In the US, community technology centers (CTC) are a policy response to facilitate the diffusion of information and communication technologies (ICT) to citizens who might otherwise lack access to these resources. The implicit assumption guiding CTC initiatives is that access to ICT will improve the life chances of the individuals who become involved in these centers. It is, however, prudent to empirically examine this assumption because the case for community technology interventions is somewhat weakened if the benefits of ICT use fail to accrue to those who are disadvantaged. Informed by Bourdieu’s theory of reproduction, this study of a CTC initiative in an inner-city community explores the role of culture in reproducing digital inequality. Digital inequality reflects not only disparities in the structure of access to and use of ICT; it also reflects the ways in which longstanding social inequities shape beliefs and expectations regarding ICT and its impacts on life chances. While this initiative is considered successful in the sense that it provided access and basic computer literacy to residents lacking these resources, it represents a technology-centric fix to a problem that is deeply rooted in systemic patterns of spatial, political and economic disadvantage.

Keywords Bourdieu; community technology center; reproduction; digital divide; digital inequality

Introduction

To promote broader engagement with information and communication technologies (ICT), the US government has initiated several policy responses to alleviate the digital divide. The Technology Opportunity Program (TOP) is one of the largest government programs. TOP provides grants for model
projects demonstrating innovative use of digital network technologies in the
public and non-profit sectors. To date, TOP has awarded 610 grants, in all 50
states, Puerto Rico, the District of Columbia, and the US Virgin Islands,
totaling US$233.5 million and leveraging US$313.7 million in local matching
funds (US Department of Commerce 2004). Community technology centers
(CTC) represent one model for providing public access to the Internet and
basic computer literacy skills to historically underserved populations such
as those with low levels of income and education, ethnic and racial minorities,
residents of rural and inner-city communities, and older Americans.

Other things being equal, as access to ICT diffuses, inter-group variation
in the odds of having access has declined (DiMaggio & Hargittia 2001). As of
September 2001, for instance, 53.9 per cent (143 million) Americans were
using the Internet. This represents an increase of 26 million users over the
prior 13-month period (US Department of Commerce 2002). The 2002
report from the National Telecommunications and Information Adminis-
tration emphasizes that

[t]hose who have been the least traditional users — people of lower income
levels, lower educational levels, or the elderly — are among the fastest adopt-
ers of the information resources provided by the Internet. As a result, we
are more and more becoming a nation online: a nation that can take advan-
tage of the information resources provided by the Internet, as well as a
nation developing the technical skills to compete in our global economy’.

(US Department of Commerce 2002, p. 91)

The rapid diffusion of ICT into historically underserved communities has been
beneficial in many ways (see Gurstein 2001; Keeble & Loader 2001). However, some researchers have raised sobering concerns about equity and
the effectiveness of ICT use (DiMaggio et al. 2001; Kvasny 2002; Kvasny &
Keil 2002; Patterson & Wilson 2002; Gurstein 2003). Unlike the digital
divide, which is generally concerned with access to computing artifacts,
digital inequality is concerned with equitable access to the benefits derived
from Internet and computer use. Digital inequality does not only reflect
disparities in access to ICT; it also reflects ongoing social inequities in the
US. The vicious cycles of poverty, illiteracy, sporadic work, racial and
ethnic discrimination, and criminal activity faced by many historically under-
served groups shape diffusion rates and patterns of ICT use that can mirror
and reinforce social inequities rather than mitigate them. Moreover, differential
benefits that result from ICT use may unwittingly exploit and intensify pre-
exiting disparities as well as create new inequities (Van Dijk & Hacker
2000). Norris (2001) contends that social inequities in the quality of edu-
cation, work, consumption opportunities and democratic participation are
at the heart of the digital inequality.
While power relations and social inequities may reinforce benefits and privileges derived from ICT use, relatively little research has been conducted to examine empirically the mechanisms and processes that contribute to digital inequality (Van Dijk & Hacker 2000). In this paper, I engage with and give central theoretical significance to the concept of digital inequality. I do so by describing an ethnographic study conducted at a CTC located in a low-income neighborhood in a large US city. The study is informed by the theoretical insights of Bourdieu, and examines the role of culture in reproducing digital inequality. In the following sections, I discuss this theory and the research methodology. Next I present and analyze the findings. The paper concludes with implications for future community technology initiatives.

**Theoretical framework**

This study is informed by Bourdieu’s theoretical approach. His wide-ranging work cuts across many domains such as the political uses of language, marriage rituals and museum attendance. One overarching theme in Bourdieu’s oeuvre is the role of culture in the reproduction of social order (Bourdieu 1993). According to Bourdieu, social order refers to binary oppositions (e.g. dominant/dominated, rich/poor, strong/weak, male/female) that structure society. These binary oppositions produce systems of classifications which derive their value from the fact that they inculcate perceptions about the social world and cultural practices such as ways of speaking and eating, and style of clothing as well as artistic taste (Bourdieu 1984). One’s position in the social order is determined by class-based factors such as income, occupation, family background, educational attainment, geographical place of residence and life history. Equally important, but generally not addressed by Bourdieu, are non-class-based sources of inequality such as gender, race, ethnicity and age.

The theory of cultural reproduction formulated by Bourdieu and Passeron (1979) explains inequality through a complex scheme of interactions between the investment strategies of individuals (i.e. educational, economic and employment strategies) and the specific logic of educational institutions (i.e. preparatory training, competitive exams and selection criteria that differentiate privileged and less privileged social actors). They show how education in its broadest sense inculcates a social order that is actually based on power, not meritocracy. For instance, Foley (1995), Bourdieu (1990), MacLeod (1987) and Willis (1977) use theories of cultural reproduction to unveil the practical logics used by families, labor markets and educational institutions to socialize individuals to accept the societal judgments and roles designated for people like themselves. Through sorting mechanisms such as competitive examinations, schools identify difference and rank order students. Those from the highest socioeconomic level tend to perform better
academically because they possess the forms of knowledge (i.e. cultural capital) that are most valued by educational systems. Thus, educational systems tend to scholastically legitimize and maintain pre-existing social differences.

In this study, I apply the concept of cultural reproduction to the domain of digital inequality. To understand digital inequality, the ICT has to be placed into the system of social relations that define and sustain its cultural meanings and intended uses (Bourdieu 1980). ICT cannot come into existence simply to fill a pre-existing role, such as bridging the digital divide, because the role itself is co-created with the ICT by the designers and the intended benefactors of community technology initiatives. ICT, along with its associated meanings, functions and domains of use, is socially located and implicated in the struggles and conflicts that brought about the digital divide (Sterne 2003). For instance, one of the primary functions of the CTC is to seek out ‘people on the wrong side of the divide’, and provide them with free or low-cost Internet access and computing skills. The CTC also offers an educational environment that legitimizes the categorization and the value judgments ascribed to those with and those without computing skills and access. Thus, like all other educational institutions, the CTC plays an integral role in reproducing an emerging social order in which ICT is seen as necessary for achieving ‘the good life’. This does not imply that historically disadvantaged groups are tragic cogs in a system that is external and superior to them. Both those who suffer and those who profit from ICT engender and amplify the process of reproduction through the cumulative effects of their strategies of investment. For instance, historically disadvantaged groups adopt strategies that help them to become more familiar with ICT. At the same time, more privileged groups invest by creating new ICT applications and services, and by diffusing ICT into new markets.

Finally, the process of reproduction implies both the stability and further development of society. For instance, the groups on the so-called wrong side of the divide are not simply disadvantaged with respect to access to ICT; they are historically disadvantaged in many social spheres such as transportation, health, employment and education. ICT is deeply implicated because it provides a highly efficient and cost-effective mechanism for perpetuating systems of power and privilege on a global scale. This temporal aspect ties well to critical research which posits that social reality is historically constituted, and produced and reproduced by people.

Research methodology

This ethnographic study was conducted over eight months at a CTC in a low-income neighborhood in a major US city. This was one of the first and largest
(US$8 million) digital divide programs to be initiated by a municipality. At the time of the study, the initiative was in its first year of operation. This provided a unique opportunity to study a digital divide initiative early in its implementation.

The program involved setting up 15 CTCs within the first 18 months of operation. In the first year of operation, over 5000 residents had taken advantage of the five centers that were in operation. The CTCs provided two seven-week computer literacy courses and open computer labs to teens, adults and seniors. The training courses were instructor led, and covered topics such as file management, word processing, spreadsheets, databases and email. The courses were provided free of charge.

Since the conclusion of the study, the initiative has continued to grow. By December 2001, over 15,000 residents had completed training at the 13 CTCs. These CTCs house 14 computer labs equipped with 300 computers and T1 Internet connections. In 2002, the City introduced a 35-foot bus complete with 12 computers, monitors and electronic display boards. This mobile computer facility is accessible to disabled residents, and is staffed by an instructor and certified driver. In addition to the instructor-led courses, the CTC offers online courses in popular software such as Adobe Illustrator and Photoshop, Macromedia Dreamweaver and Flash, and Microsoft Office. Both online and instructor-led courses continue to be provided free of charge.

Data collection and analysis

Bourdieu’s theoretical lens was selected a priori to structure the data collection and analysis. Three data-collection techniques were used — textual analysis, informal interviews and participant observation. Background and historical data on the initiative were obtained through published documents (newspaper articles, requests for proposals, city council meeting minutes and strategic planning reports) as well as interviews with the staff. Informal conversations in the classroom and open lab were used to gain perspectives from the participants and classroom facilitators. This was a natural approach where I simply hung out and asked questions about what people do at the centers, why people come to the centers, what people hope to gain from their training, and how the technology training was making a difference in their lives.

The most focused data collection occurred through participant observation of a class that comprised 15 residents and a classroom facilitator. Over a 14-week period, I observed the same class as they progressed through two seven-week courses — a basic Introduction to Computers course, and an intermediate Computer Applications course. While acknowledging that studying a single group over an extended time would restrict the range of social types that I was able to sample and prohibit cross-case analysis, I felt that this was necessary for building rapport with a small group of informants.
that could provide key insights. I had to get close enough to the participants and make them feel comfortable enough in my presence so that I could observe and record information about their lives (Bernard 1995). Because I had repeated access to the same participants, interviews were not recorded. Instead, I used many short interviews to facilitate accurate recall of our discussions.

The data were reduced and analyzed through an iterative process of coding to decontextualize the data, and grouping related themes into families. To facilitate the coding process, I developed a list of content codes a priori and appended this with codes that emerged from the fieldwork. For each content code, I developed a concept card that contained one and only one theme (Glaser & Strauss 1967). Miles and Huberman (1994) suggest that each concept card should contain memos to explain each coding category, and whether the code emerged from the data or from a priori theoretical construct (see Table 1). During coding, I also began to create scenes by adding

**TABLE 1** Sample concept card.

<table>
<thead>
<tr>
<th>theme: social capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>The benefits that one can potentially receive from participating in communities and networks. These benefits might come in the form of information, support, guidance or additional social contacts. Social capital is an important sociological category for understanding digital inequality, because marginalized members of society typically have less social capital to draw on.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>data source</th>
<th>organization</th>
<th>member(s)</th>
<th>incident, quotation, opinion, or observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>letter</td>
<td>participant</td>
<td>[CommunityPortal.txt]</td>
<td>It has become the responsibility of those who have the ability to train and provide others with computer skills to do so in a comfortable setting</td>
</tr>
<tr>
<td>newspaper article</td>
<td>librarian at the Teen Cyber Center</td>
<td>[AJC_2_7_01.txt]</td>
<td>You need to have good interaction between classroom facilitators, and a building of trust, perhaps with mentoring even after the classes are over</td>
</tr>
<tr>
<td>speech</td>
<td>executive director</td>
<td>[speech_apr_2001.txt]</td>
<td>Seniors also view their classmates ... as extended family members. The ... centers help them overcome loneliness, isolation. They feel as if they belong to a new community. They cheer each other and slap ‘high fives’ when they learn a new computer skill</td>
</tr>
</tbody>
</table>
rich descriptions, dialogue, characterization, sketches and commentaries. Thus, the writing of the results and the analysis were completed concurrently in a top-down fashion, and are highly integrated.

Findings

In this section, I present an account of my experience at the CTC headquarters facility. Through these narratives, I examine the role of culture in reproducing the digital inequality experienced by participants. Avison and Myers (1995) contend that the taken-for-granted view of culture within information systems research needs to be abandoned. Culture is a rich construct that can be seen as contestable, temporal and emergent. It is constantly under interpretation and negotiation, and is produced and reproduced in social relations. In his book *Media, Communication, Culture: A Global Approach*, Richard Lull (2000) provides a rich definition of culture:

Years ago Raymond Williams defined culture as ‘a particular way of life’ that is shared by a community and shaped by values, traditions, beliefs, material objects, and territory. From this perspective, culture is a complex and dynamic ecology of people, things, worldviews, rituals, and daily activities. It’s how we talk and dress, the food we eat and how we prepare and consume it, the gods we invent and the ways we worship them, how we divide up time and space, how we dance, the way we work and play, how we make love, the values to which we socialize our children, and all the other many details that make up everyday life. Understood this way, culture is ‘our way of doing things’ and it reveals who we are as well as who we are not. Culture makes available the frames through which we know ourselves, and others, providing coherence for cultural members while marking differences.

Thus culture is useful for understanding how groups conceptualize, use and react to ICT. The presentation and discussion of the research findings are organized around three broad areas: the environmental setting in which the CTC is situated, the leaderships’ intent of the initiative, and the participants’ responses to the initiative.

The environmental context

The CTC headquarters is located in Sugarhill. It is a community with the distinct feel of two separate neighborhoods; one on the south with its shabby corner stores and vacant lots, and the other a gentrified north of newly constructed single-family homes. The dividing lines are drawn at the intersection
two blocks north of the CTC headquarters building. At this intersection, one can gaze north to a four-lane road leading out into the city skyline expanding far across the horizon. On the western corner of this intersection sits a major league baseball stadium that rises majestically from the pavement. On game days, the streets surrounding the stadium are buzzing with workers erecting barricades, sweeping the sidewalks, opening ticket booths and setting up vending carts. However, when the stadium is idle, so are the streets: uncomfortably desolate and uninhabited.

Anyone just visiting the stadium would see these newly constructed homes and conclude that the city has done an excellent job of inner-city revitalization. A sea of beautiful pastel-colored homes, sidewalks and streetlights are visible from the nosebleed seats at the stadium. However, those curious enough to venture a few blocks away from the stadium will see the effects of gentrification. The old Sugarhill with its dilapidated houses, boarded windows, neglected yards and abandoned cars is still present. There are unkempt vacant lots where houses once stood. Billboards for Budweiser beer peer out above a rundown apartment building with a rusted car in the driveway. Just down the block is a small grocery store with barred windows and padlocked doors. Adjacent to the stadium is an interstate highway with 10 lanes of cars purposefully racing in and out of the city, while the city sidewalks are occupied primarily by African-American men of all ages who seem to be traveling aimlessly with nowhere important to go. Sugarhill is clearly a community of opposites, and it is a stellar example of the difficulties faced when cities turn their attention to poor neighborhoods. It seems ironic that a program that bridges the digital divide is headquartered at this geographic buffer zone.

*The intent of the CTC initiative*

The CTC initiative began in 1999 when the mayor announced a program to bring computers, Internet access and basic computer literacy training to teens, adults and seniors in low-income neighborhoods throughout the city. The mayor believed that these residents were being left behind, and the CTC was intended to fill the gap by bringing technology to ‘those who would otherwise not have access’:

> By making this [CTC] available, we are ensuring that our citizens will have access to computers and the Internet, especially those who do not have computers in their home. We are delighted to make technology available to our children, adults and seniors in this community.

The ‘target population’ lives in acute poverty. According to the 2000 US census, Sugarhill has 4320 residents, 94 per cent of whom are African-American. Nearly
70 per cent of the 1780 households have incomes below US$25,000 and 45 per cent (1044 of the 2299 adults) have less than a high school education. Roughly 35 per cent of male and 47 per cent of the female adults are employed, while 10 per cent of males and 2 per cent of females are unemployed. The remainder (55 per cent males and 51 per cent females) are neither active in the labor force nor actively seeking employment.

Although the CTC headquarters was located in an area of extreme poverty, the program was not designed to provide workforce development training. They did, however, offer free courses in popular business applications such as Word, Excel and PowerPoint to teens, adults and seniors. The executive director noted that ‘the training is good enough that people will be able to apply for jobs that they couldn’t have applied for before’.

According to the strategic plan, the initiative was designed to address perceived needs such as

- training to increase familiarity with computer applications and hardware;
- access to fax machines, email, computers and other ICTs;
- access to relevant content to address barriers such as the lack of local community information, low literacy and cultural diversity;
- participation in the creation of content to provide greater connectedness thereby overcoming isolation.

While the strategic plan discussed a wide variety of social problems experienced by inner-city residents, the CTC focused exclusively on technology-related aspects. For instance, the strategic planning document suggests that the target population has many needs that are frequently overlooked or not readily understood by those who are more affluent. The working poor are rarely given paid vacation days or job flexibility. Many women are precariously balancing work and single parenthood. Many households qualify for food stamps, but work schedules and the lack of private transportation prevent many of them from taking advantage of the program. There is also a spatial mismatch between jobs that have migrated to the suburban areas outside the city and the public transportation systems that do not provide access to those jobs.

Participants’ responses to the initiative

Residents came to the CTC because they generally believed that ICT access and training would help them to overcome their material deprivation. For them, learning about ICT was rarely just for the sake of learning or creating content. Instead learning was purposefully aimed at improving economic status and social inclusion. Contrary to the statistics that report relatively less ICT use by older Americans, seniors were the most active and innovative ICT users at the CTC. Although most seniors initially came to the center with no immediate purpose other than combating loneliness, over time they began
to realize that ICT also offered more tangible opportunities. Pearl’s narrative suggests tangible benefits such as opportunities for employment and learning, improved self-image, and opportunities for taking ‘a new lease on life’:

I want to make sure that you understand how important this [community technology center] is to us. It is giving us a new lease on life. It increases my thoughts, and my ability to learn. The environment is very encouraging. I now have faith and hope. Now I understand that there are things out there for us, as we get old. The [community technology center] fills a great need. We seniors are now becoming qualified homebodies. We can fill these jobs.

For Pearl, ICT was not only a vehicle for economic empowerment. It was also constructed as a cultural space from which seniors can resist and transform prevailing societal views in which older Americans are seen as idle and unproductive. Martin and Nakayama (1997) define cultural space as both a physical location that has culturally constructed meanings, and a metaphorical place from which we communicate. Employing the latter conceptualization of cultural space, ICT becomes a site for social change. She does not want to merely survive, to fit in or to cope. She wants to change society’s perceptions about older Americans.

Ron also speaks metaphorically from this cultural space as he juxtaposes darkness and light. He talks about being out of the communication loop and feeling ‘so left behind’ due to his lack of IT skills. For him, ICT is about ‘feeling connected’ and ‘being part of what’s going on’:

Technology is the thing of the future. My nieces and nephews tell me that I need to step it up some, so this is my first move to get out of the dark and into the light . . . I want to be more a part of what’s going on. I want to feel connected . . . I was in the dark. Before I learned about the computers, it was hard to communicate with people . . . I felt so left behind, out of it. I was not in the loop for communication. I had no email, so I couldn’t keep in touch with my family on a regular basis. I had to use the phone. Now with email, I can communicate on a regular basis because it is less expensive.

A classroom facilitator describes folks like Ron and Pearl as ‘hungry’. These self-determined individuals privileged ICT as a ‘new tool for hope for the future’. However, as the second course concluded, the initial euphoria tended to give way to despair as participants began to realize the limited nature of their training. One classroom facilitator discussed the limits of the training that participants actually receive:

Yes, they want jobs but they aren’t learning enough. . . . The people in the Applications class only come in two days a week. So say someone comes
to class on Thursday. If they don’t have a computer at home or they don’t use a PC over the weekend, then it is five more days before they come back to class the following Tuesday. By then, they have forgotten much of what they learned… The classes are too advanced for them. Excel and Access are too advanced for them. Some days we don’t get too far and I have to slow down. It doesn’t make sense to keep going on to new stuff if they can’t follow.

The limits of the training were acknowledged by both the participants and the classroom facilitator. The classroom facilitator’s and the participants’ expectations for advanced computer skills reached beyond the program’s intended scope. Even so, participants embraced the program enthusiastically. The sessions when residents could come in to obtain information and register for classes were exceptionally well attended.

Although none of my informants was able to benefit materially from better paying ‘good jobs’, they did receive intrinsic benefits. Doris, for instance, espoused a powerful virtual self in which competence, self-worth and legitimacy were believed to result from the possession of an email address.

I thought I would be the last one to have an email address. I was once at a meeting and everyone in my group had an email address. I was embarrassed not to have one because everyone else was a senior citizen with some sort of computer knowledge.

Doris believed that computer skills would increase her ability to participate with her peer group in a computing culture in which ‘sending email makes me feel like a businessman’. ICT use was seen as a mechanism for gaining access to opportunity structures that were available to groups that she viewed as more privileged. This view reinforces beliefs about the use of ICT that uphold the image of businessmen as worthy of emulating. This type of middle-class striving is a form of identity work practiced by those seeking membership in dominant groups (Schwalbe et al. 2000).

ICT is both a measure and a product of American capitalistic society, and, as such, is not culturally neutral (Sawyer & Eschenfelder 2002). This is seen in both the ideals and beliefs that people held about ICT, and in their use of computing artifacts. Software programs, such as Microsoft Office, are highly customizable but they incorporate certain basic assumptions about the problem-solving strategies and needs of intended users. To this extent, they inevitably privilege certain ways of knowing (Burbules & Callister 1997). This becomes clear as one spends time observing low-literacy users engage with computers. For instance, spellchecking features were problematic in this setting. Participants were sensitive about their writing, since
they had to submit their work to the classroom facilitator. Many times partic-
ipants would ask me how to spell words like *professional* and *knowledgeable*. When they asked for my assistance, I would initially offer to help them use
the spellchecker. I quickly learned that sometimes their initial spelling
attempts were too far off to benefit from the spellchecker. I also found
that some participants typed entire documents in capital letters. This also
rendered spellchecking ineffective.

Participants were understandably upset when software and hardware
glitches interrupted their opportunity to learn. Several participants talked
about the importance of gaining knowledge, especially when it is being pro-
vided free of charge. They often quoted the bible when they made this point:

HOSEA 4:6 of the Bible says, ‘My people are destroyed for the lack of
knowledge’, but I thank God for the ... class. It doesn’t have to be
that way. This free knowledge is open for all whosoever will let them
come. The doors are open.

Bill described knowledge as a treasure that he could now share with his
grandson:

Prior to my enrolling into this class I had no earthly idea about the func-
tions of the computer. My seven-year-old grandson shamed me when he
asked me questions concerning computers. Even though there is a fifty-
seven years education gap in our knowledge but there is no excuse in
the lack of knowledge, especially now that the technology is here. The
community technology center afforded me the opportunity to apply
myself and I am truly grateful for the chance to narrow the knowledge
gap that exists between myself son and grandson.

Shame is a powerful emotion because it can bring silence, as those who have
been shamed avoid further exposure to the scrutinizing gaze of those who
exercise the authority to judge them (Lawler 1999). Bill’s quote demonstrates
an ability to overcome shame because he now has tools to ‘narrow the knowl-
edge gap’.

However, other participants succumbed to the scrutinizing gaze and
dropped out of the program. Most of the frustration and intimidation felt
by participants comes from a fear of public failure in the classroom, not a
fear of the technology. This frustration tended to be more prevalent among
the young African-American males at the center:

This young brother was cool for the whole class. During one of the last
classes, I gave them an in-class assignment that would use all of the con-
cepts we went over in the class. This brother got highly frustrated and
blew up at me. I went over and touched him on the shoulder and asked him what he didn’t understand. I figured that the guy was stressed about something outside of class and was just venting. This seemed to calm him down, but our relationship was never the same. He didn’t come back to my class.

I also noticed very early in the study that Black males were woefully under-represented even though the majority of the staff and instructors were Black males. One staff member remarked, ‘We don’t keep statistics on gender, but it is probably 75 per cent to 80 per cent female. This is a shame. We just are not sure how to reach the young Black men.’

The under-representation of African-American males may be a logical practice for those with limited access to legitimate jobs that provide a livable wage. A consultant at the CTC surmised that the Black males in the community have ‘three strikes against them – they can’t pass the drug test, they have felonies, and they have poor educations’. The life chances for males fitting this profile are limited. As Tupac Shakur notes in his song Changes, ‘it’s hard to be legit and still pay your rent’. These young males cannot afford to sit in a classroom because they need to be out hustling to make money to live in the here and now.

This concern with the immediate demands of making a living is one example of the more general orientation towards practical uses of ICT. Participants generally applied their computing skills in a purposeful and mimetic fashion. This practical orientation was generally viewed favorably because it allowed people to apply a limited amount of basic technical skills in an independent manner:

I am confident and comfortable when I work outside of the class environment. I try to recreate the steps in my mind. I say OK. Mr. Jones said to do this, then click here, go here. I just do the steps like we do in class.

Knowledge acquired through ‘scholastic labor’ such as note taking and rote memorization limits access because it does not prepare novice users for the inevitable situation when they encounter the unexpected. Participants stayed within the boundaries of the steps that they learned in class and, as a result, their engagement with the computer is predictable and limited to those familiar techniques. This type of learning lacks depth and durability in its effects. It also limits the extent to which people feel like legitimate users and stymies self-confidence. To Sherry, for instance, computers are revealed as something that ‘smart people’ do naturally. She does not see herself as bright enough to master a computer:

I like computers but I would like them more if I knew how to use them. People who know something about computers probably think I am dumb.
An easy familiarity with ICT cannot be transmitted solely through a classroom experience. It requires repeated contact with technology and knowledgeable people over a long period of time. Some participants talked about continuing their learning through self-paced training. From their perspective, it is extremely costly to be uninformed about ICT when there is a concerted effort by governments, educational systems and corporations to bring everyone online.

However, self-learning was constrained by life circumstances, which structured the time and cost investment. Life circumstances are important concerns because they systematically disadvantage low-income inner-city residents already living on the edge of poverty. There is an implicit assumption that, with free training and a little investment in startup time, historically underserved groups will come to realize efficient and timely access to information. We often hypothesize that new online services made available through e-government portals and e-commerce websites will free up people’s time and reduce the cost of information.

However, the startup time and costs posed a tremendous barrier for most participants. For instance, the policy at the CTC was to drop people from class once they missed more than three times so that space could be created for others. This policy negatively impacted many women working outside the home, raising children single-handedly. These women had significantly less time to devote to computers and the Internet, even when this resource was available free of charge in their local community. Some managed to squeeze in a class on their lunch hour, or directly before or after work. They also had to contend with the added cost of public transportation to and from the CTC.

Once I recognized the barriers presented by these life circumstances, I looked for opportunities to introduce participants to online services that might help them to save time. I quickly learned that using ICT for something as mundane as shopping for books is more than simply a matter of convenience; it fundamentally challenged cultural practices such as reading and sharing books. Ron and Bill both describe how they spent a lot of time with older men in their communities hanging out in barbershops and pool halls. These old guys always had small paperback books in their pockets. They would encourage young boys to read by lending them books and paying them money if they came back to report on what they had read. They used this practice on me during my fieldwork. Once a week, they would give me books to read, and they would quiz me when I returned the books.

Since these gentlemen liked to read, I decided to show them how to search for books online at Amazon. They were amazed at how easy it was to find the books. I noticed, however, that many of the books that they looked up were ones that they already owned. I began to show them how they could search for books similar to the ones that they owned, read
recommendations and compare prices among bookstores to get the best deals. Neither man was interested in making a purchase online. They told me that there is nothing like going to the local store, chatting with the regulars and browsing in person. In addition to destructing social practices, online purchases were frowned upon because the gentleman felt that information on the Internet was somehow censored: ‘They won’t have everything there, only what they want you to buy.’

Analysis and discussion

The diffusion of computers and Internet access into historically underserved communities is generally assumed to level opportunity structures. However, the benefits that one derives from ICT are doubly determined by two factors: the conditions in which individuals acquired their ICT skills and the markets in which these skills can be invested to derive profits. These two factors provide insights into the ways in which digital inequality is unwittingly reproduced through well-meaning initiatives.

**Acquisition of ICT skills**

According to Bourdieu (1990), there is a ranked mode of skill acquisition – early/late adoption, basic/advanced training, short-term/long-term exposure, credentialed/non-credentialed knowledge. CTC participants tended to see themselves as late adopters acquiring basic computer literacy skills in a non-credentialed program. The quality of the skills acquired through what participants perceived as ‘crash courses’ would not allow them to compete effectively in the labor market, but at least they felt that they were ‘catching up’ and becoming integrated in a social order that values and rewards computing skills:

You know how a baby has to be breastfed milk. He can’t eat food? Well that’s how I feel. They are giving us milk, and this is not enough to feed us. We need to be able to eat food if we want to get jobs.

These were hungry people seeking to escape poverty. They were shamed by their lack of knowledge about computers but realized that these basic skills at least provided them with a tangible strategy for ‘gaining a new lease on life’. They couldn’t afford to blow this opportunity so they closely documented and followed the steps for completing tasks. They listened intently to the speeches of the government officials who created and managed the CTC, and spent time in class learning about the digital divide and writing about how the CTC helped them to surmount the divide. They also talked about ICT as a political site from which to initiate social change and advancement into the middle
class. For instance, women associated email use with feeling like a businessman and seniors saw themselves as ‘qualified homebodies’ who could use computers to work from home.

Thus, the CTC was effective in inculcating dominant views about and uses of ICT. These prescribed ways of knowing and behaving tend to perpetuate and legitimize the privileges enjoyed by the culturally dominated groups who benefit from distance learning, ecommerce, e-government and other ICT applications. Participants enthusiastically embraced the rhetoric of ICT as an empowering tool that would help them escape poverty and become ‘part of what was going on’. They knew that they were being further disadvantaged because they lacked ICT skills. The cultural competences that they learned at the CTC provided them with the proper language for naming their deprivation. As one participant remarked, ‘I didn’t even know that there was a digital divide until I came to the community technology center’. Statements such as this demonstrate that participants learned more than just computing skills; participants began to reproduce dominant systems of difference (i.e. digital divide) in their own speech and thoughts. For Bourdieu, the dominant culture is imposed and reproduced largely through educational systems (Bourdieu 1990).

Market for profiting from ICT skills

Participants treasured the ICT skills that they acquired because this symbolized that they were no longer on the wrong side of the divide. As they gained computing skills, they also began to formulate strategies for leveraging their skills in the labor market. Nearly all of the speeches recited by CTC officials suggested that people in the community were at risk of being further marginalized economically because they lacked computer skills. Participants internalized this message and believed in the ideology that ICT skills were necessary for labor-market participation. However, at a practical level, little was done to assist participants in obtaining advanced skills and training that would improve their chances of landing a desirable job. Also city officials failed to acknowledge that the labor market does not equally reward the knowledge and skills acquired outside the control of formal educational institutions such as the universities, corporate education centers and schools (Bourdieu 1984). The credentials that participants received from this program were not highly recognized and valued by employers. This resulted in a structural mismatch between the employment aspirations of participants and their actual chances of securing higher paying employment.

Digital inequality includes not only material suffering and limited employment opportunities. It also includes the positional suffering in which the social world is experienced by people who occupy an inferior position in a privileged societal context (Bourdieu 2000). It is painful to witness hard-working people living on the brink who are taking on the additional
task of gaining ICT skills, and coming to realize that they can only participate at the margins. For instance, participants who wanted to continue using the computers after the training program faced situational barriers such as free time, transportation and childcare. They faced economic barriers such as tuition fees for advanced training programs. They were also working with computer interfaces that were not designed for their unique needs. Positional suffering results from these painful disappointments, and is just as real as material suffering. Both types of suffering are useful for understanding and explaining digital inequality.

Digital inequality also results from the lag time between the realization of a legitimate need for computer access and training, and the institutional means to satisfy them. The frustrations that this lag time produces are the very source of reproduction, because it constrains the upward mobility of disadvantaged people. And, at the same time, ICT becomes a new site for social suffering and inequality. As ICT skills become increasingly recognized and valued by privileged groups and institutions, society has multiplied the opportunities for subjugating historically underserved groups. The digital divide provides a classification scheme for designating have and have-nots, assigning social groups to each category, ascribing positive and negative values to these categories, and widely disseminating these categories and values throughout society. Social order is reproduced by increasing public recognition for ICT, its technical vocabulary and its value proposition. Political might adds to this reproductive force by creating interventions that encourage the complicity of the have-nots.

However, this reproductive work does not go uncontested. One participant explains his take on the motivation for public access programs. He sees the CTC as a political and economic necessity, not a charitable and disinterested investment in low-income communities:

The government sets up these programs. When the programs are over, the people who run the programs walk away with the money because nobody is watching them. The plan was to perfect the technology with the rich white people. Then when it is perfected it can be rolled out to everybody else. The way to do this is to create programs. The goal is to make us continue to buy things. They have to train us so that we can continue to buy their stuff. They have to keep us in the workforce to avoid chaos. If too many people don’t have jobs, they’ll end up on welfare or in the prisons. The rich people will have to foot the bill. They need us to work, but they’re not gonna train us for the good jobs. It’s all about economics, not humanity.

As the city officials, peers, journalists and labor markets convey the importance of ICT, social groups lacking digital skills are penalized materially (i.e. lack of employment opportunities) and positionally (i.e. exclusion for not having an
email address in a society where all erudite persons are expected to have one). Until the CTC came into being, historically disadvantaged groups had no real means of escaping these penalties. Even after ‘free’ access and training have been provided, some individuals question the underlying motivations and choose not to be complicit in a system that they believe exploits ‘people like us’.

Implications

What can we learn from this study? Designers of future initiatives should define the digital divide more broadly as an unequal ability to achieve life chances that include, but are not limited to, access to ICT. The divide is not with technology per se; the divide is one of longstanding inequities in access to basic life chances such as education, safety, housing and healthcare. Therefore, programs should assume a holistic approach by providing technical skills as well as strong linkages to existing social services such as workforce development programs, adult education programs, child and elder care programs, and transportation services.

Future initiatives should also strike a balance between the interests of the community, and the interests of municipal governments and potential employers. It is perhaps unfair to structure a program based on the skills needed by employers or the city’s desire to make its workforce more attractive to companies seeking to locate in their area without also going the next step to place participants in those jobs. In this instance, designers of CTC initiatives should either establish strong partnerships with community colleges and computer certification programs so that participants can more easily gain entry to advanced training and employment, or programs can promote the communicative and entertaining functions of ICT. This goes against the market orientation that dominates much of the digital divide discourse in the US. However, non-market values such as community organizing, information sharing and participation in the democratic process could do much to improve the quality of life in underserved communities. By better positioning people to compete in the established markets or creating an alternative discursive context, underserved groups can derive meaningful material and symbolic benefits from ICT.

Conclusion

In this paper, I have used Bourdieu’s theoretical approach to analyze the role of culture in reproducing digital inequality. In presenting this evidence, I strike a cautionary note in response to the surge of rhetorical optimism surrounding responses to the digital divide. That is, policy-makers, community
activists, government and IT industry leaders have responded to their understandings of the digital divide by creating policy and programs that provide historically underserved groups with training and access to ICT. However, training and access leave open the question – technology and access for what purpose?

The success of bridging the digital divide is often gauged by diffusion indicators such as the number of participants processed through technology training programs, and the availability of computers with Internet access at schools and other public institutions. The findings presented in this paper support the importance of diffusion indicators, but also suggest that efforts to eradicate the digital divide must go beyond these quantitative indicators of access. We must also consider the extent to which we are successful in reducing inequities that emerge when groups derive disparate benefits from their engagement with ICT. The findings intimate that there are broader social, economic, technical, cultural and historical factors that both enable and constrain people’s ability to engage with ICT. Differential benefits are attributable to characteristics such as social life circumstances, attitudes towards learning, fear of public failure and basic literacy skills, as well the desire to maintain cultural practices that cannot be replicated in an online context. These factors have consequences that are not easily discernible in the patterns of Web use and access statistics.

However, the findings presented in this paper must be taken with caution. The diversity of CTC characteristics – such as organizational goals and governance structures, program content, target populations, funding, technical and human resources, and reasons for wanting access to computers and the Internet – renders generalizing across sites or other variables inappropriate. The study is also limited in that it provides a glimpse into the operations of CTC in its first year of operation when the curriculum and program content were still under development. Similarly, all of the participants were taking their initial steps into the world of computers and the Internet. It is likely that higher levels of competence and confidence, which would help to overcome the self-perpetuating circles of inclusion and exclusion, would be achieved over time. Despite these limitations, these findings do in fact provide useful answers to the question of how ICT can unintentionally contribute to the cultural reproduction of social order. Culture is a cause of inequality, and solving inequality cannot be done by CTCs and ICT alone.

References


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