

7-29-2008

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Americans on the Internet: Utilitarian and Social Participation Perspectives

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Abstract

The Internet is a versatile technology that can be interpreted and used in many different ways. IS researchers and practitioners in both the private and public sectors need clearly to grasp the perspectives from which people make sense of the Internet. In this study, we present two contrasting perspectives in which people see and use the Internet—the utilitarian and social participation perspectives. In the utilitarian perspective, people see the Internet primarily as an efficient marketplace and as a convenient source of information. In the social participation perspective, the Internet is seen primarily as a conduit of communication that facilitates social interaction. We argue that these two perspectives represent two distinct modes of thinking that influence people's decision to use the Internet and the purposes for which they use it. We examine the pervasiveness of these two perspectives in a survey study of a demographically representative sample of approximately 20,000 U.S. households. Findings suggest that both the utilitarian and the social participation perspectives play important roles in acceptance and use of the Internet. In particular, we found that income levels affect the perspective in which people make sense of their on-line activities. People of high income tend to take the utilitarian perspective on Internet use, while others are more likely to use the Internet in the social participation perspective. For example, high-income users focus on taking advantage of the Internet's diverse information sources. On the other hand, low-income persons tend to use the Internet to participate in on-line social contexts and to make new friends. In this paper, we discuss research and practical significance of these findings.

Keywords: Sociology of computing, The Internet, Electronic commerce, U.S. Households, American culture.

Permanent URL: <http://sprouts.aisnet.org/1-16>

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Reference: Chung, W.Y., Henderson, J.C. (2001). "Americans on the Internet: Utilitarian and Social Participation Perspectives," Case Western Reserve University, USA. *Sprouts: Working Papers on Information Systems*, 1(16). <http://sprouts.aisnet.org/1-16>

Americans on the Internet: Utilitarian and Social Participation Perspectives

Introduction

The Internet is a versatile technology with deeply equivocal meanings for its users and the culture at large—people use the Internet for such diverse purposes as buying products and services, reading the latest news, and keeping in touch with family and friends. Many studies have provided insight into different ways in which people interpret and use the Internet (e.g. Bakos, 1997, 1998; Katz and Aspden, 1997a, 1997b; Kraut, Lundmark, Patterson, Kiesler, Mukopadhyay, and Scherlis, 1998; Hesse, Sproull, Kiesler, and Walsh, 1993; Rheingold, 1993; Sproull and Faraj, 1994; Turkle, 1995; Whinston, Stahl, and Choi, 1997). In particular, these studies suggest that there are two contrasting perspectives in which people see the Internet—a perspective focuses on economic benefits and efficiency gains; and the other perspective focuses on social aspects of the Internet. We refer to these two perspectives, respectively, as the *utilitarian* perspective and the *social participation* perspective. In the utilitarian perspective, people see the Internet primarily as an efficient marketplace and as a convenient source of information (Bakos, 1997, 1998; Kannan, Chang, and Whinston, 1998; Lohse and Spiller, 1998; Whinston et al 1997). Hence, in this perspective, the main assumption is that economic benefit and efficiency gains motivate people using the Internet. By contrast, other studies focus on social interaction among Internet users (Hesse, Sproull, Kiesler, and Walsh, 1993; Katz and Aspden, 1997a, 1997b; Sproull and Faraj, 1994; Turkle, 1995). These studies suggest that some people see the Internet as a “social” technology and use the Internet primarily to participate in on-line social contexts and to expand their social connections.

However, despite all this research, little systematic research has examined the relative importance of these two perspectives in the adoption and use of the Internet. Do ordinary people use the Internet primarily to gain access to the electronic marketplace and information databases? Or do they use the Internet primarily to maintain and expand their social connections? These questions are still left unanswered. Hence, in this study we consider the question of which of these two perspectives is more likely to govern the ordinary Internet user’s connection with and use of the Internet.

To answer this question, we canvassed a demographically representative sample of approximately 20,000 American households. From these households, 16,419 persons responded, of whom 5,443 are current Internet users or have used the Internet in the past. In this study we focus on these current and “past” users, examining which of these two perspectives governs use by ordinary people—specifically, those living in the U.S.—of the Internet.

In addition, we also investigate whether income levels affect the perspective in which people view and use the Internet. This is our second research question: Do people at different income levels view and use the Internet in different perspectives? As the costs of Internet access decline and public funding for Internet research, development, and education increases, people of relatively low income are now gaining access to the Internet. To accommodate the differing needs and preferences of customers at increasingly divergent income levels, business firms should know whether and how consumers at different income regard and use the Internet differently.

Important also are the implications of our research for public policy issues. Public policy decision makers must understand whether or not people at diverse income levels may see and use the Internet in different perspectives. Public policy makers and researchers are debating several policy issues regarding the Internet, including such questions as providing universal access, continuing the moratorium on Internet sales tax, and supporting the Internet in the classroom (Anderson, Bikson, Law, and Mitchell, 1995; Hesse et al 1998; Katz and Aspden, 1997a, 1997b). At the heart of these public initiatives stands not only the objective of facilitating economic prosperity, but also that of providing equal opportunities to the economically disadvantaged in order to reduce disparity. The Internet may or may not directly affect people's income. Nonetheless, differential use and consequent uneven distribution of benefits from the Internet may have important implications for public policies aimed at reducing disparities among people. If people at different income levels use the Internet to different extents and for different purposes, such differential usage may engender differential impacts—the Internet may potentially increase or decrease the gaps or disparities among these people. Hence, in study we examine whether or not people at different income levels see and use the Internet from different perspectives.

Conceptual Framework

In this study, we take view that the interpretations of ordinary Americans—whether these interpretations are about technologies or anything else—can be best understood in their own cultural contexts (Straub, Keil, and Brenner, 1997). One may refer to some people as Internet users and attempt to confine oneself to conceptualizing their on-line activities as purely economic acts in one form or another. However, these “users” are (regardless of how a researcher may label them) deeply embedded in the cultural context and their on-line activities unfold as part of their everyday lives. New technologies, new people, and new social situations comfortably fall into old categories or well-traveled paths in the individual mind—paths established through their life experience in the cultural context. The symbols, meanings, and mores that define American culture must be considered in order to understand how Americans interpret the Internet.

In this section we describe the utilitarian and social participation perspectives in the context of American culture. In particular, the seminal sociological study of Bellah and his colleagues (Bellah, Madsen, Sullivan, Swidler, and Tipton, 1985; 1992) provides extensive, “thick” descriptions of American culture and cultural themes. We describe the utilitarian and social participation perspective by demonstrating how these perspectives align with cultural themes in the U.S.

After defining the utilitarian and social participation perspectives, in this section, we also address our second research question. We discuss why people at different income levels may see and use the Internet in different perspectives.

The Utilitarian and Social Participation Perspectives. The utilitarian perspective is embedded in a cultural theme that Bellah et al (1985) call *utilitarian individualism*. Utilitarian individualism comprises the mode of thinking and diverse cultural practices associated with endeavors for pursuing self-interest and achieving “success” in its contemporary definition—the “American dream,” the “good life,” and making something of oneself through diligence and hard work. Bellah et al provide thick descriptions of utilitarian individualism in their seminal work. However, it would be impractical for us to provide the same rich description in this paper; we

describe some important characteristics of this cultural theme here, with a caution that such description is not meant to be a prescriptive classification scheme.

Utilitarian individualism primarily focuses on career and financial success. “Making it” in one’s career, improving one’s standard of living, and gaining respects of other through career and financial success, stand at the heart of utilitarian individualism. As well, utilitarian individualism represents the mode of thinking associated with people engaged in such endeavors in a competitive environment. Bellah and his colleagues point to Benjamin Franklin as an historical character whose life lessons and experiences resonate in the heart of Americans, promoting the spirit of utilitarian individualism. Franklin emphasized the importance of rising up in career and social ranks through frugality, efficiency, and diligence as he himself—at least, as Franklin is received in the popular American imagination—did through his life. Indeed, this form of individualism dominates the thematic cultural landscape of the United States. For instance, America is well known as the “land of freedom and opportunity,” where people exercise the rights of (to quote perhaps the single most familiar phrase from the Declaration of Independence) “life, liberty, and the pursuit of happiness,” taking advantage of abundant opportunities to “make it” and to lead a respectable, comfortable life.

We argue that the utilitarian perspective on Internet use has emerged in this cultural context. The following excerpt from an interview with an Internet user exemplifies how one Internet user sees the Internet in the utilitarian perspective:

I am really trying to find ways of where I can sort of have the machine do more work for me and I just log in and look at it as opposed to doing the search manually... I read all the weekly trade publications. But I found that having access to the information during the week on-line gives me little bit of jump on what I need to know at work.

The contrasting social participation perspective is embedded in *expressive individualism*. Expressive individualism centers on expression of the self and the willingness to participate actively in social contexts. Bellah et al (1985) argue that this cultural theme has emerged in direct reaction to utilitarian individualism. Indeed we argue that the contrast between these two forms of individualism can be best understood in their historical context. By the mid eighteenth century, Franklin’s virtues of utilitarian individualism dominated American culture. The individualistic endeavor of pursuing self-interest had begun to loosen the bond of human affection among people. In 1835, de Tocqueville described how this pervasiveness of utilitarian individualism influenced each member of society to “sever himself from the mass of his fellows, and to draw apart with his family and his friends; so that, after he has thus formed a little circle of his own, he willingly leaves society at large to itself” (de Tocqueville, 1935, page 193).

However, many Americans found it difficult to devote their whole life to the pursuit of self-interest advancement in the social ranks—it left little room for human feelings, for love of others, and for deeper expression of oneself in meaningful social context. As a reaction to this dominant utilitarianism, expressive individualism has emerged. In particular, Bellah et al (1985) present as an archetype of expressive individualism the life philosophy of Walt Whitman, who devoted his life to self-expression through poetry, without any financial security.

Among contemporary Americans, this conflict between utilitarian and expressive individualism still stands as a dilemma in making sense of their lives and their pursuit of happiness. Some are engrossed entirely in either utilitarian or expressive individualism, which

then serves as a primary mode of thinking in which they make sense of their everyday activities. Others struggle with finding an appropriate balance between these two worlds in their lives. However, undoubtedly expressive individualism is a cultural theme—as is utilitarian individualism—deeply rooted in the collective American psyche and in practical American life.

Expressive individualism represents a mode of thinking in diverse activities—the interaction with a small circle of friends and family that de Tocqueville referred to, the dedicated self-expression of Whitman, or active participation in communal settings, focusing on civic responsibilities or extending the bonds of human affection to others. Such a mode of thinking is also applied to use of the Internet. This is what we refer to as the social participation perspective. To illustrate, one informant said:

Because I am one of the few... relatively few published authors in the writer's board specifically, I get a certain amount of respect, but also I am kind of an old gunfighter. Young gunfighters have to come and challenge sometimes, is the way I feel. So I get undeserved respect in some cases. I also get a certain amount of undeserved slaps as a result. [Laughter.] It balances out. So I do feel like somebody in a leadership position, a likable old guy, old wise guy, whatever.

The theoretical significance of these two perspectives is twofold. First, depending on which of these two perspectives governs a company's vision and use of the Internet, a different set of management and IS design skills and frameworks may be applied to establish business strategies for electronic commerce. For instance, some researchers focus on improving efficiency of business operations by analyzing and reorganizing business processes (Davenport and Short, 1990; Gurbaxani and Whang, 1991; Hammer and Champy, 1993; Huber, 1991; Porter and Millar, 1985; Rockart, 1979). These studies focus on concepts and analysis techniques such as economies of scale, transaction costs, agency cost, value chain analysis, competitive market forces, and business process reengineering. This stream of research can enable companies to leverage Internet efficiencies to provide consumers with product, services, and information at lower costs and with more convenience (e.g. Kannan et al 1998; Bakos, 1997, 1998; Lohse and Spiller, 1998; Whinston et al 1997).

Other management studies focus on social aspects of organizational design, such as organizational legitimacy and image, identity and sense-making in organizational settings, and social process (Boland, 1984; Dutton, Dukerich, and Harquail, 1994; Glynn, 2000; Ibarra, 1999; Ibarra and Andrews, 1993; March and Olsen, 1989, 1995; Perrow, 1986; Tetlock, 2000). As well, many studies examine interactions between information systems and people (Constant, Sproull, and Kiesler, 1996; DeSanctis and Poole, 1994; Hesse et al 1993; Kling, 1980; Ngwenyama and Lee, 1997; Orlikowski, 2000; Orlikowski et al 1995; Sproull and Kiesler, 1991; Trevino, Webster, and Stein, 2000; Weisband, 1987). These studies focus on diverse social aspects of computing, such as how people interact via electronic communication and how the use of an information system affects existing social structures. This stream of research can help companies to serve customers who see and use the Internet within the social participation perspective. For example, Orlikowski et al (1995) provide a framework for designing an information system intended to facilitate emerging patterns of social interaction among people. In addition, Barley (1986), Sproull and Kiesler (1991), and Constant et al (1996) describe how existing social structure and relationships may be affected by the introduction of a new

information system. Such studies can help companies facilitate social interaction among customers, or between customer and company, using the Internet.

Second, examining whether the utilitarian or social participation perspectives governs ordinary Americans' Internet use can provide important information about how the Internet will affect the society at large. Undoubtedly, utilitarian individualism—in particular, the mode of thinking that fuels the spirited competition of late capitalism in America—has contributed to economic growth and prosperity. On the other hand, many sociologists and management scholars argue that such vigorous expansion of utilitarianism—what Durkheim called a “sea of cold calculation” where everyone “seeks to obtain what he needs at the least expense; that is to say to acquire as many rights as possible in exchange for the smallest possible obligations”—caused apathy, alienation, and helplessness among people and it weakened solidarity and cohesiveness (Aktouf, 1992; Alvesson and Willmott, 1992a, 1992b; Durkheim, 1933; Giddens, 1991; Ollman, 1971; Putnam, 2000; Weber, 1930). In addition, epidemiological studies show that such erosion in social support structure—along with eroding the will to extend affection to others—significantly contributes to public health problems such as increasing mortality, stress, and heart attacks (Cohen and Wills, 1985; Egolf, Lasker, Wolf, and Potvin, 1992; House, Landis and Umberson, 1988; Kawachi and Kennedy, 1997; Kawachi, Kennedy, Lochner, and Porthrow-Smith, 1997). In light of the benefits and negative consequences of pervasive utilitarianism, how the Internet will affect the society at large is an important question both theoretically and in the development of electronic commerce practices.

Effects of Income Levels. Many management researchers and practitioners suggest that technologies such as the Internet are, in general, value-neutral—that they are designed without any predisposition to benefit or to disadvantage any specific groups, such as rich and poor. Indeed, the telephone, the automobile, and motion pictures are all technologies now used by everyone (Aronson, 1977; Lynd, 1929). One can argue that the Internet is no exception. In particular, on the Internet, any user can access on-line vendors and purchase products and services. Also, many content providers on the Internet deliver information at practically no cost beyond the time it takes for a user to view sponsors' advertising. In addition, the Internet furnishes egalitarian settings for meeting new people and maintaining social relations. Social interaction on the Internet is primarily accomplished through written communication modes such as electronic mail, electronic bulletin boards, and chat rooms. These written communications largely lack the social-contextual cues that signal the individual's social status (Sproull and Kiesler, 1986, 1991). Hence, with rapidly declining costs of Internet access, the contention is that every Internet user has an equal chance to take advantage of what the Internet offers. For these reasons, one may argue that income levels may not influence how much an individual will use the Internet.

However, a more controversial possibility is that people of differing incomes may use the Internet at different levels or different purposes. It is true that as the cost of new technologies decline, these technologies become readily available to ever larger segments of population. Indeed, many people may choose to use these technologies to some extent, as demonstrated by the wide acceptance of telephones, automobiles, and other technologies. However, such wide-scale acceptance does not indicate that everyone will use these technologies at the same level nor that everyone will use these technologies for the same purpose. Indeed, in the past, technologies have often unintentionally engendered differential impacts on their users—one group of people using and benefiting from the technology more than others (Chandler, 1977; Hesse et al 1993;

Sproull and Kiesler, 1991). For example, Hesse et al (1993) studied the impact of network communication technology on oceanographers. They found that “peripheral” oceanographers—those having less convenient access to research resources—benefited more from network communication technology than did their more “central” colleagues—those having convenient access. In this case, the technology in question actually benefited the disadvantaged “peripheral” group more than the relatively advantaged “central” group.

In the following, we first describe why people at different income levels are more likely to see the Internet in the utilitarian perspective. Next, we describe why people at different income levels are more likely to see the Internet in the social participation perspective.

First, one may argue that the financially well off view and use the Internet in the utilitarian perspective more than do the less affluent. This differential usage might amplify the gap between rich and poor—“the rich-get-richer.” There are a few reasons why the more affluent may actually use the Internet in the utilitarian perspective more than do others. Many studies have concluded that the financially advantaged are more likely to adopt and take advantage of a new technology (Roger, 1983). In addition, the affluent have more buying power—more money to spend on information, products, and services. Hence, they may spend more time and more money in Internet’s electronic marketplace. Also, the fact that an individual earns high income may indicate an inclination toward utilitarian individualism. In so far as the Internet affords economic benefits such as efficiency gains, low cost, and convenience, it is most likely to attract those who have the skills and desire to pursue these economic benefits. For these reasons, the financially well off may use the Internet in the utilitarian perspective more than do the less affluent.

On the other hand, there are also reasons why people with lower income may, more than others, use the Internet in the utilitarian perspective. In this scenario, by providing more economic benefits to the financially less well off, the Internet may end up reducing economic disparity between rich and poor. Received wisdom suggests that people who already have a great deal derive less satisfaction from getting more of the same. Terms such as *ceiling effect* and *decreasing marginal rate of return* describe this phenomenon (Hesse et al 1993; Sproull and Kiesler, 1991). The well-off are more likely already to have convenient access to information, products, and services. A new alternate marketplace may not provide sufficient incentive for them to participate. For example, affluent towns and neighborhoods generally have better libraries and shops than do less wealthy communities. Magazines, newspapers, and other media boast of having wealthy readerships or audiences. On the other hand, in many rural and poor communities, libraries, shops, and even vital medical services may not be easily accessible or may involve the additional cost and inconvenience of travel to another town. Moreover, persons of limited financial wherewithal are more likely to be price-sensitive. Competitive pricing in the Internet may attract more price-conscious low-income Internet consumers. For these reasons, it may be that people of lower income see and use the Internet in the utilitarian perspective.

Second, there are also reasons why we may find differential Internet usage in the dimension of social participation. People have finite time and attention. They allocate their limited time and attention to the pursuits of financial success and social participation. Several studies suggest that these two pursuits often conflict with one another (Bellah et al 1985, 1992; Giddens, 1991; McClelland and Boyatzis, 1982; Myers, 1992; Putnam, 2000). Indeed, it is not difficult to find situations where financial success demands personal sacrifice. In particular, in many work settings where productivity is a primary concern, the pursuit of career success may take a toll on social relations with friends, family, and coworkers. All this suggests that those

who are financially well off are less socially inclined and more likely to accept the common trade-off between financial success and social participation. In addition, the more affluent often interact with one another in exclusive settings such as private clubs, expensive restaurants, and first-class seating on airplanes. Diverse financial and social barriers of these exclusive settings demarcate the social status of the affluent.

Hence one may argue that the financially less advantaged may use the Internet to participate in social contexts more do their wealthier counterparts. They are more socially inclined—less willing to trade off financial success against social participation. In addition, the egalitarian social environment of the Internet may motivate lower-income groups to use the Internet for social participation more than it may so motivate the wealthy. For these reasons, people who earn a lower income might be more inclined to use the Internet in the social participation perspective than are those who make a higher income.

On the other hand, the “ceiling effect” or decreasing marginal rate of return which we discussed earlier may also apply to social participation. The financially weaker are more likely to have many enduring social relationships than are the well off. They participate in egalitarian social contexts more than do those of higher income. In particular, the well off—who may have foregone social participation for the sake of financial or career success—may find the Internet an efficient means of social participation. Hence for these reasons, the well off may use the Internet for social participation purpose more than do those of lower income.

We can summarize all these possibilities in two contrasting predictions about how a technology such as the Internet may affect the users. First, the Internet may have an amplifying effect on the users’ disposition and behaviors. For example, people deeply immersed in the pursuit of career and financial success may see the Internet as a tool for gaining a competitive advantage in their pursuit. The socially inclined—as we argued, those who earn a relatively low income—may see the Internet as a conduit of communication affording them more opportunities to expand their social connections. In this scenario, the gap—economic or otherwise—will increase with wide-scale acceptance of the Internet.

On the other hand, the Internet may instead have equalizing effect. Internet technology may draw people’s attention to a new and different aspect of their lives, rather than reinforcing their existing predispositions. Those of high income may find appeal in opportunities for social participation on the Internet. The Internet may focus the attention of lower-income people toward the pursuit of career and financial success and the good life. In this case, the gap among people of different income levels will decrease.

In this study we examine the usage and interpretation of the Internet among people in different income groups to determine which of these two possible scenarios best describes reality.

Method

Data Collection. In the fall of 1996, we surveyed the A.C. Nielsen Consumer Panel—a list of households randomly selected and recruited by the A.C. Nielsen company to track consumer behaviors. These households represent all major demographic segments of the U.S. population as to gender, age, marital status, income level, racial category, and geographic location. Each household is equipped with a hand-held scanner which can scan and store the universal product codes (UPCs) printed on most packaged consumer goods. Household members of the consumer panel use the device to scan every product they purchase. Once a week, they call

designated phone numbers at A.C. Nielsen and transmit the UPC codes stored in the device. The scanner can also be used to collect questionnaire data, since it is equipped with a feature for storing and transmitting question responses. All possible responses on the questionnaires are indicated with bar codes. When respondents scan a response on the questionnaire, the unit stores the response; then transmits responses to A.C. Nielsen, along with product purchase data, during a routine weekly data transmission.

Sample. Our questionnaires were mailed to 19,968 households in the consumer panel. To maximize the number of current Internet users in our sample, these households were asked to have the questionnaire completed by the household member who most often used the Internet. If there were no Internet user in the household, we asked that the questionnaire be completed by the one person (if any) who had used the Internet most in the past. Finally, where there was no current or past Internet user, we asked the head of the household to complete the questionnaire. Over a period of six weeks, we received a total of 16,419 responses from the consumer panel—a response rate of 82.2 percent. Using 1996 U.S. Census projections for comparison, we noted the households in our sample closely matched the socioeconomic patterns of the U.S. population on key variables such as income, age, and household types, with the single exception of ethnic minorities, which are somewhat under-represented in our study (see table 1). In our sample, 4,360 responses were from current Internet users, representing 23.3 percent of the total number of respondents. Another 2,183 responses were from persons who had used the Internet in the past, but had discontinued using it. These responses comprise 11.7 percent of the total. Hence, a total of 6,543 responses (39.9 percent of our sample) were from those who are either current or past Internet users. In this paper, we will focus on adults—heads of households, in particular, either male or female—who self-identify as current Internet users (3,665 responses) or past Internet users (1,778 responses). This selection criterion excludes any responses from under-age dependents. Hence our study sample and findings are generalizable to the adult U.S. population. To ensure that this study sample selection process introduced no systematic bias as to income distribution as it relates to responses by children versus adults, we compared households in which the household head responded with those in which a dependent responded. We found no significant difference in income between these two groups of households.

Measures. We included in the questionnaire five measures to assess why people use the Internet. Two measures—Utilitarian Benefits and Information Sources—are used to assess the extent to which a respondent uses the Internet in the utilitarian perspective. Three measures—Social Pressure, Social Interaction and Social Relations—represent the extent to which a respondent uses the Internet to participate in diverse social interactions. These measures were developed and validated in a study of on-line services (Chung, 1998). However, we note that in this study, relatively coarse scales—for example, three-point scales rather than five- or seven-point scales—and a fewer number of questionnaire items were used for these measures. In order to send out a large number of questionnaires and to ensure a high response rate, we needed to shorten our questionnaire. We will here describe these measures in detail.

The Utilitarian Benefits measure represents the extent to which a respondent believes that the Internet is useful for collecting information and buy products and services. This measure comprises three questionnaire items. Respondents were asked to indicate the extent to which the Internet is useful for three purposes such as “to collect information about products and services.” A three-point scale, 1 indicating “not at all useful” and 3 indicating “very useful,” was used for these items. The Cronbach reliability of this measure is .70.

	1996 Census Projection ¹	Our Sample
All households	98.9 Million	16,419
Family households ²	69.9%	74.4%
Married Couples	54.5%	61.7%
Other Family	15.4%	12.7%
Non-family households	30.1%	25.6%
Householder Age		
Under 35	23.5%	14.6%
35 to 44	23.5%	28.6%
45 to 54	18.7%	21.8%
55 and over	34.3%	35.0%
Householder Education		
Not high school grad	12.5%	6.4%
High school grad	32.7%	27.7%
Some college	21.4%	30.6%
College grad	25.1%	24.5%
Post college	8.3%	10.8%
Race		
White	85.0%	89.9%
Black	11.5%	6.3%
Asian	2.8%	1.5%
Others	0.7%	2.3%
Average number of persons		
Per household	2.61	2.55
Per family	3.14	3.04
Median household income ³	\$35,172	\$35,000- \$39,999

Table 1. Comparison between Our Sample and Census Projection

The Information Sources measure is an indicator of the number of new information sources to which a respondent has gained access via the Internet. In particular, the World-Wide Web comprises an enormous number of websites providing information to Internet users, and we focus on use of these web-based information sources. The Information Sources measure comprises three questionnaire items. First, we asked respondents to indicate whether or not they use the web. Those who do not use the web at all were coded ‘1.’ Next, we listed in the

¹ All Census projections are from Current Population Report P25-1129 (Bureau of Census), except education and income information. Education information is based on P20-493U. Income information is based on P60-191.

² Family is defined as a household with at least two people who are related by blood or marriage.

³ Our income was measured using a range scale.

questionnaire a set of popular informational websites such as CNN and PathFinder. We asked respondents to indicate which of these sites they use the most. We listed another set of popular search engines such as Yahoo and Lycos, asking respondents to indicate which of these sites they use the most. Those indicating they used either the informational sites or the search engines, but not both, are coded '2' for the Informational Sources measure. Those using both informational sites and search engines are coded '3.'

The Social Pressure measure represents the extent to which respondents believe that their family, friends, and coworkers want them to use the Internet. This embraces two questionnaire items—“My family and friends think that I should use the Internet” and “My coworkers think that I should use the Internet.” We asked respondents to indicate the extent to which they agreed or disagreed with these statements on a five-point scale, '1' indicating *strongly disagree* and '5' indicating *strongly agree*. This score was transformed to range from 1 to 3, making it easier to compare this measure with other measures ranging 1 to 3. The reliability of this measure is .71.

The Social Interaction measure represents the extent to which a respondent believes the Internet useful for interacting with others. This measure comprises four questionnaire items, including “to communicate with family members and friends” and “to meet new people and expand contacts.” Respondents were asked to indicate the extent to which they believe the Internet useful for these purposes. A three-point scale ('1' indicating *not at all useful* and '3' indicating *very useful*) was used for these questionnaire items. The Cronbach reliability of this measure is .67.

The Social Relations measure represents the extent to which a respondent participates in diverse social contexts on-line and in expanded social contacts. First we asked respondents whether they participate in on-line forums such as electronic bulletin boards, electronic mail distribution lists, and chat rooms. Those not using any of these features are coded '1' for this measure. Then we asked the number of friends whom respondents met on-line. Those who use these electronic forums but reported they had not met any friends are coded '2.' Those who met friends on-line are coded '3.'

We note that the Utilitarian Benefits measure contrasts with the Social Interaction measure. Both measures focus on respondents' perceptions of the Internet's usefulness—their interpretation of what the Internet is intended for. These two measures represent two different purposes for which the Internet can be useful. In addition, the Information Sources measure also contrasts with the Social Relations measure. The Information Sources measure focuses on the content providers on the web, while the Social Relations measure concerns people and social relations on the web. These two measures represent behavioral realizations of the utilitarian and social participation perspectives, respectively.

In addition, we asked respondents about the extent of their Internet use. First, we asked respondents whether or not they currently use the Internet. This *current user* measure divides our sample into current users (coded '1') and past users (coded '0.'). We also asked current users how much they use the Internet. This Overall Usage measure comprises two items. First, we asked how frequently a respondent used the Internet. A four-point scale measured the frequency of Internet use ('1'—less than monthly, '2'—monthly, '3'—weekly, '4'—daily). Second, we asked how long a respondent's average session on the Internet lasts. A four-point scale was used for this item ('1'—30 minutes or less, '2'—31 to 60 minutes, '3'—more than 1 hour but less than 3 hours, '4'—more than 3 hours). Standardized values for these two items were multiplied to compute a composite measure of overall Internet usage.

We needed no demographic questions in our questionnaire; A.C. Nielsen has already collected and maintained quite thorough demographic information on these households. Income, education, age, and gender are extracted from these data. Income is the only demographic variable we focused on. However, education, age, and gender are known to affect computer use in general; we included these in our analyses as control variables. Table 2 shows the descriptive statistics for all these measures and table 3 shows the correlations among all measures.

Measures	Average	Standard Deviation	Range	N
Utilitarian Benefits	2.28	.49	1-3	5443
Information Sources	2.53	.72	1-3	3665
Social Pressure	2.20	.44	1-3	5443
Social Interaction	1.97	.55	1-3	5443
Social Relations	1.97	.86	1-3	3665
Income	46.21	22.47	3-100	5443
Education	1.63	.95	0-3	5443
Female	.49	.50	0/1	5443
Age	44.34	11.70	21-96	5443
Current User	.67	.47	0/1	5443
Frequency of Use	3.31	.73	1-4	3665
Average Session Length	1.88	.87	1-4	3665

Table 2: Descriptive Statistics

	1	2	3	4	5	6	7	8	9	10
1 Utilitarian Benefits										
2 Information Sources	.226***									
3 Social Pressure	.307***	.153***								
4 Social Interaction	.492***	.118***	.352***							
5 Social Relations	.221***	.163***	.179***	.378***						
6 Income	.035**	.105***	.082***	-.032*	-.055**					
7 Education	.008	.113***	.121***	.018*	-.039*	.291***				
8 Female	-.071***	-.178***	-.069***	.005	-.070***	-.145***	-.109***			
9 Age	-.172***	-.177***	-.057***	-.132***	-.100***	-.026***	-.068***	-.044**		
10 Current User	.158***	---	.226***	.139***	---	.178***	.143***	-.186***	-.034*	
11 Current Usage	.246***	.247***	.214***	.289***	.342***	-.040*	-.023	-.123***	-.066***	--

* p<.05; ** p<.01; *** p<.001 N=5,443, except correlations that include variables 2, 5, and 11. These variables are measured only for current users (N=3,665).

Table 3. Correlations among Variables

Findings

We present our findings in two parts. First, we focus on why some people have continued to use the Internet while others have dropped out. We examine whether or not the utilitarian and social participation perspectives influence people either to continue or to discontinue Internet use. Findings from these analyses are reported in tables 4 and 5. These analyses are based on the sample of both current and past Internet users, contrasting how these two groups of people differ in their perspectives in which they see the Internet ($N = 5,443$). In particular, we examine how income levels affect directly and indirectly the utilitarian perspective measures, the social participation perspective measures, and continued Internet use.

Second, we focus on why *current users* use the Internet. Findings of these analyses are presented in tables 6, 7, and 8. These analyses use the sample of the current users only, examining the predictors of the Internet usage ($N = 3,665$). In these analyses, we also examine how differences in income affect the perspective in which people use the Internet and the extent of their usage.

Why do people continue to use the Internet? Table 4 shows how income is associated with the decision to continue to use the Internet, with the utilitarian and social participation perspective measures. The sample, representing both current and past users, is divided into four income groups. In table 4, we examine differences among people in these different income groups.

The first row of the data, labeled Internet Retention Rate, shows the percentage of people in different income groups who continue to use the Internet. The rate of retention is greatest within the highest-income group and consistently declines with income level. Among those enjoying household incomes of \$70,000 or more, 78.04 percent of people who have tried the Internet continue to use it, while this percentage of retention declines to 56.25 percent among the lowest-income group, the group reporting household incomes less than \$35,000. This difference in the retention rate is statistically significant (p -value $< .001$). This finding suggests that, even if declining costs and the support of public funding may enable the people with lower income to gain access to the Internet, they are much less likely to stay on the Internet than are those of higher income.

In table 4, the remaining three rows of numbers are the averages of Utilitarian Benefits, Social Pressure, and Social Interaction. We did not ask past users about Information Sources and Social Relations—these items are relevant only to current users. Hence this table excludes the Information Sources and Social Relations measures. The differences of Utilitarian Benefits, Social Pressure, and Social Interaction among these income groups are statistically significant ($p < .01$, $p < .001$, $p < .05$, respectively). The Utilitarian Benefits measure represents the extent to which an individual believes the Internet useful for collecting and buying information, products and services. Table 4 shows a positive association between income and Utilitarian Benefits. Those who earn a high income are likely to see the Internet in the utilitarian perspective. An exception is that the average for the highest income group is actually slightly lower than for the second highest income group. The results further demonstrate that the relation between income and Social Pressure is also positive. Those of higher income experience more social pressure to use the Internet. However, the relation between income and the Social Interaction measure—the extent to which an individual believes the Internet useful for communicating with others,

Variables	Income				F-Ratio
	<\$35,000 (30.4%)	>=\$35,000 <\$50,000 (23.8%)	>=\$50,000 <\$70,000 (24.5%)	>=\$70,000 (21.3%)	
Internet Retention Rate	56.25%	66.67%	72.46%	78.04%	58.222***
<u>Utilitarian Perspective</u>					
Utilitarian Benefits	2.246	2.282	2.312	2.286	4.628**
<u>Social Participation Perspective</u>					
Social Pressure	2.165	2.196	2.214	2.254	9.795***
Social Interaction	1.996	1.979	1.948	1.947	2.746*
N	1657	1296	1336	1154	5443

* p<.05; ** p<.01; *** p<.001 (one-way ANOVA; all numbers are mean values except the f-ratios) N=5,443, including 3,665 current users and 1,778 past users

Table 4. Influences of Income Level on Continued Use of the Internet

maintaining and for expanding social relationships—is negative. Lower-income people perceive the Internet more useful for social interaction.

Table 5 shows the results of two logistic regressions. These regressions test which of the independent variables predict continued use of the Internet (the Internet retention). The dependent variable of these logistic regressions is the Current Users measure, whose value is ‘1’ for the current Internet users and ‘0’ for past users. The first logistic regression, model 1, includes demographic variables only. The second regression, model 2, includes the demographic variables and measures for both the utilitarian and the social participation perspective. The numbers in the table are the standardized R-coefficients indicating the relative strength of association between these independent variables and the Current Users measure.

Table 5 shows that income is a strong predictor of the Internet retention (R-coefficient =.111*** and .108*** in models 1 and 2). In the previous analysis shown in table 4, we demonstrated that the income is strongly associated with Internet Retention. The logistic regression in table 5 also demonstrates that, even after controlling for the effects of other measures, income exhibits direct and statistically significant effects on Internet Retention. This indicates that persons of higher income are more likely to continue to use the Internet than are those of lower income.

Table 5 shows also that Social Pressure is a strong predictor of Internet Retention. The R-coefficient for the Social Pressure measure in model 2 is .133 (p < .001). Those in social situations where they are pressured to use the Internet are most likely to continue using the Internet. This demonstrates that income affects Internet retention indirectly. Table 4 shows that greater income increases social pressure to use the Internet. Model 2 in table 5 shows that Social Pressure, in turn, increases the Internet Retention—the indirect effect of income via social pressure. Those who have high incomes are more likely to continue to use the Internet after an

initial trial and, in part, this decision to continue to use the Internet can be attributed to the fact that they are embedded in social contexts encouraging Internet use.

We note in addition that gender is the strongest predictor of Internet Retention. The R-coefficients are -.140 and -.131 in models 1 and 2, respectively—the highest among all R-coefficients. This indicates that females are more likely to drop out from the Internet than are males. We also found that education increases the chance of continuing Internet use. However, the R-coefficient for this measure is smaller than those for the gender measure (R-coefficient = .071 in model 1 and .060 in model 2).

Independent Variables	Models	
	Dependent Variable=Continued Usage	
	1=current users 0=past users	
	Model 1 Demographic Variables Only	Model 2 Utilitarian + Social Participation
<u>Utilitarian Perspective</u>		
Utilitarian Benefits		.049***
<u>Social Participation Perspective</u>		
Social Pressure		.133***
Social Interaction		.039***
<u>Demographics</u>		
Income	.111***	.108***
Education	.071***	.060***
Female	-.140***	-.131***
Age	-.020*	.000
Chi-Square	370.69	649.79
p-value	.000	.000
Degrees of Freedom	4	7

p<.05; ** p<.01; *** p<.001 (Logistic Regression: Numbers are R-coefficients except those indicated otherwise) N=5,443, including 3,665 current users and 1,778 past users

Table 5. Explaining Continued Usage of the Internet

Why do some Internet users use the Internet more than others? Table 6 shows the extent to which people at different income levels use the Internet and why they use the Internet. The sample of current users is divided into four income groups. In table 6, we show the average values of the utilitarian and social participation perspective measures, and the Internet Usage measure for each income group. In addition, the table includes results of statistical tests of the difference among these values.

First, in table 6, we note that users’ income levels do not affect the frequency of Internet use. The first row in the table gives the average values of the frequency of Internet use in each

income group. The frequency is coded ‘1’ for less than monthly use, ‘2’ for monthly, ‘3’ for weekly use, and ‘4’ for daily. Differences among these values, tested using the one-way ANOVA test, are not statistically significant. However, the table does demonstrate that income levels significantly affect how long current users access the Internet during each session. The second row in table 6 shows the average values of the session length in each income group. These values are coded ‘1’ for 30 minutes or less, ‘2’ for 31 to 60 minutes, ‘3’ for more than 1 hour but less than 3 hours, and ‘4’ for 3 hours or more. The differences among these average values are statistically significant ($p < .05$). Two high-income groups, the \$50,000-to-\$70,000 group and the group earning \$70,000 or more, show shorter average session lengths than do the other two groups. This indicates that current Internet users who have higher income use the Internet for a shorter time per session than do those of lower income.

Variables	Income				F-Ratio
	<\$35,000 (25.4%)	>=\$35,000 <\$50,000 (23.6%)	>=\$50,000 <\$70,000 (26.4%)	>=\$70,000 (24.6%)	
<u>Internet Usage</u>					
Frequency of Use	3.314	3.289	3.321	3.326	.439
Average Session Length	1.917	1.928	1.832	1.856	2.674*
<u>Utilitarian Perspective</u>					
Utilitarian Benefits	2.317	2.341	2.352	2.324	1.025
Information Sources	2.425	2.510	2.556	2.622	12.113***
<u>Social Participation Perspective</u>					
Social Pressure	2.260	2.274	2.254	2.304	2.523
Social Interaction	2.079	2.044	1.990	1.980	7.008***
Social Relations	2.022	2.008	1.946	1.902	3.766*
N	932	864	968	901	3665

* $p < .05$; ** $p < .01$; *** $p < .001$ (one-way ANOVA; all numbers are mean values except the f-ratios) N=3,665, current Internet users only

Table 6. Influences of Income Level on Motives for Internet Use

Table 6 also demonstrates that income levels affect the utilitarian and social participation perspective measures. In particular, the Information Sources measure—the extent to which a respondent has gained access to new information sources on the web—increases as income rises. This difference among income groups is statistically significant ($p < .001$). Internet users of higher income use web-based information sources more than do lower-income users. This finding supports the validity of the “amplification” scenario presented earlier. The financially well off, who are more likely to have convenient access to the information, are using the Internet to gain access to more information, widening the gap between rich and poor.

On the other hand, we found that income is negatively associated with the Social Interaction and Social Relations measures. The Social Interaction measure represents the extent to which a respondent believes the Internet useful for communicating with others and for making new friends. The Social Relations measure represents the extent to which a respondent uses the Internet to participate in on-line social contexts and make new friends. The results in table 6 show that the Social Interaction measure is lower for those of higher income ($p < .001$). Lower-income Internet users are more likely to find the Internet useful for social participation. In addition, the Social Relation measure is also less for those of higher income. This indicates that lower-income Internet users are more likely to participate in diverse on-line social contexts such as electronic forums and chat rooms. Consequently, they report making more friends and acquaintances on-line than do higher-income Internet users. This finding also supports the amplification scenario we presented earlier. In this case, however, lower-income users are exercising their Internet access more than their higher-income counterparts.

In summary, the results presented in table 6 suggest that the Internet tends to amplify the gap between rich and poor. The financially better off, who have convenient access to information, use the Internet to get more information, while the less affluent, who are more likely to be embedded in egalitarian social contexts, use the Internet to participate in on-line social interactions and to maintain social relationships.

Table 7 shows a series of five regression analyses that examine how strongly the utilitarian and social participation perspective measures and demographic measures are associated with the overall Internet use. The dependent variables for these regressions are the overall Internet Usage—a composite measure of frequency of the Internet use and the average session length. Numbers shown on the table are beta coefficients indicating the relative strengths of associations between these “predictor” measures and overall usage. Model 1 includes only demographic measures, including income. This regression result demonstrates that the demographic variables are not good predictors of overall Internet use. The adjusted r^2 of this model is .023, indicating that all the demographic variables combined explain only 2.3% of the variation in overall Internet use. In addition, the demographic variables are included in all models in table 7. The beta coefficients for these demographic variables are also relatively small in all models, and most are not consistently significant. Gender is an exception. Beta coefficients for gender are relatively small, but are the largest among all the demographic variables. They are consistently significant in all models. This suggests that, though the difference is small, a male Internet user is, all other things being equal, likely to use the Internet more than a female Internet user. However, with this exception to gender effect, all these models—model 1, in particular—suggest that, among those who use the Internet, the members of one demographic group tend to use the Internet about as much as members of other demographic groups. In particular, we note that income levels do not have any substantial impact on the overall usage. We reported earlier that higher-income Internet users are more likely to continue their use of the Internet (tables 4 and 5). However, among current users, this income effect does not exist. Indeed, the beta coefficient for the income variable is $-.049$ in model 1 ($p < .01$). This indicates that lower-income users are more likely to use the Internet more than are high-income users, but not by a substantial margin.

Models 2, 3, and 4 focus whether or not the utilitarian and social participation perspective measures explain overall Internet usage. Models 2 and 3 test separately the effects of the utilitarian and social participation perspectives—model 2 includes the utilitarian perspective

measures, but not the social participation perspective measures, and model 3 the reverse. Both models explain the intended usage fairly well (adjusted $r^2 = 10.9\%$, 17.1% , respectively).

In addition, we combine these two sets of measures into an equation in model 4. This combined model contrasts the relative strengths of these measures. Model 4 also demonstrates that both the Marketplace and the Social Participation measures are significant predictors of intended usage (adjusted $r^2 = 20.1\%$). In general, the social participation perspective is a somewhat better predictor of overall usage than is the utilitarian perspective measure. Model 3, the social participation model, explains more variation in the overall usage than model 2, the utilitarianism model. In addition, the Social Relations measure proves the most significant predictor of Internet use in model 4, the combined model.

Independent Variables	Models				
	Dependent Variable=Internet Usage				
	Model 1 Demo. Variables	Model 2 Utilitarian	Model 3 Social Participatio n	Model 4 Combined Model	Model 5 Moderators
<u>Utilitarian Perspective</u>					
Utilitarian Benefits		.195***		.079***	.079***
Information Sources		.198***		.160***	.160***
<u>Social Participation Perspective</u>					
Social Pressure			.118***	.092***	.092***
Social Interaction			.154***	.121***	.121***
Social Relations			.251***	.229***	.379***
<u>Demographics</u>					
Income	-.049**	-.062***	-.026	-.040*	.110
Education	-.024	-.033*	-.031*	-.038*	-.038*
Female	-.134***	-.084***	-.113***	-.081***	-.081***
Age	-.072***	-.001	-.020	.015	.016
<u>Moderators</u>					
Income x Social Relations					-.209*
F-Ratio	22.31***	75.71***	108.95***	103.56***	94.00***
Adjusted R-Square	.023	.109	.171	.201	.202
Degrees of Freedom	3660	3658	3657	3655	3654

* $p < .05$; ** $p < .01$; *** $p < .001$ (Regression Analysis; all numbers are beta-coefficients except those indicated otherwise)

Table 7. Predictors of Internet Usage

Model 5 examines whether or not income levels affect the extent to which the utilitarian and social participation perspectives measures relate to overall Internet use: Are the utilitarian or social participation perspective measures more strongly associated with overall usage in any one income group than in others? To test these moderating effects, we first analyzed an equation that included all five moderator variables for the utilitarian and social participation measures (income x Utilitarian Benefits, income x Information Sources, etc.). We found that the interaction between income and Social Relations was significant. In model 5, we included this significant moderator along with all measures in a combined model. The beta-coefficient for the Social Relations measure is much higher in model 5 than in model 4 (.229 and .379, respectively). The beta coefficient for the moderator, income x Social Relations, is -.209 ($p < .05$). This suggests that low-income Internet users spend more time on-line to maintain social relations than do higher-income Internet users. In table 6, we report that low-income Internet users are more likely to participate in on-line social contexts and make more friends. The significant moderating effect of the Social Relations measure in model 5 suggests that, if we compare high-income and low-income Internet users participating in on-line social contexts, the low-income Internet users spend more time in these social contexts than do high-income users. In addition, if one compares high-income and low-income users who have on-line friends, the low-income users spend more time with their on-line friends than do the high-income users. Hence, this finding further supports the amplification of the gap between rich and poor in social participation—low-income Internet users employ the Internet for social participation more than do high-income users.

Table 8 expands on this analysis of the moderating effects of income. Here, we divided the sample of current users into four groups based on income. Each column in the table represents a regression in the income group. The dependent variables for these regressions are the measure for overall Internet usage.

In this analysis, we found that the beta-coefficients for Social Relations do not consistently decrease as income rises. This suggests that the relation between income and social use of the Internet may not be linear as shown in figure 2. In the first two income groups (under \$35,000 and \$35,000 to \$50,000), the beta coefficient actually increases with the income (.248 and .260, respectively). This increasing beta-coefficient represents the equalizing pattern of Internet usage for social participation—those who make \$35,000 to \$50,000 per year spend more time on-line than do those who make \$35,000 or less. On the other hand, for the three income groups—\$35,000 to \$50,000, \$50,000 to \$70,000, and \$70,000 or more—the beta coefficient decreases as income rises (.260, .215, and .193, respectively). This decreasing beta-coefficient suggests that, among these income groups, the Internet amplifies the social-participation gap between higher-income and lower-income Internet users. Among Internet users making \$35,000 or more, low-income Internet users spend more time on-line participating in social contexts and maintaining social relationships with on-line friends.

We also found a similar non-linear pattern among the beta coefficients for the Information Sources measure (see table 8). The beta-coefficient is the highest for the income group earning \$50,000 to \$70,000. The beta-coefficients for the preceding two income groups are approximately the same and lower than the \$50,000-to-\$70,000 group (.143, .141, and .199, respectively).

This pattern of beta-coefficients is consistent with the amplifying usage pattern shown in the second graph of figure 1. Between the last two income groups—\$50,000 to \$70,000, and \$70,000 or more—the beta coefficient decreases with income level (.199, .155, respectively). This decreasing beta-coefficient suggests that, within the income range \$50,000 or more, the

Internet might have an equalizing effect on the distribution of information. Among those who have incomes of \$50,000 or more, lower-income users spend more time accessing web-based information sources than do higher-income users.

To further investigate this contrast between the effects of Information Sources and Social Relations in different income groups, we computed a surrogate measure of Informational and Social Usage by multiplying the average of these measures in each income group with the corresponding beta coefficient. These surrogate measures approximate the average total amount of Internet use for informational and social purposes—more specifically, collecting information from the web content providers and maintaining social relationship with on-line friends, respectively. To illustrate the difference among the income groups, we plotted these measures on the graph in figure 3 and fitted a curve to simulate the gradual change among the income groups.

Independent Variables	Income			
	<\$35,000 (25.4%)	>=\$35,000 <\$50,000 (23.6%)	>=\$50,000 <\$70,000 (26.4%)	>=\$70,000 (24.6%)
<u>Utilitarian Perspective</u>				
Utilitarian Benefits	.065	.122***	.052	.083*
Information Sources	.143***	.141***	.199***	.155***
<u>Social Participation Perspective</u>				
Social Pressure	.069*	.134***	.071*	.094**
Social Interaction	.134***	.085*	.149***	.105**
Social Relations	.248***	.260***	.215***	.193***
<u>Demographics</u>				
Income				
Education	-.095**	-.017	-.002	-.029
Female	-.119***	-.066*	-.051	-.080*
Age	.015	.030	-.016	.003
F-Ratio	31.05***	33.08***	30.31***	23.63***
Adjusted R-Square	.205	.229	.195	.167
Degrees of Freedom	923	855	959	892

* p<.05; ** p<.01; *** p<.001(Regression Analysis; all numbers are beta-coefficients except those indicated otherwise)

Table 8. Motives of Internet Use in Income Groups

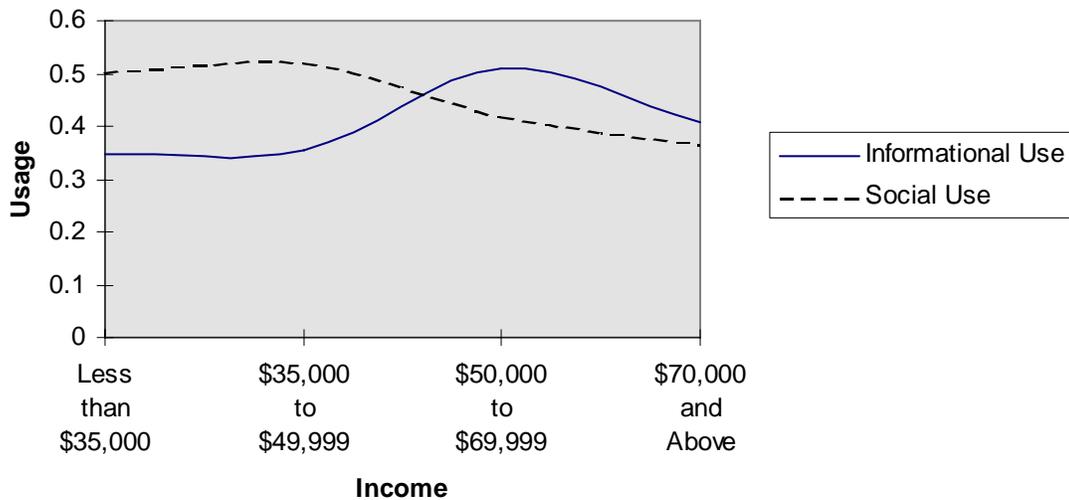


Figure 1. Relative Usage Level in Income Groups

This graph supports the idea that Internet use may amplify and narrow the informational and social gap. For instance, informational web use—collecting information from well-known web content providers—widens the gap; high-income users employ the Internet more for informational purposes. However, respondents in the highest income group (those earning \$70,000 or more) actually use the Internet less for this purpose compared to Internet users in the \$50,000-to-\$70,000 income group. In other words, Internet use amplifies the informational gap up to a certain level of income. Then, among those nearer the top of the income scale, Internet use narrows the informational gap. Figure 3 also shows a similar pattern for the social gap. Internet use widens the social gap up to a certain level of income. Then, among those close to the lower end of the income scale, the amplification effect diminishes. Overall, this graph suggests that high-income Internet users focus on informational use, while lower-income Internet users employ the Internet primarily to participate in on-line social contexts and to maintain social relations.

Discussion

A common assumption is that people's decisions to use new technology are economically *rational*, not only voluntary and deliberate, but purposefully calculated with the conscious intent to maximize efficiency. One might assume that the utilitarian perspective may be the primary mode of thinking in which people use the Internet. On the contrary, our findings suggest that both the utilitarian and social participation perspectives play important roles in individuals' acceptance and use of the Internet.

Even more revealing and potentially controversial findings concern the differences among people at varied income levels. First, those of high-income are more likely to continue using the Internet than are those earning less income. After some period of initial trial, those of low income tend to “drop out” of the Internet more frequently than those of higher income. We also found that this difference in rates of dropout and retention can be partly explained by the difference in social pressure experienced by persons of different incomes. People of high-income tend to be embedded in social contexts which encourage Internet use. On the other hand, those of

low income feel less pressure to use the Internet. This difference in Social Pressure is significantly related to individuals' decisions to continue using the Internet.

Among those who continue using the Internet, income levels do not explain how much the individuals use the Internet. Extrapolating from the high dropout rate among low-income users, one might speculate that low-income Internet users are likely to use the Internet less than those of higher income. However, our findings suggest otherwise. Low-income Internet users—those who have not dropped out—actually access the Internet slightly more than do high-income users. In addition, we found that people of different income levels use the Internet for different purposes—in different perspectives. Evidence suggests that high-income Internet users primarily see the Internet in the utilitarian perspective. In particular, they use the Internet to access information providers more than do lower-income persons. Low-income persons, on the other hand, use the Internet mainly to participate in social contexts and to maintain social relations on-line.

These findings have significant implications for IS researchers and practitioners. First, it is convenient to make generalizations regarding whether the Internet use is beneficial or harmful. However, our study demonstrates that future research should include specific circumstances of Internet use, looking at questions of who are using the Internet and how. Differential Internet usage makes it difficult to assess the impact of this new technology without understanding clearly who is using the Internet and why.

In addition, we recommend more large-sample studies such as ours to complement or confirm studies based on smaller samples of Internet users and focusing on specific types of Internet use. Each research method has its own strength. For example, experimental studies provide rigorous control over their subjects. Survey studies based on small samples often use lengthy questionnaires to measure diverse aspects of the phenomena in question. However, the differential Internet usage suggests that studies based on large demographically representative samples such as ours can be also valuable. This approach allows researchers to assess the overall impact of the Internet by contrasting Internet use in diverse demographic segments of the population.

Our findings also have significant implications for public policies supporting Internet development and education. We found that those of high income are more likely to continue Internet use than are low-income users. In addition, high-income users employ the Internet to collect information more than do low-income users. In this respect, one might argue that the Internet may become a technology for the advantaged, widening the gap between rich and poor.

However, our findings demonstrate that the Internet may also benefit low-income users, though in a different way. Low-income users participate more in on-line social contexts, make more friends on-line, and spend more time interacting with others on-line. In addition, Social Pressure is an important determinant of why low-income Internet users drop out more than do high-income users. In short, the social participation plays a primary role in Internet use among low-income users.

We recommend that public policy should encourage development and education relating to Internet technologies facilitating social interactions. For instance, Internet education in the classroom should not be limited to the use of information sources on the Internet. Education should also include social uses of the Internet, such as the use of electronic bulletin boards to expand social connections and cooperate with others—developing on-line social skills. The globalized business environment has necessitated frequent use of electronic communication in many jobs. Education in social uses of the Internet can not only facilitate continued use of the

Internet among low-income users, but can also enable people to gain social skills in collaborating with others using electronic communications media.

Implications of our study for IS practitioners in the private sector are related to the growth of the electronic marketplace. People of low-income are increasingly gaining Internet access. However, our study demonstrates that the dropout rate among these new users is higher than among those of high income. In addition, these low-income users are less interested in the electronic marketplace. It seems unlikely that these new low-income users will fuel the growth of the electronic marketplace to the same extent that more affluent users have done so far. Our study shows that information-oriented web businesses may not benefit from the growth of the population of low-income Internet users as much as these businesses have benefited from the growth of Internet use among the affluent.

On the other hand, communications-oriented Internet ventures that facilitate on-line social interaction may benefit from the growth of the low-income Internet user population. These users are interested in the Internet's social aspects—getting involved in on-line social settings and meeting new people. Hence, companies focusing on building on-line communities and facilitating on-line interaction among people with similar interests may benefit from continued expansion of their customer base. Our study suggests that advertisers and vendors who focus on people of relatively low income might consider adopting advertising strategies oriented toward social participation, such as by facilitating social interaction among their customers using the Internet and maintaining relationships in diverse on-line communities.

Limitations of the Study

The data used in our study was collected during the fall of 1996. Because the Internet is changing rapidly in both the composition of the user population and the technologies used, our findings may not reflect the most recent patterns of usage and interpretation. We do not claim that our findings reflect the most recent opinions of the Internet users. However, we provide a very important snapshot of the Internet at the beginning of electronic commerce boom. We recommend that a follow-up study should be conducted to examine how the patterns of the usage and interpretation of the Internet have changed diachronically.

In addition, we acknowledge some of methodological weakness in our survey design. In particular, we used only a few questionnaire items to measure constructs. Also, many items are constructed using very rough scale such as a 3-point scale instead of 5- or 7-point scales. However, this design compromise was necessary to have a large representative sample and ensure a high response rate. Thanks to this practical trade-off of our study provide an extensive overview of the Internet usage in the U.S. that any small selective sample could not. In addition, we note here that the questionnaires items used in our study were initially developed and tested based on a prior survey study of a relatively smaller sample of respondents and an extensive interviews with a small group of Internet users (Chung, 1998).

Conclusions

History has shown that wide-scale acceptance of a new technology can profoundly affect individuals, commerce, and society at large. Technologies such as the telephone, the automobile, railroads, and motion pictures have revolutionized economic efficiency and the convenience of daily life. These technologies, however, also brought about unanticipated social consequences

which have transformed the ways people interact, live, and work together. Though the inventors, vendors, and early adopters of these technologies may not have intended or expected such consequences, these effects have profoundly impacted our society (Chandler, 1977; Lynd, 1929; Sproull and Kiesler, 1991). Hence, it is important that researchers and practitioners closely examine unanticipated technological consequences in order to guide the use and development of new technology.

Undoubtedly, some consequences of technological advancement are unintended or unanticipated, owing to the complexity and dynamism in the interaction among people and the technology. However, we suggest that, at least in part, some of these consequences are unanticipated or only very slowly acknowledged due to people's inability or unwillingness to see the realities from others' points of view. Hence, understanding how ordinary people see and use the Internet is important not only for prosperity and success of any electronic commerce ventures, but for assessing how such ventures and strategic actions affect the society at large. In this paper we describe a cultural context in which the Internet is used and we made a broad assessment of how Americans see and use the Internet. Researchers and practitioners in both the private and public sectors must continue to work together to further our understanding of Internet users in order to examine social impacts of electronic commerce.

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