survey was developed from a review of research on lifelong learning and qualitative interviews with computer instructors and OA. The three groups rated the structure, content, and pedagogical approaches of computer classes. ANOVA repeated measures indicated there were more similarities for training OA computers than the Internet. The two groups of professionals as well as OA were in agreement with the features of effective computer classes. There were significant differences on pedagogical approaches and content. A multidisciplinary perspective is applied to an examination of incorporating best practices for enhancing technology learning for older adults.

**Keywords:** Computers, Older Adults, Computer Training, Information Technology, Technology Adoption, Human Computer Interface, Community Informatics

## 1. Introduction

The Administration on Aging estimates that by 2020, older adults will be the largest growing population in American and by 2030, more than 20 percent of the population in the United States will be older than 65 (Administration on Aging, 2000). While the population within the United States is expected to increase by 49% from now till 2050, the percentage of older adults are projected to increase by 147% during the same period (US Census Bureau, 2005). These demographic changes are likely to impact how professionals in the field of geriatrics and health care use resources in a creative and innovative way to enhance the quality of life for the older adults (Berkman, 2006; Bertera, Bertera, Morgan, Wuertz, & Attey, 2007). Information technology has the power to transform and improve lives of older adults in the area of health care (Weiner et al., 2003), provide access to social services (Serafini, Damianakis, & Marziali, 2007), enhance their involvement in community activities (Rogers, Mayhorn, & Fisk, 2004), meet their recreational needs (McConatha, McConatha, Deaner, & Dermigny, 1995), and help them develop and sustain relationships (Wright, 2000). The main purpose of the study was to compare the perceptions of best practices in

teaching older adults how to use computers. The perceptions were compared across three groups - older adults who were consumers of computer classes, experienced computer instructors who taught older adults, and geriatric social workers. The primary research question was "what structural, programmatic, and curricular features optimize computer learning in older adults?"

## 2. Research on Computer Training with Older Adults

To encourage sustained use of computers among older adults, a slew of computer training approaches and specific practices in the training and design of these computer classes have been developed and documented (Mates, 2004; Mayhorn, Stronge, McLaughlin, & Rogers, 2004). Innovative approaches to computer training include intergenerational projects involving seniors with youth (Marx, Cohen-Mansfield, Renaudat, Libin, & Thein, 2005) and the emphasis on the teaching uses of technology (Ranz, 2005). The research literature described numerous differences in computer classes: one-to-one training versus group based training, providing the learner with a personalized workbook at the start of training, emphasis on hands-on practice time, use of non-threatening learning exercises, use of training ma-

nuals, in-class time for practice, and the illustration of useful links. Previous research evaluating the effectiveness of computer training among older adults focused primarily on the perspectives of older adult participants (Morris, 1994; Segrist, 2004). While specific components of computer training have been described in case studies, the evidence in support of effective practices is anecdotal. Furthermore, research has yet to systematically examine the relative importance of these best practices from professionals serving the older adults and compare their consistency with older adults. Information on best practices will help future professionals develop more effective computer workshops and training manuals for older adults. The outcomes of these computer training sessions are enhanced information fluency to bridge the digital divide and sustain older adults' interest in using technology tools to enhance their quality of life.

### 3. Conceptual Framework

The conceptual perspective of the study is taken from Petr and Walter's (2005) multidimensional, value critical framework, which takes into consideration the viewpoints of the consumers and research studies. Their perspective is distinctively refreshing because the best practices of any field are usually developed from extensive research and meta-analyses. Their proposed framework incorporates qualitative research, professional wisdom, and consumer experiences and includes a critique of how best practices in a particular field can be improved. The multidimensional value critical framework consists of seven steps: identify the question for best practices inquiry, find qualitative and quantitative articles that address the question, find sources for the consumer perspective on the question, find sources representing the perspective of professional wisdom relative to the question, summarize the current state-of-the-art best practices relative to the question, assess the overall quality of the sources, and use value criteria to critique and improve current best practices (Petr & Walter, 2005). We believe that this framework is appropriate because computer needs are evolving as information literacy for older adults is improving. Research shows that older adults are increasingly "wired" and use computers to access information (Pew Internet and the American Life, 2004). Along with the changes in computer skills come the expectations that these computer courses should be realigned and changed to meet the enhanced information literacy of its participants. Another reason why the multidimensional value-critical framework is appropriate for the study is that technology changes which impact the manner in which future information literacy classes are taught and how existing best practices could be reconsidered.

### 4. Rationale of the Study

The main purpose of the study was to compare percep-

tions of best practices in teaching older adults computers among three groups. The research question was "what structural, programmatic, and curricular features optimize computer learning in older adults?" The study also considered the feasibility of a multidisciplinary collaboration among social workers and computer instructors. We selected three groups of participants for the study: older adults who were consumers of computer classes, the experienced computer instructors who taught older adults, and geriatric social workers who had keen insights into the psyche, strengths, and limitations of older adults. By using survey methodology to compare the similarities and differences in specific features of computer classes from these three groups, the study assessed whether the consumers and computer novices' perceptions are consistent with the experts' perceptions of best practices in computer training for older adults. Open ended questions were incorporated into the survey to assess the feasibility of multidisciplinary collaboration between social workers and computer instructors.

## 5. Method

### 5.1 Participants

180 subjects were involved in the study. Of these respondents, 84 were older adults, 58 were social workers and 48 were computer instructors who have taught older adults. The respondents to the survey were on an average 60.5 years old ( $SD = 13.8$ ), with the computer instructors being the youngest at 52.5 years ( $SD = 15.7$ ), the social workers averaging 55.4 years ( $SD = 12.8$ ) and the older adults 68.6 years ( $SD = 7.9$ ). In all three groups, there were more women than men, with women making up 71.8% of all respondents, 87.7% of the social workers, 64.3 % of the older adults, and 66% of the computer instructors. Older adults were defined as people 60 years and older and had attended at least one computer training class within the last five years. They had averaged 5 computer classes before they responded to the survey. Computer instructors who participated in the study had taught computer classes to older adults, either on a one to one basis or in classes with at least one older adult. All social workers who completed the study had Masters in Social Work or higher degrees. The respondents had averaged 21 years as social workers with 9 of those years primarily with older adults after their MSWs.

### 5.2. Data Collection Procedures

All participants were recruited in person or by email. A combination of random and convenience sampling were used to recruit participants for the study. Participants who were contacted by email were given the option of completing the survey on a website or request a hard copy of the survey. The response rates for the surveys were highest for older adults (94%) as opposed to

computer instructors (60%). The response rate for social workers was 85%.

## 6. Results

### 6.1. Characteristics of Classes

All groups of respondents felt that computer training classes for older adults should exclusively have older adult participants. Most participants felt that there needed to be more than one instructor in the class. As the number of students in a class increases, the number of instructors needed to increase proportionately. The ideal class size was 10 students. A class length of 1½ to 2 hours was considered optimal by the respondents, with older adults preferring slightly longer classes and social workers slightly shorter classes. Respondents preferred one ten minute break in the middle of the class. A quarter of the participants preferred a one hour class with no break. The results across all three groups of respondents was uniform with half the time being spent on practicing skills and the other half equally divided between lecturing and exploring practical use of the applications. The use of handouts for instruction was considered very important by the respondents. The respondents found the two most important features in handouts to be specific step by step instructions and actual screen shots. The survey found a big difference in the hardware preferences between instructors and older adults. Whereas almost all the instructors felt that a Windows based personal computer should be used while teaching older adults computer skills, a third of older adults preferred classes using Apple Macs. There was uniformity among all respondents that it is better to learn on the same system that the older adult has at home. The instructors were unanimous in feeling that each student should have his/her own computer in class.

### 6.2. Beginner Skills

The respondents rated the importance of 13 computer skills for beginners. Using the mouse and cursor and turning the computer on/off were considered the most important skill. Most of the other skills were considered important, except for playing computer games and operating CD ROMs. There were statistical differences in five of the items and these differences were mainly between instructors and older adults on the relative importance of moving the cursor, starting a computer application, understanding Windows, understanding the uses of the different parts of the computer, and using CD ROMs. However most of the responses were quite uniform across the three groups with a few exceptions:

- Older adults rated starting a computer application lower than others did.
- Older adults rated operating a CD ROM much higher than instructors did.
- Older adults rated understanding the functions of the

different parts of the computer much more important than instructors did.

- Social workers rated typing skills lower than the others did.

### 6.3. Internet Skills

The three groups of respondents believed that using email was the most important skill to teach when using the Internet. This was closely followed by using a search engine. Both of these uses had a median of "Most Important" among all categories of respondents. Respondents also believed that older adults should learn how to start an Internet application (browser), understand the basic terms (eg. ISP, browser) associated with using the Internet and be taught how to open e-mail attachments containing pictures. The history of the Internet was considered least important. Internet etiquette and recognizing e-mail icons were also rated lower in importance. There were generally no statistical differences among the three groups with regard to learning priorities about the Internet with the exception of recognizing emicons and the history of the Internet. Experts (computer instructors and social workers) were of the opinion that these were less important compared to older adults.

### 6.4. Best Practices

The respondents were asked to rate the importance of over 20 teaching practices with older adults. The respondents rated giving step by step printed instructions and handouts as the most important practice. Also considered very important was that class time should be spent primarily practicing skills and not on lectures. A third group of practices that were considered very important were giving brief and concise directions with precise, unambiguous terms. There were significant differences in 14 of the 25 items which measured teaching approaches in training. There were more differences in terms of the importance of teaching approaches between social workers and older adults than computer instructors and older adults. The respondents believed that it is a good practice to review skills learnt in previous classes and involve the participants in the training. When possible, having one-on-one help for the student is very advantageous. Instructors and social workers thought it was very important that the class be relevant to the participant's lives. However, the older adults did not think this was as important. The class environment (temperature, noise, time of day, size of text) along with assessment of students was a lot more important to social workers than it was to instructors or older adults. Partnering of participants, either at the same or different skill levels, was not considered important.

## 7. Discussion

The purpose of the study was to compare whether there were similarities and differences in how older adults,

social workers, and computer instructors perceived the importance of specific features within computer training programs. There were more similarities than differences in terms of the structural components of computer training classes, the curriculum and teaching strategies.. There were statistical differences between the three groups on specific measures in the best practices which suggest that these features are likely to affect learning in computer classes. On the whole, older adults, computer trainers, and social workers were in agreement regarding structural and content related features of the computer classes. The study used a multi-dimensional,value critical framework as a conceptual framework by incorporating the multiple viewpoints of novices and experts; consumers and providers; older adults, computer trainers, and social workers (Petr & Walter, 2005). The next step in the inquiry would be to compare these findings to the best practices in computer training in terms of outcome variables such as information literacy, lifelong learning, and generalization and maintenance of computer skills. However these have yet to be established because of the lack of systematic research and the use of small samples. The outcomes of computer training are likely to be influenced by instructor's approaches as well as other variables such as attitudes towards computers (Kelley et al., 1999; Kelley & Charness, 1995; Morell & Echt, 1995), self-efficacy (Kelley et al., 2002), and computer access (US Department of Commerce, 2002), as described in the research literature. The current study highlights class structure, curricular and instructional variables which are likely to affect learning in older adults in computer classes. Although research has shown older adults are less likely to go online than their younger counterparts (Pew Internet and American Life, 2004), the study proposes that the usage of computers older adults can be enhanced by addressing and changing specific features of these computer classes. If these features are recognized to impact upon older adults' learning in computer classes, instructors could become more cognizant of them as it impacts upon older adults' learning and long term use of computers. The training could lessen technophobia (Ryan et al., 1992), a lack of perceived control (Morris & Venkatesh, 2000), a perceived lack of relevance of computers (Selwyn et al., 2003), and resistance to technological changes (Taylor & Walker, 1998). In the long run the psychosocial benefits associated with computer training and use could be enhanced (McMellen & Shiffman, 2002; White, et al., 2002; Saunders, 2004; McConatha et al., 1995; Namazi & McClintic, 2003). This could minimize the digital divide between older adults and younger cohorts.

## 8. Research Implications

Based on the results of the survey, the following are our recommended Top Ten Best Practices for teaching older adults how to use computers and the Internet:

1. Computer training classes for older adults should be exclusively for older adult students who have the same level of computer proficiency.
2. Each student should have a computer in class (no sharing of computers).
3. Each class should have approximately 10 students with an instructor and at least one other aide/instructor. One on one instruction is ideal, but not always feasible.
4. Older adults should be taught on a computer similar to the one they have at home (PC vs. Mac).
5. Handouts should be given in every class. The handouts should include precise step by step instructions and screen shots.
6. Computer classes for older adults should be for an hour and 45 minutes with a ten minute break in the middle. A series of 10 classes meeting once a week is recommended, with the first part of each class reviewing the previous week's work.
7. A maximum of a quarter of each class should be spent lecturing. The rest of the time should be spent on practicing skills and exploring practical use of applications.
8. Instructors should give brief and concise directions with no long winded lectures. Instructors must speak slowly and distinctly and alternate instruction with students working on the computer.
9. With regards to Internet skills, older adults should be taught how to use e-mail, including the use of picture attachments, how to search the web and be introduced to the basic terminology of the web.
10. In an introductory class, older adults should be taught how to use a mouse to navigate, start and stop the computer and application programs and use the basic external components of a computer.

There are a number of practices that are considered by some to be best practices in teaching older adults.

The current research revealed there were differences among older adults, social workers, and consumers in terms of learning priorities and the relative importance of specific features of computer training classes. We believe that computer instructors should be flexible to adapt the classroom arrangements and curriculum based on an initial assessment of the distinct needs of the class.

## 9. Methodological Issues

One of the problems of the study is the survey did not have reliability and validity research. However, given the nature of the research and the lack of standardized instruments measuring curriculum approaches and specific features of computer training, we argue that the exploratory approach used in designing a survey for this study is appropriate given the lack of research on computer training on older adults. The study assessed preferred practices by consumers and professionals which do not necessarily imply best practices. This is because the term "best practices" suggest there is an existing

body of evidence that supports a way of teaching or delivering instruction over another. Because of the lack of systematic research on the components of computer training, we are unable to ascertain whether a preferred practice is, in reality, a best practice. The investigators also recognize that due to technology upgrading, there could have been more items included under the teaching of computer skills such as the use of podcasts, wikis, and multi-media presentations. The study identified specific skills that were considered by professionals and books to be fundamental to learning how to use computers. There could be other behaviors and skills that are related to computer use, Internet access, and specific teaching approaches that should have been considered in the study.

## 10. Conclusion

With the trend towards evidence-based approaches to improve practice with older adults (Scogin, Welsh, Hanson, Stump, & Coates, 2005; Whitlock, Orleans, Pender, & Allan, 2002), it becomes necessary to consider the impact of specific training components that have shown to be effective in enhancing learning computer skills. However the research on best practices in teaching older adults computers is preliminary. Our descriptive study indicated there were specific components that older adults, social workers, and computer trainers agreed were effective. These include the immediate practice of skills after demonstration, the use of handouts, and reinforcing of skills through activities. Systematic research on the components of these training sessions and its effect on the psychosocial well-being of older adults, long-term computer usage, and use of technology tools should be assessed. Additionally future research could examine the impact of alternate non-classroom approaches which rely on the ecology of natural supportive networks, and measure their potential to enhance and sustain the information literacy gains from these computer classes. By systematically examining the predictors that enhance continued and sustained computer use, researchers would be in a stronger position to understand the relationship between computer use, lifelong learning, and quality of life for older adults.

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