Senior South Koreans' Difficulties in Embracing the Internet: Need for Alternative Approaches*

Youn-Min Park**

Abstract: This study challenges the mainstream technocratic notion of the digital divide and its access-based policy solutions, which do not appreciate the different information-using capabilities, perceptions, and choices of the people concerned. This notion is examined through the lens of information as structured capital that requires Internet access to be complemented by people's information-using capabilities, inclinations, needs, knowledge, and beliefs, which must also complement each other to allow the effective use of information. Qualitative in-depth interviews with 30 senior South Koreans at a Senior Welfare Center suggest that the information capital possessed by these seniors is ill suited to responding to and taking advantage of Internet use. The social isolation of seniors provides them with neither incentives nor capabilities to restructure their information capital in the ways necessary for ongoing use. This finding suggests that digital divide policies for older people must shift their focus from technology per se toward more comprehensive approaches of dealing with the basic social needs of senior citizens.

Keywords: Information Capital, 'Digital Divide,' Information Use, Development, Internet Interaction, Older People, South Korea, Information-Using Capabilities, Internet Attitudes and Perceptions, Beliefs

INTRODUCTION

Mainstream policies to tackle the digital divide have been shaped by technocratic perspectives that imply that providing computer facilities and Internet access will

bring positive change. Such a simplistic approach takes for granted that all people are capable of swiftly taking up online activities and enjoying the benefits of information use. Such optimistic thinking has driven the hype about an e-society in which traditional systems are hastily going online. Many attempts to solve social problems rely on electronic systems and Internet services.

Meanwhile, the world population is aging rapidly; by 2050, the number of people aged 60 and over will triple to two billion (UN 2007). This growing population, however, is known to be the least likely group to take up the Internet (Di Gennaro 2005; Dutton et al. 2005). Policymakers and commentators who fail to recognize the paradoxical problem urge and expect seniors to use the Internet (Age Concern 2007; Commission of the European Communities 2007). Such efforts appear to be exclusively technology driven. Despite enormous efforts, however, the majority of the older population is still the most reluctant group when it comes to using the Internet. Access-based approaches are not enough.

Questions, then, arise: Have prevailing "digital divide" policies sufficiently understood the nature of the problem? Have they fully taken into account other elements aside from technology that may limit and shape seniors' Internet use? If not, what has been missed? How do the missing elements influence events and affect the seniors' life contexts?

An in-depth case study of a group of South Korean seniors at a Senior Welfare Center aims to better understand, at a micro level, how seniors interact with the Internet and the complexity of their experiences, taking into account the diverse elements of their circumstances. South Korea has one of the fastest growing cohorts of older people in the world, increasing from 5.9% in 2005 to 9.5% in 2006, and expected to exceed 14.3% of the whole population by 2018 (KNSO 2006; Korea Press Foundation 2007). Such a contrasting picture provides an interesting empirical setting for research.

In order to specifically focus on seniors, research was conducted at two levels. First, a joint local survey of 539 senior respondents at 10 different Senior Welfare Centers in Seoul was conducted (KISCA, 2003).[1] Second, individual in-depth interviews are carried out with 30 participants at one Senior Welfare Center. This paper will concentrate on reporting the qualitative findings of the in-depth interviews. The aim of the paper is to provide a realistic observation of how seniors experience and perceive Internet use and what matters to them in going online. It is important to note

---

1. The author was asked by KISCA to participate in designing the survey questionnaires and conducting face-to-face surveys with the senior respondents in the 10 Centers. In return, the author was permitted limited use of survey data pertaining to descriptive elements of socioeconomic, computer environment, and computer learning factors.

that this qualitatively oriented paper does not intend to polarize and exacerbate contrasting patterns between quantitative and qualitative approaches. Rather, the qualitative approach serves as a complementary tool to better understand the phenomena, recognizing that "knowledge derived from one method exclusively is necessarily partial" (Rowles and Reinharz 1988, 5). Qualitative study allows us to interpret people's thoughts, perceptions, and experiences that cannot be generalized or told by numbers.

In order to depart from technology-driven solutions and demonstrate why comprehensive policies are essential to getting seniors involved in Internet use, the study recognizes the complementarities of information as structured capital. From this perspective, the interview findings suggest that seniors encounter Internet difficulties largely because their information capital is not appropriately complemented by the new technology. There is no bridging between the understandings, skills, opportunities, interests, needs, motivations, and beliefs that have been shaped over seniors' lives, and the new world now presented by the Internet.

The paper is organized as follows. First, the notion of information as structured capital is introduced. Second, alternative approaches to researching the information society and the digital divide experienced by older people are discussed. Third, a qualitative in-depth interview method is illustrated. Fourth, general characteristics of Center seniors and their Internet attitudes are briefly described. Lastly, the paper will summarize the empirical findings regarding the complexity of seniors' information complementarities and seniors' limited perceptions of change due to their social isolation.

COMPLEMENTARITIES OF 'INFORMATION' AS STRUCTURED CAPITAL

A systematic approach to better understanding the characteristics of seniors' Internet difficulties has been driven by viewing information as one kind of capital (Lamberton 1999). In other words, information is not a lubricant like oil that facilitates outcomes more or less automatically by itself. Rather, information is an enabling resource that works together with other resources to be used for social purposes.[2] More impor-

---

2. Information is a resource and as "commodity, it is one only to a limited extent" (Arrow 1984, 142). That is, there are limits to the ways in which information and knowledge can be gained or bought, and provided or sold. The provider or seller does not give up the information that is sold. The information is automatically and permanently vested in whomever the information has been transferred to. Thus, the potential acquirer has no need for additional units of information that he or she already has, and will not need to buy the

tantly, information has value as a lasting resource and can be reused over time, and thus it can be considered as capital in an economic sense (Bunsdorf 2003).

Even though it is used widely in socioeconomics, capital is a notoriously difficult concept to define and measure. This is especially true in the information and knowledge society, which extends the notion of capital from tangible, durable items such as buildings and machines to intangible resources such as research findings, training acquisition, and knowledge sharing. In the information society, therefore, any realistic definition of capital must be modernized to include information and knowledge. In short, information and knowledge, which are important resources in developing personal relationships and social networks, constitute one of the many facets of social capital (Bjornskov 2006; Putnam 2001).

Schumpeter (1953) once described capital as stock of goods that is structured from many elements complementing each other. Different mixtures of complementarities will be required in pursuing different objectives. For example, capital such as buildings or automobiles have structures composed of many bits or elements complementing each other to yield their final features. When an old building is renovated, the whole working process will require a new structure wherein some elements must be already possessed and others newly acquired to provide the structure of the new building. These complementarities within different structures of capital—"their interdependence and synergies, the ways they enable, augment, or extend one another's effectiveness"—are essential for people to make use of information capital (Baetjer 1998, 21). Depending on the kinds of problems people need to solve, different mixes of information resources will be required to process new information. When new capital is developed, its structural complementarities become more complex, because new capital must fit with the old in order to be useful (22). Similarly, this requirement to change the structure of the information capital imposes sequences, lags, and barriers on people's interactions with the Internet.

This perspective of information as structured capital is used as a lens to elaborate seniors' Internet difficulties. Information capital is a resource that enables people to pursue their objectives and manage their lives. Seniors can use their information capital when the right mixture of complementarities are possessed and restructured. These complementarities of information capital—people's information-using capabilities—require not only Internet access but also for the individuals' understandings, interests, opportunities, inclinations, capabilities, needs, and beliefs to fuse together and bring

---

very same information again. Furthermore, the acquirer or buyer cannot effectively appraise information that he or she might acquire or buy without actually acquiring the information.

synergies from interaction with the Internet. These multiple elements are the outcomes of senior South Koreans' lives and social circumstances. Rich though their lives may have been, senior South Koreans do not have appropriate information capital to react to and use an Internet that functions primarily to meet the needs of the younger members of society. This life inheritance of people's information capital highlights the need for an alternative approach that recognizes seniors' specific capabilities, needs, and life circumstances.

ALTERNATIVE APPROACHES TO THE DIGITAL DIVIDE
AND OLDER PEOPLE

Criticism of the technocratic notion of the digital divide has been raised in studies that emphasize the social and cultural context within which the information technology is used (Kling 2000; Lievrouw 2000; Warschauer 2003). From this perspective, the nature of the digital divide is multidimensional, rooted within a pre-existing social marginalization (Norris 2001). Information disadvantage does not simply stem from technology and access alone, but is embedded in a complex set of resources including physical, digital, economic, and social elements (Warschauer 2003). Menou (1993) reassessed the role of information use for development, arguing that "no specific factor, much less information, can be singled out as a main cause of development" (20). For him, causal relationships involve the "complexity of real-life situations' and other 'noninformation-related internal and external factors" (20). Therefore, the role of information in development cannot be examined in terms of the mere presence of technology but must be integrated in a complex manner into social systems and processes.

Despite this important recognition, these perspectives lack accuracy and reliability in representing actual technology change. Attempts to overcome these ongoing limitations have emphasized the real-life situation to be observed (Menou and Taylor 2006). Barzilai-Nahon (2006) suggested comprehensive measurements that emphasize the importance of the usage context. Pruulmann-Vengerfeldt (2006) presented data regarding the social and cultural factors within the transition to online arrangements. Moreover, such progress calls for further empirical research that will lead to a more reliable and accurate understanding of the information society.

Haddon (2000), Menou (1993), and Zuboff (1988) have highlighted the necessity of qualitative approaches in understanding people's different responses to, and perceptions of, information technologies within their life contexts. This perspective does not take the benefits of Internet use for granted; it states that only through willingness, use, and

assessment of change can people give meaning to Internet use. However, mainstream research continues to use a quantitative approach that fails to precisely understand the subjective states of individuals and the complexities of information-using processes. Menou (1993) criticized such misleading approaches, suggesting that "figures about the size, growth and use of databases tell little, if anything . . . about the ultimate benefits for the users and their constituencies" (124). Instead, he recommends that researchers consider qualitative indicators "as a means of providing a practical background, to help focus on real life application as opposed to general considerations" (127).

In spite of the increasing recognition of the multidimensional aspects of the digital divide and the relevance of information use for development within its usage context, older people are commonly stereotyped as technophobic, and their difficulty with and reluctance toward the Internet are treated as problematic. Policies often focus on promoting wide computer access and training programs that neglect the different capabilities, incentives, and needs of older people within their life context. Such policies simply assume that going online will generate improvements in the welfare of senior citizens.

Recently, however, seniors' different attitudes and perceptions, which influence their different choices of Internet interactions, are being discussed (Di Gennaro 2005). Further research suggests that "there is no evidence of impairment in the reasoning and choices of the elderly population" compared to that of the young adults (Kovalchik et al. 2005). This finding invites reasoning about seniors' Internet attitudes and choices in terms of the information structures they have gained over their lifetimes.

Many previous studies within Korea have addressed the seniors' position in relation to the digital divide, in order to develop appropriate policies for this group. However, existing surveys pursue the prevailing access-based solutions, which do not take into account the older people's different backgrounds, cultures, and capabilities (KISCA 2003; NCA 2000). Although a recent study examines seniors' diverse attitudes toward, and usage patterns of, new technology, its solutions persist in extending policy efforts centering on technology matters (Korea Press Foundation 2007). This ongoing limitation tends to be preserved within the notion that access per se will bring change. This simplistic technological perspective is reflected in research approaches that fail to take full account of other, nontechnical aspects of life that need to be considered in understanding people's information use.

QUALITATIVE IN-DEPTH INTERVIEW METHOD

The study reported here adopted a qualitative and interpretative method to challenge the technological assumptions and concentrate on the life situations of the end-

users and how their experiences and surroundings influence their reactions to technology change. This approach enabled the research to precisely capture the complex mixture of information-using elements shaped through people's experiences and social circumstances that could not be accurately represented through the survey project that was carried out prior to the interviews. In-depth interviews were conducted with 30 senior participants at Yongdungp'o Senior Welfare Center in Seoul. This centre was selected because of its being a specific community for seniors age 60 and over, as well as being a main policy channel for delivering computer training for older people.

For participant selection, McCracken's (1988) "less is more" principle was followed, because the core of qualitative study is "not one of generalizability but] of access" (17). Thus it was decided to "place greater stress on the intensive analysis of a small body of empirical materials" (Denzin 2000, 370). The selection of samples was purposive, aiming to identify cases that would provide understanding of the complexity and diversity of the phenomenon. Furthermore, the selection strategy involved an

Table 1. Demographic Characteristics of Senior Interview Participants

Gender	Male	14
	Female	16
Age	Age 60-64	10
	Age 65-70	13
	Age 71 or older	7
Housing status	Coresiding	18
	Live separately from children	9
	Live alone (widowed)	3
Formal education	None	8
	Primary	11
	Secondary	8
	Tertiary	3
Previous occupation*	Farmer	6
	Officer/soldier	6
	Factory worker/Manual worker	8
	Sales/service	10
Other community engagement	Yes	6
	No	24
Frequency of centre visits	Every day	19
	2-3 times a week	8
	seldom	3

* To an extent earlier life as farmers in rural areas were common among the seniors

ongoing process that allowed new opportunities to access participants during the interview research. This strategy provided additional or unexpected respondents to interview. Open-ended questions were used to avoid directing participants on how to respond and to avoid giving the impression that certain answers were right or wrong. Interviews lasted for approximately 50 to 90 minutes, depending on the circumstances and willingness of the informants. To ensure anonymity, pseudonyms were given to each interviewee. The interviews began by posing the question, "Can you tell me your life story, and how you are managing now?" giving respondents the opportunity to set the context. The purpose was to eliminate stereotyped responses and allow the participants to show what mattered to them.

The main demographic characteristics of the 30 senior informants are summarized in Table 1. This number of informants represents a saturation point at which themes overlapped and data had been obtained to fill the gaps that had emerged during previous interviews. Analysis of interpretative data was an ongoing process; conversations, observations, and circumstances were analyzed in a preliminary way during the entire research period. Data analysis continued, after returning from the field, at a more detailed and broader level. All words, concepts, sentences, and themes were coded to cluster to a particular theme or proposition. The interview analysis revealed that each informant presented different sets of information-using complementarities that influenced their Internet interactions. Furthermore, the reasons given by the seniors were very complex and much broader than simple technology-related issues.

GENERAL CHARACTERISTICS OF CENTER SENIORS AND INTERNET ATTITUDES

A local survey project titled A Study of the Factors that Influence Older Adults' Attitudes Toward Computers, jointly conducted with KISCA (2003), provided background characteristics of the in-depth interview setting and the broad pattern of seniors' Internet interactions. The survey project used a stratified sampling technique whereby the sampling frame included 10 Senior Welfare Centers in 10 gu^3 in Seoul. (Yongdungp'o Senior Welfare Center—the interview setting of the present study— was among the 10 centers surveyed.) Within each setting, 20 nonusers (who had never taken computer classes at the centre), 20 users from the beginner class, and 20 users from the advanced class were selected randomly. Each group was equally composed

---

3. A gu (ward) is similar to a borough in London or New York, and its government handles many of the functions that are handled by city governments in other jurisdictions.

of 10 males and 10 females. The 60 surveys carried out in each of the 10 centers resulted in 539 valid responses (KISCA 2003, 15).

According to the survey, older people attending Senior Welfare Centers were more likely to be highly educated, wealthy, and independent, in comparison to other seniors in the community. Seniors at the centers were most likely to have a computer at home (75.6%), and more than half (50.5%) of these respondents' computers at home were owned by the seniors themselves rather than their children (KISCA 2003, 21). Furthermore, many were using the Internet (72.6%), and some were using the Internet but not taking Internet classes (32.5%). Locations of Internet use were mainly at home (52.4%) and the centers (45.4%; 21). However, the survey shows that although seniors at the Centers had a relatively advanced computer environment, their interactions with the Internet remained limited (35). This finding raised questions for qualitative research into why seniors' computer ownership and Internet access did not necessarily guarantee widespread use, by focusing on the subjective nature of human behaviour.

In addition, survey analysis showed that the Internet skills that older learners attained in classes were inconsistent with their actual Internet activities. For example, Internet activities of senior users were most likely to be Internet search, e-mail, and entertainment. However, frequency of computer usage in daily life was reported to be relatively low, with even the most frequent activity—emailing—being angaged in only one or two times a month (41.3%) and searching the Internet one or two times a month (35%; KISCA, 2003, p. 24). Although the survey findings presented a big picture of seniors' Internet usage patterns, it could not elaborate the reasons for such limited use. Consequently, the survey project offered overall background knowledge of the general characteristics of seniors at Senior Welfare Centers, and the broad pattern of their attitudes toward the Internet.

However, the project's structured questionnaires could not provide an understanding of how seniors interact and perceive the benefits of Internet use relevant for their social development. Qualitative research such as that used in the present can be used to investigate why seniors do not extend their online activities to a broader social context, and the relevance of Internet use for solving problems that they perceived to be important. The interview findings discussed in the next section illustrate the complexity and diversity of seniors' Internet experiences, and the meanings that seniors ascribe to Internet use.

COMPLEMENTARITIES OF SENIORS' INTERNET USE

Interview analyses show that seniors' Internet interaction was complex and diverse. Each individual responded differently to Internet use, as a result of each par-

ticipant's different set of information capital. Their information capital was related not only to technology but also to their broader understandings, interests, opportunities, inclinations, capabilities, needs, beliefs, and knowledge, which have been shaped over a lifetime. This finding was highlighted by the fact that the majority of seniors, regardless of whether they were users, nonusers, or dropouts, had ready access to the Internet. Furthermore, no single factor was predominant; various elements within the information structure complemented each other and had a synergistic effect on seniors' Internet activities.

Opportunities

Opportunities provided at the Center had helped nine seniors to relate to the Internet. Sun-jin, a user, explained: "Before I came, I had never imagined myself using the computer." Similarly, Ok-jin said, "It is all because I came to the center that I am now learning the computer." To some extent, Internet programs at the Center had facilitated nine among eleven senior users' reactions toward the Internet. In contrast, fourteen nonusers rejected the Internet opportunities, claiming that they had no need for the Internet in their everyday life. For example, Soon-jung remarked, 'I don't want to learn, but I can do it. And if I start learning, I can do it a lot better than others.' She had no educational background and had had various labour-intensive work experiences during most of her life. In later life, she appeared to be isolated within the center, having no other interpersonal or social network. For four other seniors, center opportunities were restricted even though they perceived the need for Internet use. Two older men who were still working had to discontinue the computer classes as a result of social circumstances rather than technological issues. Dae-sik explained: "I had no choice but to drop out. . . . When I come after missing a few classes [because of work], they would all be ahead and I couldn't follow the class. . . . It's not because I'm not clever enough or that I don't know the importance.

This observation challenges other studies on the causes of dropping out, which have focused on reasons such as 'no longer owns a computer,' 'can use it elsewhere,' or 'cost, too expensive' (Rice and Katz 2003, 601). Instead, analysis of interview transcripts revealed broader and more complex reasons, such as not being able to take the opportunity because of their particular circumstances. Observation of how opportunity complements seniors' Internet interaction shows that simple provision of technology access, like the Internet learning programs at the Center, does not necessarily lead people to positively react to the Internet.

Understandings and skills

People's understandings and skills were another important element in facilitating seniors' Internet interactions. Although many senior users were enjoying their experiences of the Internet, their usage remained limited to some extent because of insufficient understanding and skills. For four women, who had missed formal education in earlier life because of historical and cultural reasons such as traditional paternalism, colonization, and war, the desire to learn had motivated them to repeat the computer classes to overcome their limited skills. Ok-jin stated that "Even though I don't understand it all, it's good to use the computer. . . . I just follow what we learn in class." In such cases, people's enthusiasm and interest outweighed their lack of experience and ability.

Six among fourteen nonusers gave reasons for their lack of knowledge and skills. Two participants' lack of basic literacy skills constrained their motivation for Internet use. For example, Yu-jung had found the opportunity through the center to improve her basic literacy, and Min-jung, who could not attend the center frequently, was still encountering a lack of basic skills while working as a cleaner. Both Yu-jung and Min-jung lacked education and had worked most of their lives as manual workers in factories and restaurant kitchens. Three other nonusers who believed that they lacked capability and knowledge confessed to occasional computer curiosity. For example, Ok-jung remarked vaguely, "Sometimes I peep in the computer room to see what they are doing. They seem to be having fun." She then quickly shifted her position and stated, "But no, it's too much for me, I can't learn it'. Ok-jung came from a rural background, had lived as a farmer, and moved to Seoul to live with her children in later life. Within her set of information complementarities, elements of personal interest and curiosity were not readily supported by her limited educational background.

These findings show that regardless of people's growing motivation, interests, or opportunities, complementarities of basic understanding and skills are required for Internet interaction. More importantly, Internet skills involved not only the skills that are assumed to be acquired through computer education, but extended to other basic knowledge and capabilities accumulated in the course of one's life.

Needs and motivations

Seniors' perceptions of needs and motivations were important complementary elements in their Internet interactions. This was clearly evidenced by two participants who had advanced computer skills, yet were failing to fully embrace Internet use. Kee-chan had attempted to learn the computer by himself at work 10 years ago and

was mastering the updated technology again at the center. He explained: "I don't have much motivation. . . . Even though I know how to use all those [Internet] services, there isn't much occasion for me to use [the Internet] in other ways." Similarly, Jung-chan, who had military experience, architect work experience, and no leisure or other social activities, boldly introduced himself: "I am the first person to use a computer in Korea." He had first used the computer in the 1950s, while serving in the United States army, and showed a significant difference from the majority of users in terms of his computer skills, knowledge, and experience. However, surprisingly, he admitted, "Even though I'm familiar with using the computer, I don't need it, and I'm not that interested. . . . I just come here to spend time in the computer room." These cases demonstrate that computer skills per se do not guarantee Internet interactions; other complementing elements such as personal needs, motivation, and usage environment must be also in place.

Beliefs and identity

More interestingly, people's beliefs and identity, which are commonly neglected in understanding the way people react to the Internet, appeared to be vital in influencing seniors' Internet interactions. Interview findings suggest that feelings of being alienated from society and even family were deeply rooted within 27 of the seniors. Nam-chul aptly described how seniors viewed themselves in society, and how such beliefs shaped their identity and what they wished to do:

> I cannot accept the changing world . . . and I'm not integrating well with the change either. I have my own values and my own way of doing things. It's hard for me to change. And then, there is no difficulty in my life because I have not changed, I'm already an old man in this world. . . . Why should I learn the computer when I haven't anything to use it for? No, I don't need it. And I don't have to just because everyone else does.

Nam-chul appeared to accept his position in society as a stereotyped older citizen with no particular role, who cannot integrate with the mainstream, and who finds difficulty in adapting to social change. Because of his strong self-perception, Nam-chul had difficulty getting motivated to acquire something as different as online capabilities. The finding further extends the composition of elements of people's information-using capabilities to include beliefs of the world.

Analyses of interview transcripts suggest that seniors' diverse Internet responses were not only related to technology-related issues such as computer provision, education, and skills. Rather, this diversity had more to do with the complex interplay of

other broad elements embedded in everyday life, such as opportunities, understanding and capabilities, interests, needs, motivation, and social identity. Different elements mattered in different ways to different people, according to on their information-using capabilities and life situation. In general, however, senior South Koreans at the Senior Welfare Center, who mainly had insufficient educational background, labour-intensive work experience, and were alienated from outside society in later life, did not have an appropriate mixture of information capital to fully interact with the Internet.

SENIORS' INTERNET USE AND SOCIAL MARGINALIZATION

As seen above, the comprehensive elements of information capital accumulated by senior South Koreans were ill suited to allow them to readily react to the Internet. This inadequate situation requires seniors to acquire new elements of capital and to rebuild their information-using capabilities. However, interview findings suggest that senior participants lacked incentives, seeing little gain and a costly change to their everyday life style, as they were often disengaged from or disadvantaged in the outside world. Thus, their restricted motivation and usage context did not allow their Internet experiences to open up new ways of managing their everyday lives. Further, their mindsets did not accept that the general benefits of Internet use were relevant to their needs. For example, Eun-chul insisted, "Of course, I know that it is good to use the Internet. But I don't feel the need to learn because what am I going to use it for when I am already so old?" Similarly, Soon-jung claimed that she had no need, justifying her choice to not learn the computer: "I know about the Internet, but why should I live such a complicated life [learning the Internet]? I'd rather enjoy and live comfortably." These examples demonstrate how senior South Koreans saw little gain in trying to take up the Internet and did not feel it was worth the effort to take part in online activities.

Limited incentives resulting from seniors' social isolation also influenced senior users' incomplete experiences of Internet use. For example, among eleven users, seven users' e-mail use was limited to correspondence with peers at the center, whereas only four users were exchanging e-mails with their children or friends. Only three users were searching the Internet to acquire information to facilitate their social life. Kee-chan, who had no particular social involvement or friendships after retirement, believed that "Even though I have the confidence and capability, I don't have any particular means to use the computer to do something, because our society doesn't provide opportunities for an old person like me." Similarly, Yu-jin explained her reasoning for not taking her Internet experiences:

> I can't get a job now because of my age, and society doesn't want to hire me. That's why I didn't want to pay any fees to learn the computer and chose the Centre where it's free. . . . It's good that I know and it's fun to use it. But then it's all right if I don't know. I have no trouble in my life even though I don't know the computer.

Interview findings suggest that although seniors were aware of the general useful-ness of the Internet, they disagreed on its relevance to their life circumstances. Thus, many seniors who were reluctant about Internet use saw little payoff from the exten-sive effort required to learn the Internet. The perception of "no need" was vital in restricting seniors' willingness to interact with online activities. Consequently, seniors' fundamental social marginalization in current society did not constitute a sufficient resource to complement people's information capital as a means of coping with the online social transition.

CONCLUSION

This paper challenges the prevalent technology-driven policies aimed at resolving the problem of the digital divide and changing the reactions of marginalized groups, such as seniors, to the Internet. The emphasis should be shifted from technology per se toward a broader context of people's information-using capabilities and needs within their life context. The difficulties seniors encounter with Internet use may be explained in terms of an inappropriate structure of information capital, as information capital requires various complementary elements—not only technology, but also people's understandings, interests, opportunities, inclination, capabilities, needs, and knowl-edge and beliefs of the world. These elements are inherited and developed over life-times. The lives of senior South Koreans, however, have not provided them with the information capital necessary for taking up the Internet. Such difficulties are exacer-bated by the present excluded social status of seniors, which fails to provide enough incentives for them to wish to change along with the online social culture.

Much of the empirical work, at all levels, commonly neglects this complicated constraint associated with information capital embedded in people's broad social con-text; it simply assumes that the digital divide relates to new technology alone. Many studies fail to consider that some people, such as seniors, who are disadvantaged in society will have insufficient stock of information capital to learn and participate in the new technology. In addition, policies fail to recognize that seniors may not share the assumptions of others regarding the value of the Internet and may lack incentives to take part. As a result, attempts to address the digital divide for seniors often focus on

simply providing Internet facilities and training programs. Such policies are misdirected. My study, in this respect, encourages digital divide initiatives to recognize that other complementary elements aside from Internet access must be carefully considered. That is, policies must shift the focus away from technology and toward more comprehensive approaches of dealing with the basic social needs of seniors.

Policies should take into account the multivariate concerns of seniors and seniors lack motivation to interact with the Internet. Attention will then shift toward the group concerned and how their socio-cultural backgrounds, present social circumstances, and needs shape their Internet interactions. Accordingly, policy actions must broaden their scope to integrate non-IT related assistance programs and consider empowering other complementary elements such as basic education, general social welfare services, economic activities, and overall seniors' social rights. These actions may include lifelong education, social assistance tailored to seniors' capacity, and social programs that encourage seniors' participation.

The suggestions outlined here challenge recent discussions of promoting e-government systems to enhance citizen participation in South Korea and other jurisdictions. According to my study, policymakers may be overly optimistic about the contribution of online systems to social inclusion and advancement for all citizens. This is because e-policies may be neglecting the needs of subgroups, such as the seniors in my study, who are not prepared to readily embrace these new service technologies. Arguably, e-government policies will crowd out other forms of participation and provision, and they may have a detrimental effect on marginalized people's social engagement and well-being. This implies a serious risk that these people will be further marginalized from the mainstream society. Nevertheless, my study bears some limitations related to small sampling and limited setting within a particular Senior Welfare Center. While in-depth investigation contributes to explicit the complexity and subjective aspects of a specific group, it cannot be generalized to other social segments encountering Internet difficulties. This, in turn, raises further research possibilities to apply the structural characteristics of information capital among other marginalized groups and their reality. Moreover, various indicators and measurements identified through the qualitative approach can be used in designing a quantitative study to systematically enhance understanding of the nature of the digital divide. Finally, the complexity of the digital divide problem that has been highlighted in this paper raises important issues of how to tackle the problems of seniors in contemporary society, including health care services. If e-health services are to reach seniors and be of benefit to them, it will be essential to broadly coordinate policies involving welfare agencies, education, regional and local development, financial assistance, and other social supports.

REFERENCES

Age Concern. 2007. Encouraging older people to use the Internet. http://www.cw.com/inc/scripts/print.jsp (accessed June 6, 2007).

Arrow, K. J., 1984. Information and economic behavior. In *The economics of information*. Vol. 4 of *Collected papers of Kenneth J. Arrow*, edited by K. J. Arrow. Oxford: Blackwell. (Orig. pub. 1973.)

Baetjer, H., Jr. 1998. *Software as capital: An economic perspective on software engineering*. Los Alamitos, CA.: IEEE Computer Society Press.

Barzilai-Nahon, K. 2006. Gaps and bits: Conceptualizing measurements for digital divide/s. *The Information Society* 22:269-78.

Bjornskov, C. 2006. The multiple facets of social capital. *European Journal of Political Economy* 22:22-40.

Bogdan, R., and S. J. Taylor. 1975. *Introduction to qualitative research methods: A phenomenological approach to the social sciences*. New York: Wiley-Interscience.

Bunsdorf, G. 2003. Processes of knowledge sharing: From cognitive psychology to economics. In *The Economics of Knowledge Sharing*, edited by E. Helmstadter. Cheltenham, U.K.: Edward Elgar.

Commission of the European Communities. 2007. Ageing well in the information society: Action plan on information and communication technologies and ageing. http://eur-lex.europa.eu/LexUriServ/site/en/com/2007/com2007_0332en01.pdf (accessed June 18, 2007).

Denzin, N. K., and Y. S. Lincoln. 2000. The discipline and practice of qualitative research. In *Handbook of qualitative research*, edited by N. K. Denzin and Y. S. Lincoln. California: Sage.

Di Gennaro, C. 2005. The Internet generation (abstract). http://conferences.aoir.org/viewpaper.php?id=157&print-1&cf=3 (accessed July 5, 2005).

Dutton, W. H., C. di Gennaro, and A. M. Hargrave. 2005. The Internet in Britain: The Oxford Internet Survey (OxIS). http://www.oii.ox.ac.uk/research/?rq=oxis/index (accessed June 21, 2005).

Haddon, L. 2000. Social exclusion and information and communication technologies. *New Media & Society* 2(4): 387-406.

Korean Information Network for the Prevention of Elder Abuse [KINPEA]. 2005. *Information on aged people*. [In Korean.] Seoul: KINPEA.

Korean Information and Referral Service Center on Aging [KISCA]. 2003. *A study of the factors that influence older adults' attitudes toward computers*. [In Korean.] Seoul: Songgok Academic Humanity Foundation.

Kling, R. 2000. Learning about information technologies and social change: The contribution of social informatics. *The Information Society* 16:217-32.

Korean National Statistical Office [KNSO]. 2006. *2006 statistics of aged population.* [In Korean.] Daejeon: KNSO.

Korea Press Foundation. 2007. *The aged and the media.* [In Korean.] Seoul: Korea Press Foundation.

Kovalchik, S., C. F. Camerer, D. M. Grether, C. R. Plott, and J. M. Allman. 2005. Aging and decision making: A comparison between neurologically healthy elderly and young individuals. *Journal of Economic Behavior & Organization* 58:79-94.

Lamberton, D. M. 1999. Information: Pieces, batches or flows? In *Economic organization and economics knowledge:Essays in honour of Brian Loasby*, vol. 1, edited by S. C. Dow and P. E. Earl. Cheltenham, U.K.: Edward Elgar.

Lievrouw, L. A. 2000. The information environment and universal service. *The Information Society* 16:155-59.

McCracken, G. 1988. *The long interview.* Vol. 13 of *Qualitative research methods series.* Newbury Park, CA: Sage Publications. ·

Menou, M. J., ed. 1993. *Measuring the impact of information and development.* Ottawa: International Development Research Centre.

Menou, M. J., and R. D. Taylor. 2006. A 'grand challenge': Measuring information societies. *The Information Society* 22:261-67.

National Computerization Agency [NCA]. 2000. Current state of digital divide and the information poor's needs and attitudes about Internet use. Report presented to the Ministry of Information and Communication (MIC).

Norris, P. 2001. *Digital divide: Civic engagement, information poverty, and the Internet worldwide.* Cambridge: Cambridge University Press.

Pruulmann-Vengerfeldt, P. 2006. Exploring social theory as a framework for social and cultural measurements of the information society. *The Information Society* 22:203-310.

Putnam, R. 2001. Social capital: Measurement and consequences. *Isuman* 2:41-51.

Rice, R., and J. Katz. 2003. Comparing Internet and mobile phone usage: Digital divide of usage, adoption and dropouts. *Telecommunications Policy* 27:597-624.

Rowles, G. D., and Reinharz, S. 1988. Qualitative gerontology: Themes and challenges. In *Qualitative gerontology*, edited by G. D. Rowles and S. Reinharz. New York: Springer.

Schumpeter, J. A. 1953. *History of economic analysis.* New York: Oxford University Press.

United Nations Population Division. 2007. World population prospects: The 2006

revision. http://www.un.org/esa/population/publications/wpp2006/wpp2006_ ageing.pdf (accessed April 1, 2007).

Warschauer, M. 2003. Dissecting the 'digital divide': A case study in Egypt. *The Information Society* 19:297-304.

Zuboff, S. 1988. *In the age of the smart machine: The future of work and power.* Philadelphia: Basic Books.