INFORMATION TECHNOLOGY EDUCATION FOR OLDER ADULTS AS A CONTINUING PEER-LEARNING PROCESS: A CHINESE CASE STUDY

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This article examines older Chinese's learning and use of computers and the Internet, focusing on the major barriers encountered and strategies employed to overcome those barriers. A total of 33 interviews were conducted in 2004 in Shanghai. Data analysis was guided by grounded theory. The following are the major findings: (a) lack of technical support is a major barrier to information technology (IT) learning, yet it is difficult to get support from younger people; (b) learning from age peers is an effective way to learn about IT; and (c) short-term computer classes are only the beginning, while computer clubs that may last for years can provide much-needed continuing training.

The development of information technology (IT) in China has been dramatic, to say the least. Although the total number of Chinese Internet users is still relatively low compared with that of developed countries such as the United States, the increasing rate of Chinese Internet users is significant. In October 1997, there were only 620,000 Internet users in China; yet, by the end of 2005, the total number of Chinese Internet users had increased to 111 million (China Internet Network Information Center, 2006). The dramatic growth of

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IT in China is coincident with the aging of the Chinese population. According to the most recent Chinese national census, in November 2000, 6.96% of the Chinese population (88.11 million) was age 65 or older. This is 1.39 percentage points more than 10 years ago. It is projected that in 2030, 16.57%, or 243 million, Chinese will be age 65 or older (National Bureau of Statistics of the People’s Republic of China, 2001).

Despite the significance of both the IT and the aging trends, the percentage of older Internet users (ages 50 and above) in China has been constantly lower than 5% of the total Internet population in China (China Internet Network Information Center, 2006). The generational digital divide is much wider in China than in developed countries such as the U.S. (Fox, 2004). This poses an even more pressing need for identifying and developing creative and effective interventions that may facilitate older Chinese’s learning and use of IT. Meeting this need would allow more older Chinese to take advantage of the rich opportunities provided by computers and the Internet. A possible starting point in meeting this need would be to study the relatively small number of older Chinese who have already become IT literate. Their experiences could be especially valuable in improving IT education and literacy among other older adults.

Toward this end, this study examines the experiences of a group of IT-literate older Chinese in Shanghai, China, focusing on the barriers they encounter when learning to use computers and the Internet, and the strategies they employ to overcome those barriers. Due to the exploratory nature of this study, qualitative interviewing was chosen to collect data, and grounded theory was used to guide data analysis. By studying this small group of IT-literate older Chinese, this study aims to identify important factors that deserve further examination in survey studies using larger, more representative samples. First, however, it is necessary to review what previous research (which has been conducted predominantly in the Western context) has already reported about older adults’ IT learning and usage. The interventions that other researchers have proposed to improve older adults’ learning and use of computers and the Internet will also be examined.

EFFECTS OF AGE-RELATED CHANGES ON OLDER ADULTS’ IT LEARNING & INTERVENTIONS

In the past two or three decades, human factors researchers working at the intersection of IT and aging have generated much knowledge
on the effects of age-related changes in visual, perceptual, motor, and cognitive abilities on older adults’ learning and use of computers and, more recently, the Internet. Based on this knowledge, researchers have proposed a variety of technical and social interventions that may increase the usability of IT systems for older adults and, thus, promote IT literacy and education in the older population (for a review, see Xie, 2003). Research conducted on older and younger adults’ computer usage has found age-related differences in the learning and use of computer devices, tasks, and procedures. For instance, compared with younger adults, older adults tend to require more time and practice (Charness, Schumann, & Boritz, 1992; Elias, Elias, Robbins, & Gage, 1987; Hartley, Hartley, & Johnson, 1983; Morrell, Park, Mayhorn, & Kelley, 2000; Zandri & Charness, 1989) and technical assistance (Charness & Bosman, 1990; Hartley et al., 1983) to acquire computer skills. Also, older adults usually make more errors than their younger counterparts when performing computer tasks (Charness et al., 1992; Elias et al., 1987; Zandri & Charness, 1989).

Human factors researchers suggest that the difficulties older adults experience when learning and using IT are related to age-associated changes in visual, perceptual, psychomotor, and cognitive abilities. For instance, research shows that age-related changes in psychomotor abilities—in particular, declines in joint range of motion of the wrist and grip strength—affect older adults’ use of computer input devices such as the mouse (which requires fine motions of the wrist) and the keyboard (Birren & Warner, 1990; Chaparro et al., 2000; Charness & Bosman, 1990; Charness & Holley, 2001; Mayhorn, Stronge, McLaughlin, & Rogers, 2004; Smith, Sharit, & Czaja, 1999; Walker, Philbin, & Fisk, 1997; Wright et al., 2000). Also, reduced perceptual and cognitive abilities (e.g., perceptual speed, memory, and spatial ability) make it more difficult for older adults to learn to use computer software and systems (Birren & Warner, 1990; Czaja, Hammond, Blascovich, & Swede, 1989; Echt, Morrell, & Park, 1998; Mead, Batsakes, Fisk, & Mykytshyn, 1999; Morrell et al., 2000) and Web interfaces and applications (Mead et al., 1999; Ownby, Czaja, & Lee, 2002; Stronge, Walker, & Rogers, 2001). In particular, impaired eyesight has negative effects on older adults’ learning and use of computer and Internet applications (Birren & Warner, 1990; Blake, 1998; Jakobi, 1999; Mayhorn et al., 2004).

Overall, this literature appears to suggest that, due to age-related physiological and psychological differences between older and younger adults, older adults tend to have more difficulties, make more errors, and require more time and assistance than younger adults
in learning to use computers and the Internet. Those age-related differences and difficulties in IT learning, however, can be at least partly compensated by senior-friendly technological and educational systems including physical interfaces and software (Czaja & Lee, 2001; Demiris, Flinkelstein, & Speedie, 2001; Echt, 2002; Ellis & Kurniawan, 2000; Holt, 2000; Holt & Morrell, 2002; Hutchison, Eastman, & Tirrito, 1997; Jakobi, 1999; Mead, Lamson, & Rogers, 2002; National Institute on Aging, 2001) and training materials and strategies (Cody, Dunn, Hoppin, & Wendt, 1999; Czaja, 2001; Hartley et al., 1983; Lansdale, 2002; Morrell et al., 2000; Ownby et al., 2002) that accommodate the visual, perceptual, psychomotor, and cognitive abilities of older adults. In other words, in exploring and developing interventions that may help older adults overcome age-related changes to learn and use computers and the Internet, researchers have focused on two types of interventions: (a) technical interventions that require the design/redesign of computer hardware (e.g., input and display devices), software, and interface (e.g., Web page) and (b) educational interventions that require the design/redesign of training settings, facilities, materials, and strategies (including the availability of technical support). In practice, these two types of interventions are sometimes used side-by-side to better accommodate older adults’ special needs (e.g., Danowski & Sacks, 1980; Grad & Berdes, 2005).

It is, however, important to note that both the technical and educational types of interventions, as reported in the literature, are typically controlled by IT elites—e.g., computer hardware and software designers, developers, and IT educators—who tend to be younger adults. A major limitation of this approach is that it underestimates and underappreciates the potential of older adults. As a result, it significantly increases older adults’ dependency on IT elites/younger adults. The elite/younger adults-centered approach has also been found to result in confusion and, even, distrust among older IT learners. Consequently, there is low participation in such training programs (Namazi & McClintic, 2003). This finding cautions that, when designing IT training programs for older adults, it is important to carefully consider how the presence and role of IT experts—who are likely to be viewed by older IT learners as outsiders rather than peers—might affect the outcome. Proper adjustments can then be made in such training programs.

The negative impact of elite/younger adults-centered IT training programs is worsened by the fact that educational interventions for older IT learners are often designed to last for a limited period of time (weeks or months). This may be in part because researchers and practitioners typically do not have unlimited resources that can be used
to help older adults learn to use IT. It is also partly due to a lack of recognition, or underappreciation, that computers cause problems all the time. Thus, short-term computer classes or training programs cannot provide (much-needed) long-term technical assistance for older adults. What can be done to address these two major limitations of previous interventions as proposed in the literature? The present study aims to provide some answers.

**METHOD**

**Research Site**

OldKids (*lao xiaohai*, a widely used Chinese phrase that refers to active seniors) is a senior-oriented IT training organization headquartered in Shanghai, China. Since mid-2000, OldKids has trained more than 1,000 older Chinese to use computers and the Internet. OldKids computer classes typically last 4–8 weeks and are often taught by instructors similar in age to the students. In addition to the computer classes, OldKids also encourages and facilitates students from the same computer class to organize computer clubs—which, unlike the computer classes, may last for years—so that the students can continue meeting with, and learning from, peers.

**Participants**

A total of 33 OldKids members were interviewed. Their ages ranged from 50 to 79 years old (*M* = 62.5). Of these, 19 (57.6%) were female, and 14 (42.4%) were male. Of the 33 participants, 20 (60.6%) were college educated, 5 (15.2%) high school educated, 4 (12.1%) technical secondary school educated, and 4 (12.1%) middle school educated. As of the end of 2002, only 12.6% Shanghai residents had four or more years of college education (Shanghai Municipal Population and Family Planning Commission, 2003). Therefore, this sample of OldKids members has a significantly higher level of education than the average educational level of Shanghai residents. All of the 33 OldKids members who participated in this study were retired and had good pensions. Their average pension was about 1,500 RMB (approximately 183 U.S. dollars) per month, which was almost twice as much as the minimum living standard set by the Shanghai government. It was also almost 50% higher than the average monthly income of older Chinese in the urban areas of Shanghai (Shanghai Research Center on Aging, 2005).
Interviewing Participants

Semistructured open-ended interviews were conducted in May and October of 2004 in Shanghai, China. Interviewees were recruited from members of OldKids computer classes and computer clubs by using the snowballing technique. The majority of the interviews were conducted at the OldKids computer classrooms where the computer class and club activities take place. Some were conducted at the participants’ private homes or other locations of their choice (e.g., a nearby park). Each interview lasted about one hour and was recorded using a digital tape recorder. An informed consent form was completed before each interview was conducted. Pseudonyms were chosen for participants who did not wish to have their names revealed. Major interview questions included the following: What computer and Internet applications do you use? Where and how have you learned to use those applications? Have you experienced any problems using computers and the Internet? If so, what major problems have you encountered? What strategies do you usually use to solve those problems? Where or from whom do you typically get help in solving computer-related problems? What factors do you think are important in helping you learn to use computers and the Internet?

Stages of Analysis

Data analysis for this study was guided by grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1998), such that data collection and analysis occurred simultaneously to ensure the co-evolution of data and theory. Specifically, after each interview the audio data were first transcribed into text and translated into English as soon as possible. Data were then coded into one or more analytic categories by breaking them and constantly comparing new data with data that had already been coded. After coding, memos were written down to record recurring themes or significant ideas that emerged during the coding process. The memos helped make related theoretical sense of the coding categories (and their properties) and then integrate the categories. Both the coding and memo writing were done on the computer using the qualitative data analysis software Atlas/Ti. Next, commonalities in the integrated categories were sought. Then, explanations were formulated based on a smaller number of higher-level concepts. This allowed the categories for coding to be cut down into more focused categories that could better explain the underlying phenomena. Finally, after developing these explanations and refining the categories, the theory that could best interpret the data was written.
RESULTS

This study finds that many older Chinese participants’ use of IT has moved far beyond using just simple applications such as e-mail. Old-Kids members possess and use sophisticated computer hardware, software, and systems. First, most Chinese participants of this study own a scanner, digital or Web camera and/or digital video camera, and a printer. These are in addition to a high quality computer with high speed Internet access. Second, OldKids members are enthusiastically learning and effectively using advanced IT applications such as Flash, PhotoShop, Dreamweaver, and FrontPage to make animations, family movies, greeting cards, and personal homepages. In fact, these advanced applications have become the most popular computer activities for many OldKids members. Third, many OldKids members are frequent—and fluent—users of Internet communication applications that require a higher level of IT knowledge and skills (than using email). Such applications include instant messaging and online chat rooms (both of which feature not only text-based but also voice- and video-based online interaction and communication).

Why have these older Chinese been able to learn and use more complicated IT applications? How have they overcome the major barriers to learn to use computers in general and those more advanced IT applications in particular? The following subsections provide some answers.

Difficulties in Getting Technical Support from Young People

The majority of older Chinese participants of this study reported that the biggest barrier to their learning and use of IT is the difficulty in getting technical support. Because the younger generations tend to be more IT-savvy, it may seem obvious that older adults could ask young people for help when they encounter computer problems. This, unfortunately, is not the case. During the interviews many older Chinese explicitly mentioned how difficult it was for them to get any technical support from young people such as their children and young neighbors. For instance, one interviewee recalled how difficult—actually, impossible, as it turned out—it was to ask a young neighbor for technical support. She related a self-experience that was very similar to a story that she had heard from other OldKids members:

There was a young guy living next door, so I asked him to help me figure out how to set up an email account. I asked him five times,
and every time he had an excuse, such as he needed to get some sleep, or he had to go out to run an errand, etc. He always had an excuse. He never helped me solve my problem... I heard a story, about how a young guy, when his parents asked him to teach them computers, that young guy said, okay, give me 100 Yuan then I’ll teach you. It’s not common; but it happens sometimes. [Ms. Li Peifeng, 62, emphasis original]

Similarly, another older person commented on the extent to which older adults could possibly get help from young people: no more than 10 minutes of a young person’s time, perhaps.

Nowadays it is probably okay to ask young people one question that may take up 10 minutes of their time. But I dare not ask any more questions because I knew that, if I did, they would become very impatient and tell me that they were very busy and that they had to get their own work done and therefore wouldn’t have the time to answer all of my questions... [Mr. Qiao Nan, 72]

Why is it so difficult, if possible at all, for older adults to get young people’s help with computers? An important reason is that—from the point of view of older adult IT learners—young people tend to be “impatient” because they don’t seem to understand older adults’ unique learning styles and capacities. One participant gave this explanation:

Our kids don’t teach us computers. They think it’s too boring and annoying. Seniors easily forget things, plus some seniors’ education levels are not high, so seniors need to learn and practice again and again. To teach seniors computers, you really need to have patience...[Mr. Zheng Xingyou, 62]

An OldKids instructor points out that young people’s teaching and learning styles are different from those of older adults:

Young people have their own teaching and learning styles, which are different from those of we seniors. Seniors can understand very easily, but just can’t remember. To teach seniors, you must be very, very patient. You must teach them hand-by-hand, step-by-step. So, it may take longer for our seniors to learn. But we can learn...[Mr. Yang Lihua, 59]
Similarly, another OldKids instructor also suggests that young people’s learning speed and styles are different from those of older adults; thus, young people are not necessarily the best candidates to teach older adults about IT:

Young people tend to speak fast, and they don’t really want to repeat, as if you should be able to understand anything the first time they say it. But seniors are different. You need to speak slowly otherwise they can’t follow you. Especially new things, you need to repeat, repeat, and repeat. Seniors won’t think it’s annoying [to have to repeat so many times]. But young people think it is annoying [to have to repeat]. So, the speaking speed and style are all different. Young people sometimes have trouble communicating with seniors. [Mr. Wu Xiaofan, 66]

Another participant also thinks that young people are different and that they don’t necessarily understand older adults’ ways:

I always think that seniors’ problems have to be solved by seniors. There are many subtle things that only we seniors can understand and solve. Young people are not necessarily aware of these subtle things; they don’t necessarily know or understand the complex minds of seniors… [Ms. S, 56]

Frustrated by her own and her age peers’ similar encounters with young people in trying to get technical support, Ms. Li Peifeng concluded in the end, “Things like this, you just have to try to solve all by yourself… Our seniors really have to find ways to learn computers by ourselves!”

Learning IT from Age Peers Who have Similar Experiences

Most of the participants started learning about computers after signing up for an OldKids computer class. Compared with most computer classes offered by other organizations (that usually target all age groups), the OldKids computer classes have several unique features. First, the class size is relatively small: typically each OldKids computer class has only 15–20 students, which is half or one-third of the size of the classes offered elsewhere. Second, in addition to an instructor (who gives the lecture), each OldKids computer class also has one or two “assistant instructors” who walk around the classroom to provide hands-on guidance to help every student understand
and follow the instructor. Third, the instructors and assistant instructors of OldKids computer classes are usually age peers of the students. These unique features have greatly facilitated older Chinese’s learning of IT. For instance, here is what one participant said:

OldKids computer classes are great, because they are small classes. Also, they not only have instructors teaching the class but also assistant instructors helping the students. They are more suitable for seniors. For example, many seniors never touched a computer mouse or keyboard before; you have to hold their hands to show them how to do it. The assistant instructors can help them in this way. [Ms. Li Peifeng, 62]

A great advantage of learning IT from age peers is that the instructors and assistant instructors, due to their own age-related changes in physiological and psychological conditions, have had similar learning experiences with IT. In other words, they are likely to have encountered similar problems during their own learning process. As such, it is easier for these older instructors and assistant instructors to understand the students’—their age peers’—special situations and provide appropriate training accordingly. One participant, who has been an assistant instructor of many entry-level OldKids computer classes, explains the importance—and advantage—of teaching older adults by using her own learning experience:

Seniors’ reactions are slow, very slow; also, some of them have never had any prior experience with computers. Without the help of the assistant instructors they can’t really follow the instructor. We [the assistant instructors] teach them by using the fastest way: that is, our own learning experiences. It’s better than what says in most textbooks, because those textbooks are often written for people who have more knowledge about and experience with computers. The students can learn more and better from us because we’ve learned from our own experience what the problems might be, and how to solve those problems. We teach them patiently based on our own experience. [Ms. S, 56]

Similarly, there is instructor Wu, a self-taught older computer expert who has been an instructor of OldKids computer classes since the very beginning. He has written and published a textbook targeting older Chinese IT learners. Wu attributes the general success of
OldKids computer training and his own popularity among the students to the fact that his teaching is based on his “own experience.”

My textbook and my lectures are not copies from other textbooks or lectures. They are not like any other textbooks or lectures. They are all based on my own experience. I learned by myself how to use computers after I retired from work... I teach other seniors the same way I have learned computers. So they all think this teaching method is great. [Mr. Wu Xiaofan, 66]

Another OldKids instructor, explains why he always encourages his former students to become assistant instructors to teach other older adults:

Why do I encourage my former students to teach other seniors? Because they themselves were students not long ago, so they know exactly which places seniors may have trouble understanding or remembering. [Mr. Yang Lihua, 59]

Students of the OldKids computer classes widely agree that learning from age peers is a very effective way for them to learn about computers. Many participants also indicate that this process is not only educational but also fun. For instance, here is what one student participant, who has taken many computer classes from OldKids, has to say:

It is best to learn from peers who already understand the application. Why? Because they have the experience. They can teach you based on their own learning experience, which is even better than what the instructor could do. They know exactly where you might make a mistake, what is the most difficult part, and what should be done to overcome the problems. Also, our computer skills and knowledge are pretty much at the same level, which makes it easier for us to understand each other. Learning from peers who are one or a half step ahead of you is a very pleasant and enjoyable process. [Mr. Zheng Xingyou, 62]

These statements suggest that learning IT from age peers with similar experience levels is a great way to facilitate older adults’ learning of IT. Another OldKids instructor emphasizes that, in teaching older
adults, “the teaching methods are very important.” She gives an example of her teaching methods that are, based on her own learning experience, specifically designed for older IT learners:

When I teach my students how to apply for an email account, I require them to have a pen and a notebook handy, and, as soon as they sign up for an account, write down the username and password. Because most seniors don’t have good memory; perhaps by the time when the computer screen shows the message “Congratulations, you have successfully signed up for a new account,” they have already forgotten the username and password! This is a very simple strategy, but it’s very useful. It helps students remember things. [Ms. Yi Tang, 55]

Why have these OldKids instructors and assistant instructors been able to provide effective IT training for other older Chinese? A major reason, to use instructor Yi Tang’s words, is that “because we are all seniors, so I can understand them [the students].”

Learning IT in Computer Clubs that Provide Continuing Education and Support

Originally, the only goal of the OldKids organization was to provide computer classes. The idea of encouraging and helping students organize computer interest groups did not come into being until the managers received the request from the students (and reacted). One of the earliest students of the OldKids computer classes recalls their origin:

I suggested to OldKids managers that they should organize the students to get together and practice after class. That way we could reinforce what we had learned in class by practicing and learning from each other. Why? Because we old folks cannot learn very fast any more, and we tend to forget things easily if we don’t practice repeatedly. The once-per-week class really isn’t enough for us… So I told OldKids managers that if we could get together and practice what we had learned in class together, and learn from each other, that definitely would be a big help. [Mr. Qiao Nan, 72, emphasis original]

Similarly, another participant recalls how, upon completing a computer class from OldKids, she and her classmates all felt the need to have a place to keep learning and practicing:
After the computer class, we all felt that we needed a place where we could have discussions on a regular basis. Some people learn faster, while others learn slower; or perhaps some people are better with some things, while others are better with other things. We [need a place where we] can help and learn from each other, and improve our computer skills together...[Ms. S, 56]

OldKids managers quickly reacted to their members’ request because they have also come to realize the special needs of older adults that require additional—and continuing—training and practicing opportunities. OldKids instructor Wu provides a similar account for the unique functions of the computer club:

It’s very easy for seniors to understand the instructions. The problem, however, is that they can’t remember—once they got home, they have already forgotten what they had learned in class. So when they practice at home, they will encounter various problems. The club meetings are the best supplement [to the computer class]. When they meet in the club, some may say, oh, I can’t get this right! But then others may know the answer to that particular part so they can share with and learn from one another. [Mr. Wu Xiaofan, 66]

Interestingly, in the beginning the computer club was only considered—by both the OldKids organization and the students—as a “supplement” for the computer class. Now, however, there is indication that, gradually, the computer club has become the primary—or even the only—setting where many older Chinese learn to use computers and the Internet. For instance, one participant tells the story about how most members of her computer club have been learning from two advanced members instead of the instructor of a “regular class”:

When we first started, we were basically reviewing the same stuff that we had learned from the classes. Later on, because two members in our club learn very fast in class, they have become experts—one is very good at using Flash and the other one is very good at using Photoshop. The two of them started giving us mini-lectures during our club meetings. They take this very seriously: they prepare teaching materials for each meeting, and make photocopies for everyone so that we all could have a copy of their teaching materials. We all take this very seriously as if this were a regular class.
There are only 5 or 6 of us [learning from them], but we are all very serious about it. So this is how we improve our computer skills all together. [Ms. S, 56]

In several more extreme cases, the majority of club members have decided to not sign up for additional computer classes offered by the OldKids organization. Instead, they have been learning from a couple of more advanced peers who pay out of pocket to take computer classes from OldKids. Afterwards, the advanced peers come back to the clubs to share with the rest what they have learned in the classes. This approach, as one participant admits, is obviously “not very fair to OldKids [because it significantly reduces OldKids’ revenue generated from course fees], but it’s good for us.” This approach is “good” for the rest of the club members because, this participant further explains, it saves each member about 200 RMB (approximately 25 U. S. dollars) for each course. More importantly, it is more accommodative to the learning speed and style of older adults and, thus, more effective in helping older adults learn to use IT. This participant explains the situation:

Some of us learn slowly and can’t follow the instructor; so those who are younger, who can understand and follow the instructor will take classes from OldKids and then come back and teach the rest of us. We can then take our time to learn from them. They give us step-by-step instructions, which is great. And we can practice again and again in this club—here we can learn on our own pace, while the instructor of any class can’t always wait for everybody. [Ms. J, 60]

This view is representative among OldKids club members—and, although not very willingly, is also shared by the instructors of the OldKids organization. For instance, instructor Wu indicates that learning in the computer club from peers is “even better than in the regular class” (that he and other instructors have been teaching). According to instructor Wu, there is a main reason for this advantage:

Club members come to the club meetings with specific questions, and they can find the answers and practice right there. . . They were passively listening to the instructor in class, but now in the computer clubs they are actively seeking answers on their own initiatives. [Mr. Wu Xiaofan, 66]
The advantage of the computer club is ensured by members' dedication in helping each other and sharing their computer knowledge and skills. One participant explains how helpful other members of her computer club have been to her. She also states how, influenced by others' dedication, she feels that she needs to help others as well:

I started from learning the most basic skills. Everyone tries to teach me—if I have any questions, I can just ask, and someone will give me the answer. So I think this spirit is very valuable. When you are within such an environment, you'll feel that, if someone else asks a question and I know the answer, I will be very willing and happy to help that person as well. Because what I know is the result of others' help; now there are new people coming in, if they don't know something, I'm willing to share with them what I know. [Ms. Y, 60]

There appear to be many advantages in learning in the computer club. Thus, it was not surprising that many participants of this study, when asked who was/were the most helpful person(s) in helping them learn to use IT, gave the same answer that a 60-year old member, Ms. J, provided: “Other members of my computer club.”

DISCUSSION

As reviewed above, research in the U. S. shows that, due to age-related changes, older Americans require more time and practice, make more errors, and need more assistance in learning to use computers and the Internet. The findings of this study suggest that older Chinese IT learners may have similar experiences to their American age peers. This is illustrated by, first, the Chinese participants’ frequent mentioning of how “seniors easily forget things” or “seniors can’t remember.” Also illustrative is the participants’ preference for slower paced IT training by age peers that provides simple but, detailed, step-by-step instructions. Lastly, the similarity of the Chinese and American learning experience is the desire for continuing IT education, practice, and support in the computer club that lasts far beyond the relatively short period of computer classes.

This study provides empirical evidence that challenges the two underlying (and unintentional) principles of previous IT education for older adults as proposed in the literature. Those principles hold that IT education for older adults is (a) elite/younger adults-centered and (b) can/should only last for a limited time period. In sharp contrast, this study finds that many of the older Chinese participants
have experienced great difficulties in getting technical assistance from young people who are far more knowledgeable about computer technology. This is partly because young people are “impatient” with older IT learners, which in turn is partly the result of young people’s relative lack of understanding of older adults’ special needs and miscommunication between the older and the younger. The older Chinese participants, instead, have found that learning from their age peers who are “one or a half step ahead” is an effective (and enjoyable) way of learning to use computers and the Internet. This is to a great extent due to the fact that more advanced older IT users, based on their own IT learning experience, can easily understand what problems other older IT learners might have. This is because the more advanced, older IT users themselves may have encountered the same problems not long ago. For the same reason, more advanced older IT users can provide the best learning strategies. They can offer strategies that have proven to be useful based on their own experience. Such strategies can help their age peers solve similar IT learning problems effectively and efficiently. It is, therefore, important to have older, rather than younger, adults teach older adults about IT.

Conventionally, IT training programs for older adults are designed to last for a limited period of time—ranging from weeks to months—but offer no more training or support after the completion of the program. Some programs even have an explicit, built-in goal that an older learner should be able to use the computer “independently” after the training sessions are over. The biggest problem of this approach is that it ignores older IT learners’ pressing needs for continuous learning, practice, and assistance. As such, programs aiming at training older adults to become “independent” computer users often fail to achieve this particular goal (e.g., Namazi & McClintic, 2003). The findings of this study further emphasize the importance of providing continuous training and support for older IT learners. In this way, older adults can learn to use IT more efficiently. Because it is impossible for older adults to become completely independent IT users, the best thing to do would be to first admit this fact. Then, instead of feeling frustrated, educators should develop systems that facilitate and ensure long-lasting training and practice opportunities and technical support for older adults. In other words, the benefits of a training program should be maintained after the training is completed (Mayhorn et al., 2004). To do so, older adults’ IT learning should be a continuing process that lasts beyond the relatively short cycle of the more formal training that typically features expert-centered IT educational strategies and systems. Perhaps the extended
training can be given in a more informal setting, but it needs to be centered on older IT learners.

It is important to keep in mind that, because the sample of this study was small and nonrandom, the results of this study should not be generalized without caution. In particular, participants of this study were better educated and in better financial situations than the majority of their age peers. Both factors, as has been well documented in the literature, put the participants of this study in a better position than their age peers to adopt new technologies faster and easier (for a review, see DiMaggio, Hargittai, Neuman, & Robinson, 2001). Also, there is evidence that the goals, abilities, and experience levels of older adults affect their learning of IT (Ellis & Allaire, 1999). To test the ability to generalize the findings of this study, in future research it is necessary to examine in larger and more representative samples how these variables mediate older adults’ learning and use of IT. As such, it will be necessary to conduct survey research among random samples of older Chinese to determine how, and to what extent, individual factors such as education and financial situation affect older adults’ use and adoption of IT. A related issue was that the participants were all from Shanghai, which is the largest city in China. Shanghai has resources—e.g., IT infrastructure, government awareness of the importance of IT, public financial support for older adults, and a higher percentage of college-educated older Chinese—that most Chinese cities do not have. In the future, it will be interesting to conduct qualitative and quantitative research among older adults in other areas of China. These could include medium- and small-sized cities and, perhaps, even rural areas. The inclusion of cities of various sizes would allow researchers to compare and contrast the impact of IT in different contexts.

CONCLUSION

Several important but previously largely ignored conclusions can be drawn from the empirical data of this study. First, lack of technical support is a major barrier to the older Chinese participants’ learning and use of IT; however, it is often difficult for older adults to get IT learning assistance from young people. This is, in part, because the learning speed, styles, and strategies of older and young people are different in important ways. Also, young people usually cannot understand the special needs and preferences of older adults, and therefore, they are not the best candidates to teach older adults about IT.
Second, young people—who are typically more IT-savvy—are usually not the best people for older IT learners to ask for technical support. Older adults, who may be only a step or so ahead or a little more advanced in one or another particular area, are the ideal candidates to help their age peers learn about computers. A main reason is that, in sharp contrast to young people, older adults share similar learning experiences. Thus, based on their own experience, older teachers can provide the most effective and efficient strategies to help other older adults learn to use IT. Learning from age peers with similar experience, in short, has proven to be an excellent way for the older Chinese participants in this study to learn about IT.

Third, older IT learners are in need of prolonged and continuous training, practice, and assistance. Therefore, it is important to create IT educational systems that can ensure long-term technical support for older IT learners. A good start is to recognize that the more formal but relatively short-term computer classes are only the beginning of the participants’ learning and use of IT. Informal but long-lasting computer clubs can provide much-needed continuing education and support for older IT learners. IT education for older adults, in short, should be a continuing process that combines formal and informal training and learning.

The major findings of this study have important implications for IT researchers, educators, and practitioners dedicated to improving IT education and literacy among older adults. In particular, these findings suggest that, when designing and developing IT training programs for older adults, it is crucial to avoid the elite/young people-centered approach that relies heavily on the participation of young IT elites. Instead, training programs should use a senior-centered approach that relies on the mutual contribution and complementary expertise of older IT learners (e.g., recruiting and/or training older persons as instructors and assistant instructors of the computer classes). Also, any IT training program for older adults should have a built-in component that allows, encourages, and facilitates a prolonged and friendly mutual help atmosphere among the older IT learners. In this way older adults can learn from their age peers about IT in more effective and efficient ways. Such a built-in component can be, as practiced by the older Chinese participants of this study, the computer club that may last for years. In essence, the role of IT researchers, educators, and practitioners in senior-oriented IT training programs should be to facilitate, rather than to take charge of, the continuous learning process of older adults.

In addition to improving IT training programs, this new approach also has an added value: it empowers rather than disempowers older
IT learners. This is important to older adults. As researchers have pointed out, empowerment or a sense of control over one's internal and external life (Dunst, Trivette, & Lapointe, 1992; McMellon & Schiffman, 2002; Rappaport, 1987) is a central measure of individual well-being (Ryff, 1989). The general consensus is that IT has the potential to empower previously underprivileged social groups and individuals, including older adults (Bradley & Poppen, 2003; Eilers, 1989; Karavidas, Lim, & Katsikas, 2005; McMellon & Schiffman, 2002). However, this view, as currently circulated in the literature, focuses primarily on how IT can empower underprivileged groups and individuals after they have learned how to use the technology and its applications. It is important to recognize that the process of IT learning itself can—and should—also be a means for empowerment, rather than disempowerment. This would be especially so if the recommended IT learning process is proven to be more efficient and effective than expert-centered IT educational systems in training older adults to learn to use IT.

REFERENCES


