Seniors and information technology: lessons from the field

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Abstract: The worldwide elderly population continues to grow, in terms of raw numbers as well as their use of computers and the internet. These facts notwithstanding, it appears that vendors of information technology products, both hardware and software, have largely ignored seniors. Research has shown that these 'silver surfers' are one of that fastest-growing user groups online and, furthermore, have more disposable income than any other segment of modern society. This paper investigates elderly computer and internet usage by incorporating the results of three separate research streams that have reported on this topic. Implications for both practice and research are presented.

Keywords: computers; senior citizens; information technology; IT; intercultural information management; IT utilisation; elderly; quality of life; older people; use of technology; digital divide.

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1 Introduction

There has seemingly been a lack of focus, by information technology (IT) vendors of both software and hardware products, on the particular needs of one of the largest and fastest-growing user groups in the entire computing milieu: our senior citizens. While there has been some progress made, by and large this vast group of potential buyers of IT-related wares has been largely ignored (McMurtrey et al., 2009). This seems counter-intuitive since this population segment has more disposable income to spend on computer technology and its peripheral products (including not only hardware devices and software, but also how-to books, manuals, magazines, and so on) than any other collection of users.

This paper will demonstrate that seniors' adoption, interest, and use of computers (and the internet) has increased over recent years, despite the shortcomings by IT vendors, by showcasing the results of some major investigations into usage behaviour. Somewhat surprisingly, there have not been many major surveys of the elderly regarding their use of computers and IT. Thus, after a review of the literature, we selected three separate research streams that have delved into this topic. They are:

1   the current population survey (CPS) conducted by the US Census

2   SeniorNet, the largest single organisation devoted to the mission of promoting computer use among the elderly

3   three scholarly studies that utilised some of the same questionnaire items as
     SeniorNet, thus providing a basis of comparison as well as a timeline for the studies.

The paper is organised as follows. First, a background literature review is performed that provides impetus for the study. Next, our findings from the three aforementioned research streams are presented. Finally, conclusions are drawn with implications for both practice and research.

2   Background and impetus for the study

We begin by noting that the elderly population among us continues to represent an increasing proportion of the USA, as well as worldwide, residents. It is estimated that almost 31% (30.9%) of American citizens are over the age of 50 (US Census Bureau, 2008a) and by 2050, one in four Americans (108 million) will be over 65 (US Census Bureau, 2008b). Furthermore, the number of people over the age of 65 is increasing worldwide with the fastest growing subgroup those aged 80+ years (Czaja and Lee, 2007). Yet scant attention has been paid to this important group in terms of access and use of IT and IT-related products and services.

In the early 1970s, Ramm and Gianturco (1973) suggested that new technology, particularly computers, could be beneficial to older adults. They believed that IT could help older adults access housing, transportation, medical information, order groceries, and even report on their daily well-being to a central source. A decade later, Hoot and Hayslip (1983) pointed out that microcomputer manufacturers had done very little to target older persons as prospective computer users. Thus the importance of this topic was recognised long ago. Almost forty years later,

If one looks at the computer systems of today, there appears to have been little real change in the attention paid to the elderly by computer hardware or software companies. Entire software industries are targeting a younger clientele. For example, the video game industry's total sales of hardware, software and accessories in 2008 rose to an all-time high of US $21.3 billion, according to research firm NPD Group (Ortutay, 2009). Although overall sales have declined the past two years, to US $18.58 billion in 2010 (Morris, 2011), it remains a lucrative industry. Furthermore, software- and music-swapping websites spring up (i.e., BitTorrent.com, Minova.org, Kazaa.com, etc.) as soon as others are shut down (e.g., Napster), and entertainment-oriented venues are increasingly popular (e.g., Disney.com, Harry Potter, Hannah Montana, etc.), with the marketing of games associated with them. Yet software tailored to the needs of the elderly is uncommon.

While one can certainly argue that many benefits have accrued to the elderly through the use of IT in areas such as healthcare (Hwang, 2011; Boulos et al., 2011; Campbell, 2008; Weiner et al., 2003), not nearly enough has been done to actually place the technology in their hands. Hardware and software providers are missing out on what might best be described as a goldmine of opportunity (McMurtrey et al., 2009; Marketing to Seniors, 2012). Seniors are missing out on opportunities to use IT in ways that could empower them to directly improve their quality of life and become more independent (Lee, 2010; Kiel, 2005; Shapiro, 1998). As Czaja and Lee (2007) note:

> "…not having access to and being able to use technology may put older adults
> at a disadvantage in terms of their ability to live independently." (p.342)

Thus, there seems to be opportunity for gain on both sides: manufacturers of hardware and software, and elderly users of such.

While IT can play a lead role in improving the lives of the elderly, computer hardware, software and services have not evolved to the needs of senior end users (Gatto and Tak, 2008; Nayak et al., 2006; Czaja and Lee, 2007). This is necessary if IT is to help seniors improve their overall quality of life. There are many opportunities for seniors to improve their standard of living by using IT directly. Most do not, however, because IT products and services are not tailored to their needs.

There have been a few recent studies that provide extensive reviews of the literature regarding this topic. Citing published research and using previously known models (TAM and Trocchcia and Janda's (2000) interaction themes), Hough and Kobylanski (2009) note that "… marketers should focus their efforts on reference group affiliation, nature of social relations, perception of reality, and physical dexterity as the interaction themes on which to focus marketing efforts, since all carry at least one high-impact mechanism for influencing engagement" (p.45). McMurtrey et al. (2008) reported on the existence of the so-called 'grey divide', while McMurtrey et al. (2009) lamented the lack of attention paid to the elderly by the IT community in general. They underscored the notion that this dilemma should be a 'win-win' situation for both of the major players involved: the elderly will benefit by being more 'wired', independent, productive members of society, while vendors of these products stand to benefit from the financial gain by selling their wares to them.

In another discussion of the digital divide, Agarwal et al. (2009) found that widespread internet use among people who live in proximity has a direct effect on an individual's propensity to go online. The elderly are certainly not immune to such effects, as many of these citizens live among others in retirement communities, assisted-living facilities, or even at the homes of their children and grandchildren. Furthermore, their peers may include others in their demographic with whom they interact socially, such as at local community centres or similar venues where they share company, play bingo or cards, and make friends.

Given such a dynamic background of, and potential for, usage of computers and the internet by our elderly population, this study set out to find representative reports detailing usage of these technologies. While there has been much written about the subject in general (c.f., Peng, 2010; Hough and Kobylinski, 2009; McMurtrey et al., 2008, 2009), and innovative means of performing a triangulation of data sources (Aragwal et al., 2009), there has been less than a plethora of studies focusing on *use* by the elderly. Thus, we identified three research streams that will provide a framework for understanding the current state of the field. By examining the findings from these investigations, we will make at least two major contributions to the literature. First, we will have a 'snapshot' of computer and internet use by the elderly as it currently stands. Second, we will provide directions for future research that have perhaps not been posited heretofore. We now turn our attention to these areas in the following section.

3 Findings from the three research streams

3.1 US census and CPS

The CPS conducted by the US Census, is updated every few years or so. This is in contrast to the regular decennial census that is taken every ten years. As such, changes in population and other collected statistics can be tracked more frequently than each decade. This gives researchers a more current 'snapshot' of trends regarding citizens of the USA. According to the most recent CPS reports (US Census Bureau, 2007a; internet release date: June, 2009), households with individuals 55 years and older have more broadband connections than any other age group, and have the highest internet usage (Figure 1). This is almost paradoxical, since the elderly are the smallest targeted group of marketing efforts by the IT community. Oddly, easily one of the most focal groups, the under 25 years old sect, is shown in Figure 1 to have the *least* broadband connections as well as the *least* internet usage among households. It appears that, contrary to conventional wisdom, seniors are doing their part in shrinking their digital divide despite the lack of attention paid to them by vendors of computer hardware and software products.
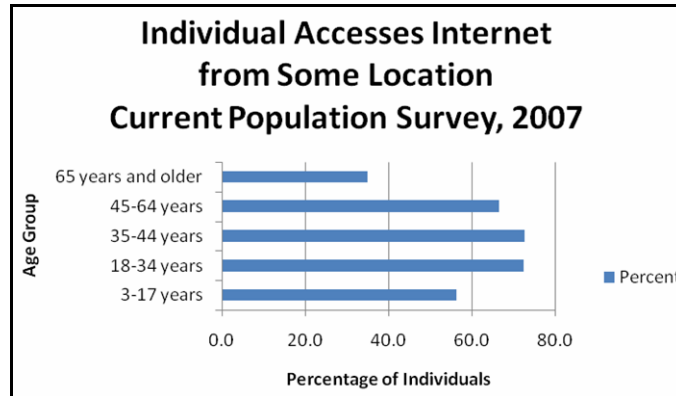
Figure 1 Reported internet usage for households, by selected householder characteristics: CPS October 2007 (see online version for colours)
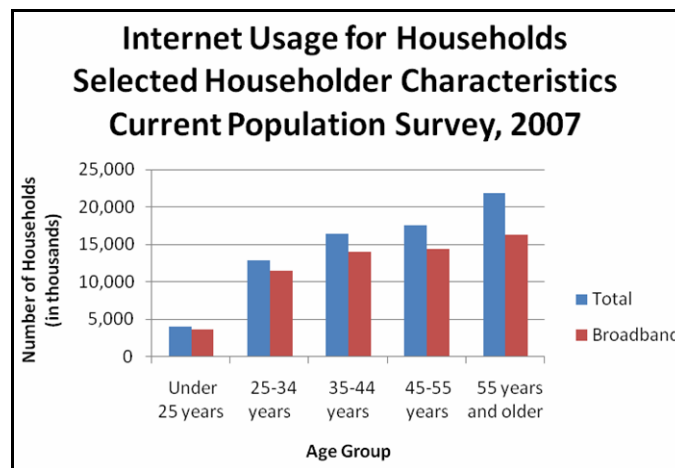
Source: US Census Bureau, Current Population Survey, November 2007 Internet release date: June 2009

Figure 2 shows that, even with this reported widespread internet usage by elderly households, there is still significant room for growth among individuals. As can be seen in the graph, individuals 65 years and older access the internet from some location in a smaller proportion than that of their younger counterparts (US Census Bureau, 2007b; internet release date: June, 2009).
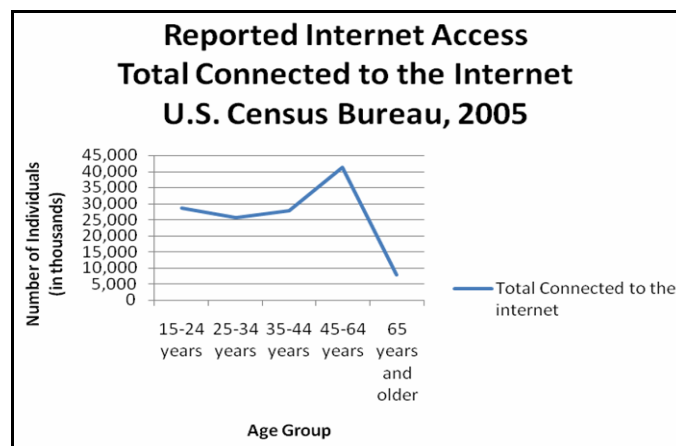
Figure 2   Reported internet usage for individuals three years and older, by selected characteristics: CPS October 2007 (see online version for colours)

This notion is accentuated in Figure 3, showing that seniors 65 years and older have the smallest total connected to the internet among all age groups. Note, however, that the largest number of individuals connected to the internet is the stratum immediately preceding them, those aged 45–64 years (US Census Bureau, 2005a; internet release date: June, 2009). As this age group gets older and moves into the 65 years and older set, their demand for and usage of the internet (and IT in general) will only increase in a parallel fashion. Eastman and Iyer (2004, p.217) note that the young old (ages 55–64) should not be treated the same way as the mature old (ages 65–74 years) or old (75 years and older) for marketing purposes.

Figure 3   Reported internet access and activity, for individuals 15 years and older who use the internet, by selected characteristics: 2005 survey of income and programme participation (SIPP) 2004 panel, Wave 5 (see online version for colours)

Figure 4 depicts a similar phenomenon. While those in the upper age bracket (65 years and older) use a computer (and connect to the internet) least among all the divisions, by far the highest rates are again by their predecessors: those in the 45–64 years age group (US Census Bureau, 2005b; internet release date: June, 2009). Marketers need to be prepared to capitalise on these opportunities when they avail themselves in the not too distant future. As will be shown next, they should be focusing their efforts *now* on our senior citizens.

Figure 4   Reported computer and internet access for individuals 15 years and older, by selected characteristics: 2005 survey of income and programme participation (SIPP) 2004 panel, Wave 5 (see online version for colours)
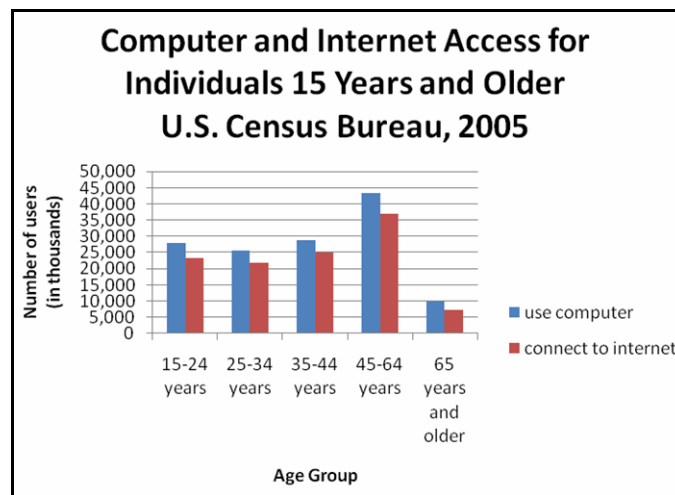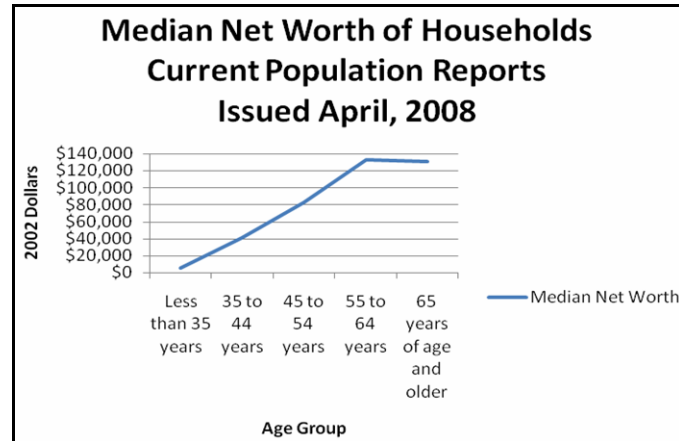

Source: US Census Bureau, Survey of Income and Programme Participation (SIPP), 2004 Panel, Wave 5 Internet release date: June 2009

Figure 5 portrays the fact that our elderly has more net worth than any other age group (US Census Bureau, 2008). Households in the 55–64 years group have the highest median net worth ($132,600), edging the total 65 years and older group ($130,500). The single highest value is $137,346 belonging to the 65 to 69 years old set (table not shown). Thus, it is apparent that our seniors have plenty of disposable income to spend on IT wares. Interestingly, Figure 5 also shows that households with individuals less than 35 years old have the lowest median net worth, yet it seems that advertising dollars are directed at this group in disproportionate numbers. Anecdotally, even a cursory glance at an Apple advertisement would bear this out.

However, given that Apple seems to be doing very well from a business standpoint, perhaps young people are having their parents and grandparents buy their products for them! Nonetheless, there seems to be a huge underserved market of consumers (the elderly) for computers and IT-related products. We believe this is an opportunity for both hardware and software vendors to sell more of their wares and increase the bottom line, thus maximising shareholder wealth.

Figure 5   Median net worth of households net worth and the assets of households:
2002 household economic studies (see online version for colours)

Median Net Worth of Households
Current Population Reports
Issued April, 2008

Source: US Census Bureau, Survey of Income and Programme Participation,
1996 and 2001 Panels
Current population reports by Alfred O. Gottschalck
Issued April 2008

3.2   SeniorNet

SeniorNet, founded in 1986 in San Francisco, is the largest single promoter of helping
seniors join the 'wired' world. SeniorNet is a non-profit, international organisation that
has learning centres around the world (including an online learning centre). They offer
over 150 courses, curriculum materials, general help facilities, and discounts on
computer-related products and services. In addition, they hold regional conferences and
conduct research on older adults and technology. Their mission is:

> "…to provide older adults education for and access to computer technologies to
> enhance their lives and enable them to share their knowledge and wisdom."
> (SeniorNet, 2011)

By their own estimate, they have educated over a million older adults about computers
and the internet since its founding. Their website, http://www.seniornet.org, receives over
one million hits per month (SeniorNet, 2011). While there are certainly other
organisations that provide various kinds of information to the elderly (e.g., AARP, senior
journal, government entities, etc.), SeniorNet's sole focus is on technology and its use by
seniors. As such, we selected it to be included in this study. The authors are grateful to
the staff at SeniorNet for providing both the original questionnaires, and the results, from
these studies.

Researchers at SeniorNet conducted three major studies in the past decade. Many of
the questionnaire items from these efforts were also utilised in subsequent academic
research (discussed in the next section) and as such provide consistency and continuity
for the purposes of the present investigation. In 2002, a survey of adults 50 and over was
conducted on the SeniorNet website (to be referred to hereafter as the '2002 survey').
2,084 individuals voluntarily responded to a questionnaire about their use of the internet.
The participants were self-selected respondents to a survey posted on the SeniorNet

website and promoted in an e-mail newsletter that was sent to individuals registered on the site. Thus, it was not a random sample. However, such convenience samples are not uncommon (c.f., Seals et al., 2008; Reisenwitz et al., 2007) and can certainly provide valuable insight into the subject of interest. The 2002 survey contained ten questions (some with sub-items) about internet usage, as well as inquiries regarding demographic data.

In 2004, a 'members and web interests survey' (hereafter referred to as the '2004 survey') was conducted with 1,466 seniors participating. Respondents answered 38 questions regarding their interests and use of computers and the world wide web, in addition to standard demographic items. In 2006, a 'technology interests survey' (the '2006 survey') was performed with 995 respondents. The 2006 survey contained 17 questionnaire items, some of which were lists of sub-items from which to choose their level of interest or agreement.

Table 1   Results from the three SeniorNet surveys

		SeniorNet		
Study:		2002 Survey	2004 Survey	2006 Survey
Characteristics:				
n =		2,084	1,466	995
Number of questionnaire items =		10	38	17
How do you primarily access the internet?	Dial-up:	N/R	57.40%	31.30%
	Broadband:		40.90%	64.60%
Years you have been using a computer?	< 1 year	N/R	2.40%	1.80%
	1–2 years		5%	3.40%
	2–5 years		21.50%	13%
	5–10 years		33.50%	25.40%
	over 10 years		37.50%	56.40%
Years you have been accessing online services/internet?	1–2 yrs	8%	6.20%	4.30%
	2–5 yrs	41%	28.90%	18.40%
	over 5	46%	60.70%	74.80%
Average number of hours spent online, per week?	less than 5 hours	7%	22.80%	18.90%
	5–9 hours	25%	30.90%	16.90%
	10–19 hours	33%	28.10%	33.10%
	20 hours or more	34%	18.20%	31.10%
Gender	Male	43%	35.50%	46.30%
	Female	57%	64.40%	53.70%
Sample	Adults 50 and over, self-selected and responded to a survey posted on the SeniorNet website. Also, some members received an e-mail inviting their participation.			
Key:		N/R = Not reported		

Table 1 highlights the findings from these three surveys where the same, or similar, questions were asked. For some of the items, there were slight differences in the wording or ranges from which to choose. For example, for the 'years you have been using a computer' item, 5+ years was the highest response category for the 2002 survey, while it was 10+ years in the 2004 survey, and 20+ years for the 2006 survey. Fortunately, we had access to the original questionnaire results and were able to comb through the data and combine some categories to ensure consistency among the findings. Thus, the surveys provided a very good baseline from which to establish certain relationships and detect trends.

As seen in Table 1, accessing the internet through a dial-up connection has decreased from 57.4% of respondents in the 2004 survey to 31.3% in 2006 and broadband access increased from 40.9% to 64.6% over the same two studies. The percentage of users that have been using a computer for over ten years increased from 37.5% in the 2004 survey to 56.4% in 2006, while percentage rates for lesser time periods (e.g., less than one year, one to two years, two to five years, and five to ten years) all decreased. This was not unexpected, as with the passage of time more users have more experience.

Somewhat surprising is the variance in results for the category concerning the average number of hours spent online per week. While the 10–19 hours per week set is fairly consistent across the 2002, 2004, and 2006 surveys (33%, 28.1%, and 33.1%, respectively), it is vastly different in the category that reports using online services for more than 20 hours per week. For that assemblage, the figures are 34%, 18.2%, and 31.1% for the 2002, 2004, and 2006 surveys, respectively. It would seem counterintuitive that the 'over 20 hours per week' group would drop so much from the 2002 survey to 2004. However, one possible explanation is that there were considerably more females (64.4%) in the 2004 survey than the other two. Perhaps there is a gender difference when it comes to spending so much time online and such a relationship could be investigated in a future study. Or it could simply be a statistical oddity that could be partially explained by the self-selection aspect of the SeniorNet surveys. Either way, it is interesting to note and warrants further investigation.

Unfortunately, SeniorNet discontinued these large surveys after the last one in 2006. However, as noted previously, many researchers have utilised these questions in their own studies (c.f., Reisenwitz et al., 2007; Iyer and Eastman, 2006; Gatto and Tak, 2008), including the authors. We are embarking on a large-scale, longitudinal study of computer use by the elderly and have incorporated many of the SeniorNet questions into our own research instrument. As such, the results from the three SeniorNet studies, as reported here, provide a baseline of comparison for future investigation into this important area.

The next section reports the results of two scholarly studies that were published in mainstream marketing research journals. These were picked for the purposes of our study for a variety of reasons, among them that the publication outlets were high-level and high quality in nature; these studies are among the most oft-cited by other researchers doing this kind of research; and they used many of the same questionnaire items as the SeniorNet studies, thus providing a basis for comparison. There were actually three studies published by this same set of researchers, however the 2004 study (Eastman and Iyer, 2004) and 2006 study (Iyer and Eastman, 2006) used the same dataset. Therefore, the 2004 study was dropped from this investigation.

3.3 Two scholarly studies

The treatises by Iyer and Eastman (2006) and Reisenwitz et al. (2007) were selected for the reasons mentioned in the previous section. The 2006 study conducted a random sample of seniors aged 65–85 years old, who owned their own homes and had incomes of at least $15,000 per year. The list of potential respondents was purchased from a direct mail company and was generated from 20 random zip codes containing individuals that met the aforementioned criteria. The 2007 study utilised a convenience sample, whereby undergraduate students ferreted out seniors aged 65 years and over and subsequently administered the questionnaire to them.

Table 2 shows some of the results from each of the studies. The outcomes reported were those that were investigated in both of the research efforts. There were other findings particular to each study, but our purpose was to focus on common results in such a way to establish a baseline for the current study as well as future research. There were some interesting findings to report. For instance, 83% of respondents used the internet in the 2006 study, compared to 52.8% in 2007. Mean usage was nine hours per week for the 2006 respondents, compared to less than five hours in 2007. While 46% of respondents in the 2006 study used the internet for more than ten hours per week, only 15% reported the same answer in 2007. Similar, 'downward' trending numbers, regarding use of the internet, were reported as the following (2007 figures in parentheses): 67% used it stay in touch with friends and relatives in the 2006 research (40% in the 2007 study); 37% used it to stay current with news and events (26% in 2007); shopping, 35% (23% in 2007); entertainment, 22% (11% in 2007); access health and medical information, 31% (24% in 2007); and research topics other than health, 38% (21% in 2007). In fact, the only common and consistent result reported from these two investigations was that 55% of the 2006 respondents reported having used the internet for more than 12 months; the figure was 54% for the 2007 study.

Table 2   Results from the two scholarly studies

	2006	*2007*
Study:	Iyer and Eastman	Reisenwitz et al.
Characteristics:		
n =	171	374
Use internet	83%	52.80%
Mean usage (hours per week)	9	<5
Use internet 10 or more hours per week	46%	15%
Stay in touch with friends and relatives	67%	40%
Stay current with news and events	37%	26%
Shopping	35%	23%
Entertainment	22%	11%
Access health and medical information	31%	24%
Research topics other than health	38%	21%
Used internet for more than 12 months	55%	54%
Sample	Random	Convenience

Why these results were seemingly different, especially in a decreasing direction, is open to speculation. We suspect the differences in sampling between the two studies could be

an important cause. The 2006 study used a national sample of 20 randomly selected zip codes from which to select respondents. The authors did not report any geographical distributions (e.g., Pacific Northwest, Southwest, Northeast, etc.) so it is unknown if one particular region of the country predominated.

In contrast, the 2007 study obtained their sample by having undergraduates locate seniors for participation. The authors of that study did not offer any more information regarding how these respondents were selected. It can be noted that these authors were, at that time anyway, affiliated with institutions of higher learning in the Southeastern region of the country. Thus, we suspect that these respondents too were from that area of the USA. Furthermore, it is entirely possible that many of these respondents did not own their own home, nor did they have incomes of at least $15,000 per year. Without such data to investigate, it is unknown whether there was a bias in terms of impoverished respondents that led to the seemingly lower percentage rates among usage items. Or, perhaps, there are regional differences between the Southeastern expanse and other areas of the country with regard to the digital divide as has been suggested by Choemprayong (2006). It is obvious to us that further research is necessary to explain these discrepancies.

Finally, Table 3 depicts the common results from the academic studies and the SeniorNet research. These six characteristics were literally the only ones that were precisely consistent across the studies. In other words, all of the investigations asked about similar things, but these were the only ones that were worded in such a way as to conduct an exact comparison. As can be seen in the table, all of the SeniorNet respondents reported higher usage rates on all the characteristics. This is not surprising, given that the SeniorNet surveys were administered online to members of an already-wired population where the respondents were self-selected. The scholarly studies, on the other hand, used more conventional sampling techniques that resulted in respondents who more diverse (i.e., were not necessarily as 'wired' as their SeniorNet member counterparts).

Table 3   Results from the two scholarly studies along side the three SeniorNet studies

	2006	*2007*	*2002*	*2004*	*2006*
Study:	Iyer and Eastman	Reisenwitz et al.	SeniorNet	SeniorNet	SeniorNet
Characteristics:					
n =	171	374	2,084	1,466	995
Shopping	35%	23%	52%	N/R	75.60%
Stay in touch with friends and relatives	67%	40%	94%	87.70%	98.30%
Stay current with news and events	37%	26%	72%	N/R	90.80%
Access health and medical information	31%	24%	N/R	65.70%	36.90%
Research topics other than health	38%	21%	N/R	N/R	80.70%
Key:		N/R = not reported			

The oddities concerning the academic studies have previously been noted. As for the SeniorNet studies, all of the reported statistics appear to be trending in the expected direction (i.e., increasing chronologically) with one exception: 65.7% of the 2004 survey respondents reported accessing health and medical information online, compared to 36.9% in the 2006 survey. Such a result seemingly runs contrary to conventional expectations: as more and more seniors utilise online facilities, it would seem that they would access their health and medical information more frequently online. Evidently, there needs to be more research in this very important area to determine whether this is indeed the case, or whether these findings are the result of a statistical anomaly.

4   Conclusions and implications for practice and research

It is obvious to us that senior citizens will grow in both numbers, from a population and demographic standpoint, and usage of computers and the internet. Regardless of the sparse direct attention paid to them by merchants, this paper has shown that the elderly are moving forward in their adoption and use of the technologies forthwith. While there is certainly progress being made, we feel that much more can and should be done.

This study highlighted the growing 'wired' senior population using a three-fold process: data from the US Census' current population reports (and other US Census Bureau statistics); results reported from three large-scale studies by SeniorNet, the largest promoter of elderly computer and internet use in the world; and findings from some often-cited scholarly investigations that shed considerable light on this topic. It was demonstrated that our elderly are not dissimilar to other age groups in terms of using IT to shop, research topics of interest, stay in touch with friends and relatives, and other characteristics that typically describe a computer and internet user. Areas where they did differ from their younger counterparts (or even from each other, in terms of gender for example) should be the basis for future research.

One example that warrants further investigation was the finding from the SeniorNet studies that showed the group spending more than 20 hours online per week decreasing from 2002 to 2004. It was noted that there were more females surveyed in the latter project, and as such could be an issue worth investigating further. Certainly, gender differences are not uncommon in society, and marketers devote much time and energy toward capitalising on such diversity. E-commerce vendors and researchers on such 'silver surfers' may find worth in determining if, and why, such discrepancies occur.

There were some seemingly inconsistent findings from the scholarly investigations that are worthy of additional inquiry. Results from the 2006 study (Iyer and Eastman, 2006) trended in a downward fashion from those in the 2007 effort (Reisenwitz et al., 2007). Given that our census data, and the SeniorNet studies, showed seniors becoming increasingly a part of the wired world, it appeared disconcerting that descending reports were uncovered from the academic studies. It was postulated that the sample composition could have played a role in these discrepancies. Therefore, future research should investigate senior use of IT using a plethora of samples and methodologies. Various regions of the USA (and the world) should be studied using a variety of methods including surveys, laboratory investigations, and case studies.

There are at least a couple of other areas that appear fresh for study. One would be the impact of social networking sites on IT use by the elderly. Such websites (e.g., Facebook,

MySpace, Twitter, etc.) have radically changed and revolutionised traditional forms of communication and the art of staying in touch with family members and friends, as well as making new acquaintances. Implications for researchers and practitioners seem to be bountiful in this new era. In a similar vein, cellular phone use has exploded over the last decade and seniors have not been left out. Most cellular phones are incorporating features of personal digital assistants (PDAs) and handheld devices, and are replacing the traditional computer (whether desktop or laptop) for multitudes of citizens around the world. Research is necessary to determine how this phenomenon affects elderly users.

Longitudinal studies are welcome to determine if seniors change their usage patterns over time. Such investigations are especially pertinent given our findings (and that of others, e.g., Eastman and Iyer, 2004) that there are differences between the young old (ages 55–64 years), the mature old (65–74) and the old (ages 75 years and older). As the current generation of 'baby boomers' retire and move into the upper echelons of the elderly, however defined, their needs for IT products and services need to be assessed in a corresponding manner. Furthermore, as the younger already-wired generations increase in age as well, and move into older and different age stratums, their needs must continually be evaluated on an ongoing basis. Marketers need to be able to capitalise on these different market segments, and without further research such opportunity will be progressively difficult.

This study has shown that our senior population is becoming more and more wired every day. However, there are still obstacles that need to be overcome. Hardware and software vendors seem to ignore the needs of this generation when designing and marketing their products. We have supplied convincing evidence in this monograph that such behaviour seems foolish from a business standpoint, as well as from a socially responsible view. Ensuring that our seniors are mainstream participants in the digital world is a responsibility shared by all, so that our elderly remain productive and contributing members of our society. Such an approach will improve their overall quality of life, as well as the world at large.

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