

of childrearing. When children and parents move outside the home into the world of social institutions, they find that these cultural practices are not given equal value. There are signs that middle-class children benefit, in ways that are invisible to them and to their parents, from the degree of similarity between the cultural repertoires in the home and those standards adopted by institutions.

#### NOTE

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## 98 ■ Eszter Hargittai

### The Digital Reproduction of Inequality

By the beginning of the twenty-first century, information and communication technologies (ICT) had become a staple of many people's everyday lives. The level of instantaneous connectivity—to others and to an abundance of information—afforded by advances in ICT is unprecedented. With economies increasingly dependent on knowledge-intensive activities, the unequal distribution of knowledge and information access across the population may be linked increasingly to stratification. No sooner did the Internet start diffusing to the general population in the mid-1990s than did debates spring up about its implications for social inequality. From the perspective of social mobility, digital media could offer people, organizations, and societies the opportunity to improve their positions regardless of existing constraints. From the point of view of social reproduction, however, ICT could exacerbate existing inequalities by increasing the oppor-

tunities available to the already privileged while leading to the growing marginalization of the disadvantaged.

Most initial attention concerning ICT's implications for social stratification focused on what segments of the population have access to the Internet or are Internet users (e.g., Bimber 2000; Hoffman and Novak 1998). Access is usually defined as having a network-connected machine in one's home or workplace. Use more specifically refers to people's actual use of the medium beyond merely having access to it. The term "digital divide" became a popular expression to sum up concerns about the unequal diffusion of the medium. The concept is most often understood in binary terms: someone either has access to the medium or does not, someone either uses the Internet or does not.

However, as an increasing portion of the population has gone online, a dichotomous

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approach is no longer sufficient to address the different dimensions of inequality associated with digital media uses. The term *digital inequality* better captures the spectrum of differences associated with ICT uses (DiMaggio et al. 2004). A more refined approach considers different aspects of the divide, focusing on such details as quality of equipment, autonomy of use, the presence of social support networks, experience and user skills, in addition to differences in types of uses (Barzilai-Nahon 2006; Dewan and Riggins 2006; DiMaggio et al. 2004; Mossberger, Tolbert, and Stansbury 2003; Norris 2001; van Dijk 2005; Warschauer 2003).

Variation in basic usage rates continues to exist, so considering the core digital divide of access versus no access remains an important undertaking. However, to understand in a nuanced manner the implications of ICT for social inequality, it is important to analyze differences among users as well. This chapter will do both, starting with a historical look at connectivity patterns by population segments. This discussion is then followed by an explanation of why it is important to distinguish among users of digital media. A conceptual framework lays out the processes through which users' social position influences their ICT uses and how this in turn may contribute to social inequality even among the connected. Although the primary focus here is on Internet use in the United States, the main arguments made can be extended to the use of other digital devices in other national contexts as well.

### The Haves and Have Nots

In 1995, the National Telecommunications Information Administration of the U.S. Department of Commerce published a report entitled "Falling Through the Net: A Survey of the 'Have Nots' in Rural and Urban America" in which policy makers analyzed data from the Current Population Survey about computer and modem use among Americans. Findings suggested that different segments of

the population were using digital technologies at varying rates. In subsequent years, these reports began to focus increasingly on Internet access as opposed to computer use only, documenting continued differences among various population groups (NTIA 1998, 1999, 2000). The reports' titles highlighted concerns about inequality as they all began with the phrase "Falling Through the Net."

Breaking with tradition, the fifth report of the NTIA published in 2002, based on data collected in 2001, was called "A Nation Online: How Americans Are Expanding Their Use of the Internet" (NTIA 2002). The title of this last report no longer focused on differences. Rather, it highlighted the fact that more and more Americans were going online. While significant differences remained among various population segments regarding their rates of connectivity, the report focused on the growing number of people accessing the Internet through high-speed connections. This change in focus may imply that Internet use had reached universal levels, but that was not the case.

Overall findings from the reports suggested that while the Internet may have been spreading to an increasing portion of the American population, certain segments were much more likely to be online than others. In particular, men, younger people, whites, non-Hispanics, urban residents, the more highly educated, and those with higher income were more connected than their counterparts. Gender differences leveled off after a few years with respect to basic access (Ono and Zavodny 2003) although not regarding amount of use and skill (Hargittai and Shafer 2006). In contrast, all other differences in access among different population segments remained throughout the years.

Looking at adoption figures over time, we find that while all segments increased their participation significantly, disparities continued to persist. Figures 1 and 2 illustrate this point for income and education, respectively. As Figure 1 shows, people in all income

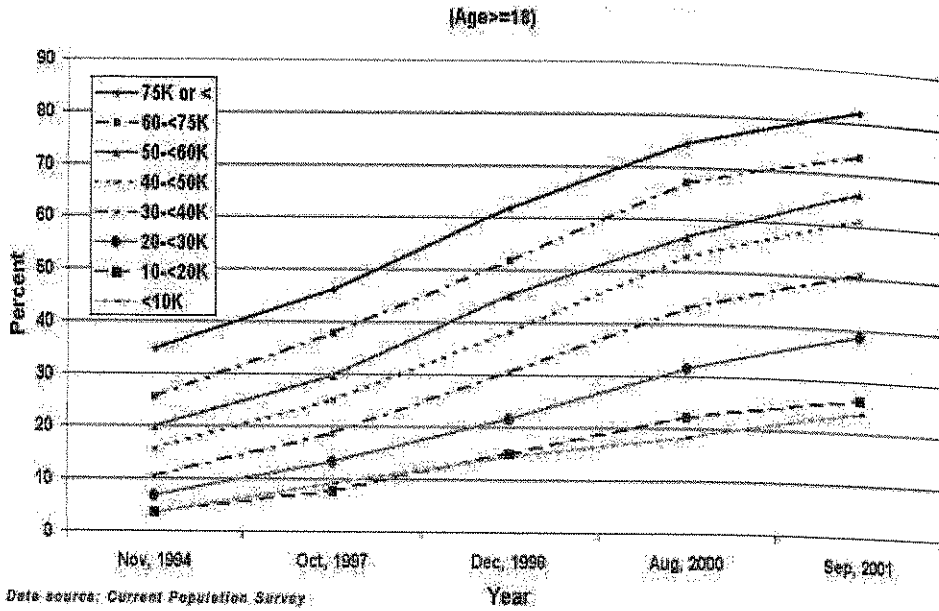


Figure 1. Internet Adoption by Level of Income in the United States, 1994–2001

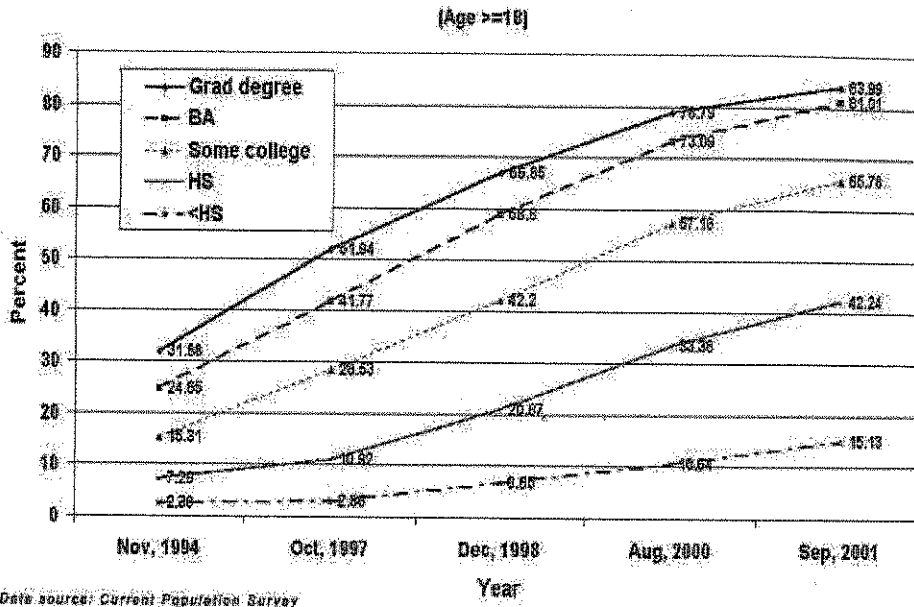


Figure 2. Internet Adoption by Level of Education in the United States, 1994–2001

brackets increased their participation over time, but the slopes in the higher income brackets are somewhat steeper, leading to an increased gap among groups over time. The data points in Figure 2 tell a similar story. Although the gap between those who have a college degree and graduate education narrowed over the years, all other gaps widened over time. In particular, the least educated—those with less than a high school degree—increased their connectivity minimally over the eight-

year period. Overall, these trend data suggest that while all population segments may have become increasingly connected, serious divides persist with the most disadvantaged trailing behind the more privileged in significant ways.

We have less data on the diffusion of cell phones, but the little evidence that has surfaced suggests similar patterns of unequal distribution among the population. Looking at the earlier years of diffusion using data from 1994–1998, researchers found that mobile

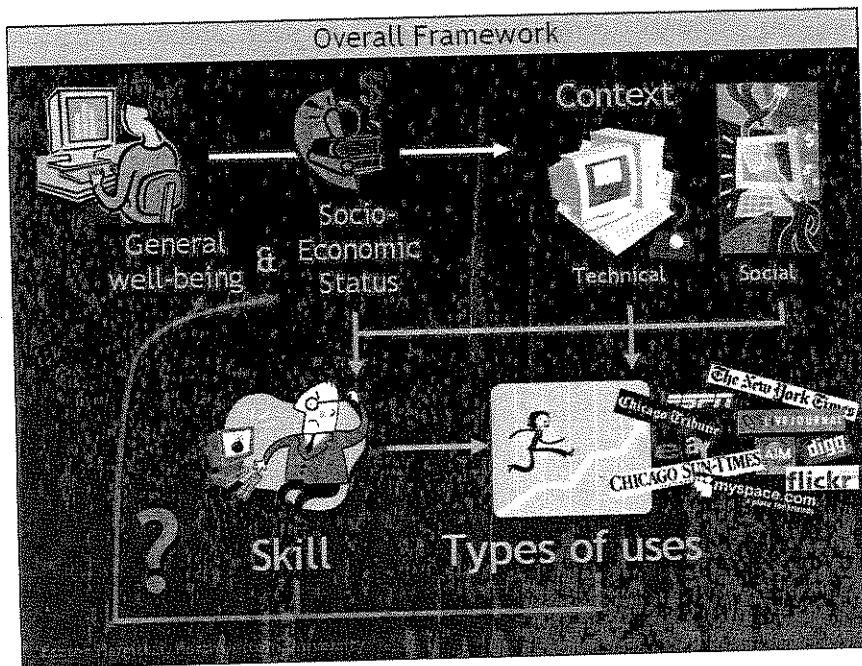


Figure 3. Framework for Studying the Implications of ICT Use for Social Inequality

technology adoption was positively related to both income and education (Wareham, Levy, and Shi 2004). Based on data from 2006, Horrigan showed that people with lower levels of income were less likely to be users (Horrigan 2006). Analyses (by Hargittai for this chapter) of these same data collected by the Pew Internet and American Life Project also found that those with higher levels of education were more likely to own cell phones, and these findings are robust (also for income) when controlling for other factors. Moreover, those with higher income tend to own cell phones with more functionality (e.g., the ability to send and receive text messages, take photos, and go online). While this literature is not as elaborate as the one on different rates of Internet connectivity, these findings clearly suggest that the digital divide expands beyond Internet use into the domain of mobile technology adoption as well.

### Differences Among the Connected

The uses of ICT can differ considerably with divergent outcomes for one's life chances. Therefore, it is imperative to examine varia-

tions in use among those who have crossed the digital divide fault line to the land of the connected. Baseline Internet use statistics do not distinguish among those who go online for no more than checking sports scores or TV schedules and those who use the medium for learning new skills, finding deals and job opportunities, participating in political discussions, interacting with government institutions, and informing themselves about health matters. Yet such differentiated uses can have significant implications for how ICT uses may relate to life outcomes. This section describes how various user characteristics and one's social surroundings influence digital media uses.

People's Internet uses do not happen in isolation of their societal position and the social institutions they inhabit. A refined approach to digital inequality recognizes that people's socioeconomic status influences the ways in which they have access to and use ICT. In addition to factors such as age, gender, race, ethnicity, disability status, education, and wealth, one's social surroundings are also relevant to one's ICT experiences. Figure 3 presents a graphical representation of this framework.

The basic premise is that the societal position that users inhabit influences aspects of their digital media uses, such as the technical equipment to which they have access and the level of autonomy they possess when using the medium. Autonomy of use is understood as the freedom to use digital media when and where one wants to. Twenty-four-hour access at home can yield a much more autonomous user experience than having to drive half an hour to a public library where one competes with others for usage time and where filtering software limits the types of materials within reach. Similarly, a workplace that allows Web use without constraints results in a very different experience from a job environment where one's online actions are constantly monitored. Quality of equipment (available hardware, software, and connection speed) and autonomy of use can both be a function of one's socioeconomic status.

The use of and learning about digital media both happen in social contexts. In addition to autonomy of use, which itself is a certain social context, the availability of other users in one's social circles can have important implications for one's online experiences. The relevant mechanisms through which social networks matter can be grouped into two main categories: informal and more directed information exchange. The former refers to knowledge one amasses through everyday discussions with peers about digital media uses and includes suggestions passed along by others through email or at the water cooler. The latter highlights the importance of support networks when users encounter a specific problem during their experiences with ICT. When faced with a difficulty, it makes a difference to have access to knowledgeable networks that help in finding a solution.

All of these factors then influence users' online abilities and what they are able to accomplish using digital media. While many online actions may seem trivial to the experienced user, most activities require some level of know-how. From recognizing what mater-

ial is available online to being able to find it efficiently, from knowing how to contribute to online content production to knowing where to find relevant networks, from having the ability to evaluate content credibility to being vigilant about privacy and security concerns, informed uses of digital media rely on many important skills (Hargittai 2007b).

One's social position, the context of one's use, and one's online abilities then all have the potential to influence the types of uses to which one puts the medium. Some uses are more likely to yield beneficial outcomes than others. The next section will enumerate the ways in which ICT uses may improve, or in some cases impede, one's life chances.

### How ICT Use Matters

The most pressing question for students of social inequality is whether the usage dimensions described above then loop back and translate into differences in users' socioeconomic position. What are the processes through which more informed and frequent uses of ICT may privilege some users over others? There are several ways in which differential ICT uses may influence access to the types of assets, resources, and valued goods that underlie stratification systems (Grusky 2008). The overarching idea is that certain types of ICT uses can result in increased human capital, financial capital, social capital, and cultural capital while other types of uses may outright disadvantage the uninformed.

With more and more jobs requiring the synthesis and analysis of varying types of information, employees with advanced Internet user skills can perform their jobs more effectively and efficiently. The Internet makes vast amounts of information available *so long as* one knows how to locate desired material. While theoretically all public Web pages are equally available to all users, not everybody possesses the necessary skills to (1) recognize in all situations the types of content relevant to a task that can be found online; (2) find

the information; (3) do so efficiently; and (4) carefully evaluate the results to avoid misinformation or, worse, fraudulent outcomes.

Even if people do not know how to perform certain tasks, advanced skills will allow them to find assistance online. Since skill encompasses the ability to find others who may have the desired information and efficiently contact them for guidance, even when lacking know-how most relevant to the task at hand, the skilled user can benefit through informed use of the medium. This all leads to more tasks getting done quicker and more efficiently with possibly higher-quality results than would be possible if relying on fewer resources. In addition to helping with the performance of on-the-job tasks, ICT also allow people to develop additional skills that may advantage them in the labor market. Free tutorials exist online for training in a myriad of domains from foreign languages to software applications, from design skills to networking to productivity enhancement tips.

Enterprising ways of using the Internet can save a person significant amounts of money. Several services exist that make comparison shopping very easy, allowing the user to find the best deals on an item without spending money on gas and time on driving from one store to the next. The use of auction sites expands options even further. Moreover, the especially knowledgeable can take advantage of other people's mistakes by searching for items with spelling mistakes thereby avoiding bidding wars given that misspelled items are seen by few (Hargittai 2006). In addition to savings through informed purchasing, people can also make money by selling products on the Web. While putting one's items on the market used to require significant upfront investment, ICT have lowered the barriers to entry for putting things up for sale accessible to a large buyer base, assuming one knows what services help with reaching the largest or most relevant purchasers.

The potential of ICT for expanding one's social networks is enormous, although efficient

and relevant ways of doing so are not trivial and require some amount of know-how. In some cases the Internet simply complements more traditional methods of networking while in others the medium is the main facilitator of a new relationship. The former refers to use of the tool to contact people who are already in one's extended network. The latter occurs thanks to various online interactions that can range from the exchange of information on a mailing list to the exchange of goods and services extending well beyond the Web. People find rides, coordinate meetings, and get emotional support from others online. But as with all other aspects of Internet use, skill matters. Finding the relevant communities and being sufficiently vigilant not to place oneself in harm's way are all important aspects of building social capital on the Web.

Familiarity with the latest trends can serve as status markers. Being able to discuss special topics in depth can help create bonds between people. Thanks to the Internet, certain subjects formerly much less accessible to the general public are more widely available. It is no longer necessary to go see a museum's special exhibition to have the facility to discuss what is on display since many galleries now put their pieces online. It is possible to develop a reasonably informed opinion about a restaurant halfway across the world simply by reading the many reviews available and constantly updated online. Knowing how to locate information about travel destinations—from driving directions to entertainment options—can yield more influence to the informed. Being able to draw on a myriad of topics while conversing with higher-ups can leave a good impression. While resources about diverse topics have long been available to the public, the ease and speed with which the Internet delivers information is unprecedented.

Informed users can be more engaged in the political process than those who rely exclusively on broadcast media for their political information seeking. Whether finding like-minded people or informing oneself in depth

about the other side's perspective, the Internet allows for the exchange of political opinions much more than any other medium. Creating petitions and mobilizing others around a cause can be facilitated significantly with various online tools. Again, however, knowledge of what is available in this domain and how one can implement the services to benefit one's specific needs and interests is an essential part of any such undertaking.

The above are examples of how informed uses can have beneficial outcomes. There is another side to online actions, however. Uninformed uses may have outright problematic if not detrimental consequences. Do users stop to think about the context of, for example, an email message that requests confidential information from them? If everyone was aware of these issues, then phishing emails—messages that pretend to be from a reputable source to extract confidential information from users—would not lead to people giving up their passwords to Web sites that contain private information such as their bank accounts. Yet, we know that even among young adults—the generation that is growing up with these media—many lack the necessary knowledge to approach possibly malicious email with care (Hargittai In press). While fraud has always existed, the scope of malicious activities and their consequences have skyrocketed.

Related to online social interactions discussed above, but sufficiently distinct to merit its own discussion, is one's reputation developed from one's online pursuits. Sending emails from the privacy of one's home or office leads many to behave less carefully than they would in a public social setting. Few interactions on the Web are truly anonymous yet many people do not realize this when sending critical messages or posting comments on Web sites. An unwelcome remark can have negative consequences if targeting the wrong person. Alternatively, critical comments by others can tarnish the reputation of the person under attack. In contrast, a well-thought-out online presence can result in sig-

nificant benefits. Those who participate regularly in online discussions and maintain Web sites frequented by many can amass fame that can later translate into fortune as well.

Generally speaking, many of the skills needed to reap the benefits listed here—or sidestep negative implications—can be learned from one's immediate networks. Growing up in a household that has the latest gadgets and digital media resources will make a difference when a student then encounters these tools in the classroom. Having siblings who can navigate the technologies will help in the transfer of relevant know-how. Living in neighborhoods where many in one's proximity are also discovering the latest ICT options will allow for more opportunities to develop savvy in the domain of digital media than a situation in which one is isolated without access to relevant technologies and knowledgeable networks. Bourdieu's cultural capital (1973) applied to the twenty-first century must incorporate the differential exposure to, understanding, and use of ICT. Work looking at young adults' digital literacy has found a statistically significant positive relationship between Internet savvy and the parental education of respondents (Hargittai 2007b).

Overall, it is important to recognize that ICT do not nullify the effects of other variables on one's life chances. People's ICT uses happen in the context of their lives, influenced by their socioeconomic status and social surroundings. The question is whether ICT uses have an independent effect on life outcomes. Given the relative newness of the Internet and other digital media uses at a mass societal level, this field is in its infancy and lacks the longitudinal data necessary to answer many of the questions raised here. Nonetheless, preliminary findings seem to suggest that ICT reinforce inequalities more than alleviating differences. Although not without its critics (DiNardo and Pischke 1997), the general consensus seems to be that skill-biased technological change, and especially computerization, is an important

source of the rise in earnings inequality in recent years (Krueger 1993). A more recent study found Internet use to have an independent effect on wage differences, suggesting tangible outcomes of being among the connected (DiMaggio and Bonikowski 2006).

### Luxury Good or Essential Tool?

In 2001, then chair of the Federal Communication Commission Michael Powell likened the digital divide to a luxury car divide, stating: "I think there is a Mercedes divide, I would like to have one, but I can't afford one" (quoted in Clewley 2001).

Is Internet use simply a luxury item with people's connectivity—or lack thereof—merely a reflection of their preferences for the medium? As ICT become ever more central to our social infrastructure one can no longer participate meaningfully in our society without deep and ongoing usage of digital media. Once an entire society is built around these tools, they can no longer be considered simply as luxury goods. While the car and the telephone may have, at one time, been regarded as extravagant expenditures of the wealthy, once contemporary society was thoroughly built around these innovations they became necessities for operating in society and those who lacked them were socially excluded.

While it may be that some people opt out of ICT use based on an informed understanding of all that the Internet has to offer, much more likely is that people do not realize the many necessities and benefits of digital media. As an increasing number of activities between institutions and individuals move online—concerning both the public and the private sector—being a nonuser will have growing implications for people's access to various services. If government institutions assume a familiarity with and access to the medium, then lacking access to and understanding of such resources some will be unable to interact with and navigate the system optimally.

Take, for example, the case of Medicare Part D in 2006. The government introduced a new system and required the elderly to make important choices about their health insurance. In response to concerns about the difficulty of navigating the system, the administration created a Web site and directed people to it for assistance with the program (Freese, Rivas, and Hargittai 2006). However, the resource was very complicated to navigate for many and the assumption that the elderly could access and understand the site was unfounded, as many were uninformed about or confused by the system. Similarly, more and more commercial services make material available on the Web and charge extra fees to those who interact with the company offline. When important government services are primarily accessible online and when there is an extra financial cost to handling matters with businesses offline, then having access to the Internet and knowing how to use it can no longer be considered an optional luxury item.

### Conclusion

Disparities in people's Web-use abilities and uses have the potential to contribute to social inequalities rather than alleviate them. Those who know how to navigate the Web's vast landscape and how to use digital media to address their needs can reap significant benefits from it. In contrast, those who lack abilities in these domains may have a harder time dealing with certain logistics of everyday life, may miss out on opportunities, and may also obtain incorrect information from unreliable sources or come to rely on unsubstantiated rumors. Differentiated uses of digital media have the potential to lead to increasing inequalities benefiting those who are already in advantageous positions and denying access to better resources to the underprivileged. Merton's (1973) observation "Unto every one who hath shall be given" applies to this domain. Preliminary findings from this emerging field suggest that initial advantages translate into



increasing returns over time for the digitally connected and digitally skilled.

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