



You got a hole in your belly and a phone in your hand: How US government phone subsidies shape the search for employment

new media & society

2021, Vol. 23(4) 853–871

© The Author(s) 2020

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/1461444820954184

journals.sagepub.com/home/nms**Ilana Gershon** 

Indiana University Bloomington, USA

Amy Gonzales

University of California, Santa Barbara, USA

Abstract

Many of the tasks involved in looking for a job these days involve sharing and storing digital data. Digital technology is now required for job seekers to research employers, store resumes, complete applications, and schedule interviews. What is the employment process for people who are living on the poverty line, without reliable access to the Internet or mobile phones? We focus on technology maintenance, the continuous work required to stay digitally connected, to understand how low-income job seekers in northern California manage the circulation and storage of information. We incorporate the concept of *delegation* from Latour to explore how people consciously consider who or what entities are responsible for technology maintenance, as this varies by government policies related to digital subsidies. This article draws novel connections between the influence of government policy on technology maintenance and how both the policies and digital inequalities shape impoverished job seekers' choices around sharing and storage practices.

Keywords

Employment, job seeking, Lifeline Assistance program, mobile phones, technology maintenance

Corresponding author:

Ilana Gershon, Indiana University Bloomington, 701 East Kirkwood Ave., Bloomington, IN 47405, USA.

Email: igershon@indiana.edu

If one asked a passerby on an urban street in the United States for advice on how to find a job, responses would likely include recommendations to go online. Workshops on job hunting often tacitly assume constant access to mobile phones, when organizers announce: “feel free to step outside to answer any call from a recruiter or hiring manager.”¹ Resumes must be stored online, applications must be completed online, and the recommendations, research, and scheduling necessary to land a job all typically involve access to computers, Internet, and cellphones. In other words, to be employed in the United States today, one is presumed to have reliable access to a range of digital technologies that enable digital storage as part of the employment process (Gershon, 2017). As in every other facet of contemporary life, job seeking in wealthy nations has incorporated the “taken-for-grantedness” of mobile and other digital technologies (Ling, 2012).

But what about when access is not reliable? Given that digital devices and Internet access are expensive to maintain, employment and digital access pose a 21st-century technological catch-22 for those at the bottom of the socio-economic ladder: paying for technology requires employment, but gaining employment requires technology. We explore this issue studying how people maintain technology, which has previously been studied in education and health settings (Gonzales, 2014; Gonzales et al., 2016, 2020). By turning to technology maintenance, we assume that digital access is never fully achieved, but is an ongoing process, and one that often disadvantages those without resources. When individuals cycle through periods of connection and disconnection—due to unpaid bills, broken devices, outdated virus protection, and so on—they live in a state of *dependable instability* (Gonzales, 2014, 2016). But the consequences of dependable instability are magnified when digital disconnection makes it impossible to access the materials needed to get a job. Without a reliable means of accessing the materials of employment, including the applications, resumes, and contact information that no longer live in a rolodex or file drawer, digital disconnection makes the already challenging process of looking for work even more burdensome.

To explore the role of material availability and technology maintenance during employment seeking, we interview job seekers in California, one of the few states where qualified residents are currently provided with subsidized unlimited cellphone voice and text minutes. We interviewed 40 people, 70% of whom were homeless. This allows us to pose a new research question in the literature on technology maintenance: what happens when job seekers are operating in a media ecology in which cellphone minutes are always available, but other factors (such as theft, homelessness, and broken equipment) continue to prevent stable digital sharing and storage?² We turn to Latour’s (1992) concept of *delegation* to explore how people consider who or what entities are responsible for storing and sharing information when seeking employment. Examining Latour’s ideas on delegation side-by-side with technology maintenance allows us to address an evolving digital landscape—one where responsibility and ownership of technology depends on personal and geographic context and government policies.

Our findings suggest that while people on the poverty line with free unlimited mobile phone are better served than those in states with limited minutes, those with unlimited minutes still grapple with ongoing barriers to cellphone access. Disrupted access to digital materials required new solutions and workarounds, often requiring transitions back-and-forth between physical and digital resources. This is particularly consequential for

unemployed job seekers who do not have the money to pay for those resources. We consider how job seekers on the poverty line engage with the ways that different technologies will delegate responsibility for storage and maintenance among a wide range of participants, including technology companies, potential employers, community-based organizations, government services, and personal networks.

By turning to impoverished job seekers, we are contributing to a long-standing scholarly interest in ethnographic accounts on digital sharing and storage that explore the class- or culture-based biases built into certain technologies, and the workarounds these designed biases can inspire (Christen, 2012; Kelty, 2005; Srinivasan, 2017). Designers often build implied users and implied narratives into the technologies they design (Akrich, 1992). In the case of technologies designed for sharing and storing, this often ensures that Euro-American middle-class assumptions are ever-present (Christen, 2012). Mobile phones, and the access to the Internet they provide, are expected to be omnipresent and many daily practices presume ubiquitous access, disadvantaging those who operate otherwise for financial or cultural reasons (Ling, 2012). As this article shows, this taken-for-grantedness becomes an acute dilemma for job seekers who have unstable access, and given employers' expectations of how applicants that must store documents and maintain communication channels.

Technology maintenance

The past decade has seen a dramatic increase in in-home access, device ownership, and use of information and communication technologies (ICTs), such as laptops and cellphones. In 2017, 95% of people in the United States owned a cellphone, 77% owned a smartphone, and 9 out of 10 adults got online regularly (Pew Research Center, 2016). However, as initial access and use becomes widespread—due in part to dropping production costs and contract-free, pay-as-you-go monthly plans—systematic disruption in access, or dependable instability, may also become more widespread (Gonzales, 2014, 2016). This is exacerbated by a simultaneous sharp drop in landline telephone ownership over the last decade, where only 51% of the general population has a landline phone at last count, and only 37% of those living in poverty have a landline phone (Blumberg and Luke, 2016). Without stable communication resources, people on the socio-economic margins are especially vulnerable to losing resources that are increasingly distributed remotely (e.g. insurance applications, job applications) (Eubanks, 2011; Gonzales et al., 2016). This can have real consequences for the ability to find work.

Analyzing technology maintenance allows scholars to pay attention to the ways that, “as the poor increasingly achieve in-home and public access to digital technology they will struggle to maintain that access” (Gonzales et al., 2016: 1423). This research borrows from cultural studies scholarship on breakdown and repair (Graham and Thrift, 2007; Jackson, 2014) and is consistent with recent work that finds that people living in poverty are more likely than their wealthier counterparts to struggle with disrupted ICT access (Neale and Stevenson, 2014; Rideout and Katz, 2016; Robinson, 2014), which may exacerbate existing social inequalities (Norris, 2001; Van Dijk, 2005; Viswanath and Kreuter, 2007).

As the policy landscape has shifted, so too has the experience of technology maintenance. Subsidized cellphone service in the United States is a relatively new phenomenon, which has exploded in popularity over the last 5 years. The stability of mobile Internet and cellphone access is quite varied nationwide, in part due to differences in ICT subsidies by state. In addition, although everyone must continuously work to maintain ICT access, the poor and marginalized disproportionately bear the burden (Graham and Thrift, 2007). Thus, studying job hunting practices reveals the consequences of how people maintain access to the material and communication essentials needed to find work. This takes place in a changing policy landscape that constantly shifts the loci of tensions in the digital divide. In short, what does maintenance look like when the local state government provides unlimited minutes? How does this change 21st-century job seeking, as it becomes an increasingly digitized experience? Our data aim to provide insights into the implications of technology maintenance when a state, in this case California, takes a greater responsibility in maintaining digital infrastructure. Employment seeking is an important context in which to evaluate these variations.

Maintaining access, maintaining employment

These days, being unemployed makes being digitally unstable a problem. This is largely because the media repertoire that employers and job seekers use to connect with each other has become increasingly digital. According to a report by Carnevale et al, around 60–70% of all jobs advertise online, although this is especially true of jobs requiring a college degree (Carnevale et al., 2014). According to a Pew Research Center report, 79% of American job seekers have searched for jobs and job information online (Smith, 2015). Increasingly, even if job seekers do not learn about a job opening online, to apply, they must fill out online forms. Finally, because of the prevalence of mobile phones, even if a job candidate finds a job offline and applies offline, employers still expect to be able to reach the applicant at any time by phone. In short, being disconnected from the Internet and cellphones, even temporarily, makes job searching nearly impossible. Tasks which once required a paper application and landline access increasingly requires stable access to a computer, cellphone, and Internet, all of which are intermittently inaccessible for many we interviewed.

Cellphones in particular are essential in linking low-income and homeless populations to resources and employment opportunities (Eyrich-Garg, 2011; Rice and Barman-Adhikari, 2014), and previous technology maintenance research has found that disrupted cellphone service can compromise employment (Gonzales et al., 2016; Gonzales et al., 2020). Interviews with low-income students revealed difficulties staying in touch with employers when phones were broken (Gonzales et al., 2020), and people with HIV described missing calls from interested employers (Gonzales et al., 2016). Stable cellphone access, however, is contingent on the interrelationship of federal law and regulations, phone companies' business strategies, as well as individual users' financial standing.

In the United States, unlike most other countries, the federal government subsidizes phones for low-income people, thus shifting some of the responsibility for continual phone coverage from individuals to a public/private partnership between the federal government, state governments, and phone companies. Changing government policies shift

the responsibility of maintaining material access. This is happening at the same time that innovation is complicating job seekers' access to digital employment materials. To understand this relationship, it is worth reviewing the role of US policy on communication subsidies.

A brief history of lifeline nationwide

Since 1984, there has been a program in the United States—Lifeline Assistance—designed to help low-income people install landlines. The Federal Communications Commission (FCC) first introduced this program under Ronald Reagan to address flat rate increases in landline costs, initially only covering 50% of the costs but rapidly expanding to subsidize 100%. California had experimented with a similar program a year before the FCC chose to introduce such subsidies nationwide (Johnson, 1988). Once nationwide, each state could choose how it implemented the Lifeline Assistance program. For example, Arkansas provided this assistance to anyone eligible for food stamps, while in Missouri in 1986, the only ones who qualified were over 65 or disabled, in a household earning US\$7500 or less and receiving heating assistance (Makarewicz, 1991). Each state also set up its own contracts with the phone companies that provided services in that state. In short, from the beginning of federally subsidized phone service, different states had their own criteria for eligibility and entered into state-specific partnerships with private phone companies.

These organizational principles were kept when, in 2008, the federal government chose to expand and subsidize mobile phones. Each state contracted with several phone companies to provide free mobile phones. But the number of minutes and amount of data available vary by state and company. At the time our data were collected, most states offered between 250 and 500 minutes each month, with three states—California, Alaska, and Oklahoma—offering unlimited voice minutes each month. All states offer one or more unlimited texting plan and one or more data plan with 500 MB of data.

In 2016, the FCC Chairperson Tom Wheeler serving under the Obama Administration released an updated vision of Lifeline to include stand-alone broadband subsidies (that is broadband for the home) and outlined the future of mobile Lifeline. Currently recipients must choose between the in-home broadband and telephone subsidy. Here, we will focus only on cellphone subsidies, which increased to 1000 voice minutes and 2 GB in 2019. According to our estimates, 1–51% of eligible individuals have currently enrolled in Lifeline in each state, with the average nationwide being 28% of eligible users. Despite the fact that in practice this service is undersubscribed, public debate about the value of Lifeline has often focused on US concerns about fraud and abuse within the program (see Fung, 2017). To that end, the FCC is in the process of implementing stricter checks on Lifeline eligibility. We have yet to see how these new requirements may change the reach of the program.

In 2014, California made changes to its Lifeline program for mobile phone use, shaping how responsibility for communication was delegated across individuals, private organizations, and governments. California chose to supplement the federal subsidy of US\$9.25 a month, offering an additional US\$6.15 per month to any company offering 501–999 minutes per month or an additional US\$13.15 per month for companies offering 1000+ minutes per month. Currently every phone company in California providing

Lifeline assistance to users (all of whom are on some form of general assistance) offers unlimited minutes and texting.

Policy shifts the access burdens

The previous research on technology maintenance examined disrupted cellphone access in contexts in which cell minutes were quite limited. As a contrast, here we explore users' experiences of disrupted access in California, where the financial costs of cellphone access for low-income job seekers are borne principally by federal and state governments. However, given the wealth of digital materials required to find a job in today's employment market, is subsidized cellphone service and Internet access enough to meet employment needs? What kind of disruptions persist despite this resource? Finally, how do low-income job seekers manage storage and circulation needs in a media ecology that always requires, but does not consistently provide, digital resources?

Methods

Sample

Gershon conducted interviews for this project in Berkeley, California, using a snowball sampling approach during the summer of 2016. She initially found people to interview by standing outside of the Berkeley public library 15–20 minutes before it opened and offering flyers with details to passers-by. This strategy was designed to reach the people who were waiting to use the library's bank of free computers. Some were also using the library's free wifi, which patrons could access 30–40 feet beyond the library's walls. About 8–10 of interviews subsequently came through word of mouth, because flyers and the tip that a professor was paying for what informants understood to be a survey ended up circulating in local homeless circles. Interviewees were paid US\$25 for their participation. We allowed our interviewees to self-identify as job-seekers. In the course of this interview, it often became apparent that they had searched for jobs in the past six months, but were not necessarily actively looking at the time of the interview. In those cases, we asked them to reflect on their earlier experiences looking for jobs.

This approach led to 40 interviews total, with 32 men and 8 women. Three women and 24 men were homeless. With the exception of 2 men, those who were not homeless lived in low-income housing supplied by local government. This meant that most of our informants lived in homeless shelters that didn't allow them indoors until 8 pm at night. They went to the public library to find a place to charge their phones and peacefully spend time until they could return to the shelters. Although we did not conduct formal demographic surveys with informants, we asked about the race and gender of each informant. Of the eight women, seven were Black and one claimed to be Aryan from India. Gershon also interviewed 22 Black men, 7 White men, 1 Afghani who reported easily passing for White, and two Native Americans.

We also draw upon a handful of interviews with recruiters or social welfare workers from Berkeley Food and Housing Project, Community Voice Mail (CVM), Goodwill, and Jewish Vocational Services. These interviews help to paint a broader picture of

delegation across the many roles and responsibilities that differently situated actors play in the employment landscape.

Data collection and analysis

Interviews with low-income and primarily homeless job seekers took place using a semi-structured interview format of 40+ questions covering issues related to employment history; institutional and personal support networks; technology use; and finally, digital access. An additional 10 questions were only used in conversations with staff at work centers or welfare centers, including questions about the ways in which technology use was or was not supported and encouraged during the job search process. Staff were also asked about their observations of digital access by their clients, and how that shaped the job search process.

Interviews were audio-recorded and contemporaneous notes were taken by Gershon as interviews were conducted. Interviews were transcribed and analyzed by both of us in an iterative form. Both open-ended and focused coding techniques were used, with a matrix of notes formed to search for thematic patterns and highlight disconfirming evidence (Miles et al., 2013). In this process, we were searching for reoccurring themes related to employment seeking as it was improved, worsened, or otherwise altered as a function of digital maintenance issues and as shaped by availability and reliance on government phone subsidies and other institutional interventions.

Findings

In analysis of our interviews, it quickly became clear that people were navigating a media ecology filled with technologies that each delegated responsibility for maintaining channels or storing information differently. We rely on Latour's (1992) article, "Where are the Missing Masses? The Sociology of a Few Mundane Artifacts" to frame the experience of maintaining access to digital employment materials for low-income job seekers in California.

Delegating maintenance

In his 1992 article, Latour explores how technological objects often do labor that humans would otherwise have to do. At the same time, these objects also create new types of labor for humans. To illustrate, Latour describes how a public building may have a door that needs to be manually closed. Those in charge of the building can hope that putting up a sign might recruit visitors into the necessary actions, yet masses of people are notoriously unreliable, and seldom pay attention to signs. Perhaps those in charge will hire a porter, shifting the delegation of responsibility to one person. Yet that person can be unreliable—it is challenging to convince a poorly paid person to focus adequately on what is a rather boring task. This may in turn lead to employing a technical object, a hydraulic door-closer, something far more reliable than the distractable porter, but only until it breaks down (Latour, 1992: 155–159).

Latour calls this ongoing process of distributing labor between technical objects and human actors, *delegation*. In Latour's account, it is not only the labor of the task at hand that is delegated, but also the maintenance of both humans' capacities and the technical object's capacities that are delegated. Neither humans nor technical objects retain the same capacities from day to day, and how these capacities are maintained or repaired becomes a question resolved only by the person or objects' specific location in a broader network. It is a constantly changing set of problems and solutions. It is this insight that we turn to for understanding the strategies used by people who are dependably digitally unstable as they navigate the media ecology of looking for a job amid a patchwork of digital access and resources. As people in our study engaged with different devices, they also took into account how responsibility for maintenance and storage was distributed between individuals, families, community-based organizations, libraries, governments, and companies.

Delegating access to digital employment materials

Job seeking posed predictable challenges for this population. Limited access to the Internet now means a limited ability to find out what jobs exist. It also hampers the number of jobs one can apply to in a day—several interlocutors estimated it took them 45 minutes to an hour to complete a single application online. In addition, an inability to reach someone quickly by phone or email, especially at the entry-level jobs to which our interviewees applied, often meant that a frustrated employer would reject an applicant. Those we interviewed had to develop alternative ways to navigate these challenges. In a number of instances, they went so far as to consciously avoid applying for jobs that required digital contact. Several reported choosing to look instead for jobs through help wanted signs in storefronts. In general, people's job-searching strategies largely reflected attempts to arrange the delegation of responsibility for technological maintenance in their favor.

Broadly speaking, looking for jobs these days required that people use digital media to manage at least two types of tasks: storing information that can then be re-circulated (e.g. resumes) and keeping the channels of communication open so potential employers can contact job seekers. Being able to manage these tasks successfully depended on how maintenance was delegated within one's media ecology. We address these processes each in turn.

Challenges of Applying Online. At the heart of data storage difficulties was the question of delegation. Almost everyone we interviewed kept the pertinent information they might need for a job application stored online in their email, shifting responsibility for information storage from personal hard drives, as those were rarely available, to email servers. People kept copies of their resumes, as well as other information they might need for job applications, in their email or Google Drive. Career counselors at Goodwill encouraged their clients to email copies of their resumes to their counselors so someone else had a backup copy. Of course, this required memorization of various passwords in order to access digital employment materials, which can be difficult for anyone. Unlike better resourced job seekers who have stable hardware at home, these informants were typically reliant on library or friend's computers, or they had cheap laptops that

were vulnerable to theft and damage. As a result, they did whatever they could to shift responsibility for maintaining a record away from the fragile devices and papers onto companies and the cloud. This delegation brought new challenges, including the need to remember passwords when log-ins are not automatic, sort through email where digital employment material is stored, and manage timed access on public devices.

Another challenge of digital applications is that they are increasingly requiring more and more external mnemonics (Stiegler, 1994). This is because many of the application questions ask for a degree of precise information about one's education and former work experiences that people find difficult to recall without memory aids (see also Woelfer and Hendry, 2010). Often the type of information these applications require signals a class-specific set of expectations about the kinds of knowledge one must have about one's workplaces. This was first made clear to us when assisting Adam, a Sudanese refugee, to fill out online job applications to work in Alaskan fisheries. Adam had heard from a friend that Alaskan fisheries paid well and would accept any able-bodied person. To apply online, he went to a computer lab at a non-profit organization where Gershon was observing volunteers assist drop-in patrons. Each online job application asked for detailed information about Adam's work history, some of which he had scrawled on a piece of paper that contained the years he graduated from various educational institutions, as well as the years he worked. Other questions baffled him—such as his current supervisor's last name. "He is José," Adam explained, but he had no idea how to contact him by phone or any other information. Yet often these forms will not allow users to move to the next screen if some fields are empty. In short, the dependence on digital interfaces to locate information, but the lack of flexibility in navigating or accessing those interfaces, poses a problem.

Maintaining communication channels. Equally important to managing digital storage was the work involved in maintaining open communication channels so that people could be reached by potential employers. On one hand, it was relatively easy for people to get new phones, provided they had access to a stable mailing address, though the quality of these phones was questionable. The ease of access ensured that the responsibility for owning a phone was shifted largely from the phone-owner to the companies distributing phones. On the other hand, the companies distributing the phones were consciously cutting corners, as the phone users were all too vividly aware. They received phones that broke down regularly, either because they had been refurbished or were poorly manufactured, which is known to constrain use (Neale and Stevenson, 2014). Yet informants were too poor to have phones repaired, a different node in the delegation of responsibility for maintenance (see Kuipers and Bell, 2018). One woman explained that she had three phones. She had an Obamaphone which could not use satellite data because the default time and date settings were wrong and could not be changed no matter how much she and customer service representatives tried. But she could use it for free calling. She then had two other phones, one for Internet use and the other for backup data in case she burned through her data limit. She showed Gershon all three phones, all of which had different degrees of cracks in the screens. Many of the phones Gershon saw had broken screens, and sometimes these broken screens impaired functionality. People could not afford to repair phones, so maintaining a charge and maintaining a phone's functionality were

obstacles to people who might need a stable phone number while looking for a job. With the decisions to provide refurbished phones, the phone company was shifting the responsibility for keeping a phone functional back on to the user.

Policies and their enforcement are an important determinant of delegation practices. While it might be difficult for people to maintain optimally functioning phones, they did not seem to view this as a serious obstacle because when a phone failed they often approached another phone provider. Our interviewees had access consistently to phone service in California because the government policies were not strictly enforced, and the public/private partnership between government and private phone companies allowed for enough loopholes. While the Lifeline Assistance program guidelines insist that people must wait 60 days before approaching a new phone company for service, this was not enforced. In states with two providers, such as New Jersey or Vermont, people might respond differently. In 2016, California had 11 providers. However, in 2019, the FCC began rolling out the National Verifier database. This database is intended to curb redundancies and may make phones less readily available in the states where it is employed. As of March 2019, California is not yet one of those states.

As another reflection of how policies shape practice, when data were collected in 2016, our interviewees seemed nonplussed upon having their phones stolen, though they would take some measures to ensure that this did not occur, including keeping sharp tabs on the device. For example, some described claiming their phone lacked charge as a reason not to loan to someone wanting to make a phone call—in that moment blaming both the phone and not so indirectly their intermittent access to electrical outlets that meant keeping a phone charged was a challenge. As a result, loaning phones occurred infrequently. One man had all the stuff he carried with him stolen 2 weeks earlier, including his phone. He was complaining about this to a friend of his, who out of the blue dug through his stuff and handed him an Obamaphone and told him to hold on to it until he could get a replacement phone. He had no idea that his friend had a spare hidden away. This story stands out, however, because it was relatively unusual in this sample. For the most part, being homeless left people too vulnerable to circulate this particular resource readily and sharing phones was generally rare. Yet, when describing the phones that had been stolen, informants described replacing these phones shortly thereafter.

In short, as Latour describes, it is an open question who is responsible for maintaining connections to functioning technology. Policies, device quality, financial resources, and networks all shape the experience of delegation. Responsibility can move rapidly among participants, including moving between the individual and the cellphone company. To manage this, each is involved in cutting corners or breaking rules. Companies aim to optimize returns by circulating cheap, temperamental phones, which fulfills state requirements while keeping customers returning to the market. In turn, phone users are forced to rely on fragile devices and have limited options. They must break the law by approaching a new company within the 60-day window, go phoneless (rarely an option), or borrow a cheap phone from friends and loved ones. While mobile phone ownership and use are widespread, the instability of that access often yields periods of disruption and frequent changes in phone numbers.

Exceptions. It is worth noting that while most interviewees either had an Obamaphone or a paid cellphone, or were expecting to get one shortly, a few interviewees were still stymied by government requirements. Two men in their late 20s did not have phones because they were not on general assistance and thus did not qualify for an Obamaphone and could not afford a phone. A 63-year-old man found it too daunting to fulfill the government requirement that one had to have a permanent address, not a P.O. Box, to which the government could send the phone. While he was living in a tent in a friend's backyard, he explained that his friend was too mentally unstable or untrustworthy, and he could not count on his friend to hand over any of his mail. Here was an example where a moment of delegation failed.

Finally, while people might be relatively blasé about losing a phone and willing to loan their phone to another occasionally, this was not the case for computers. People went to great lengths to conceal from each other the fact that they owned computers, especially when living in shelters. Gershon discovered this while interviewing two men who she met walking together toward the library. By arranging to interview each man separately, she was able to discern that each one had a computer, but was keeping this information from the other. They both hid their computer carefully within layers in a locker, and never removed it when anyone else at the shelter might notice. Interviewees tended to buy computers from Craig's List ads, claiming that they could buy a used laptop for US\$150–US\$200. When computers broke down, they tended not to have them repaired but rather bought another one.

Maintaining access to immaterial affordances. Staying connected required more than just maintaining functioning hardware; it also involved maintaining access to and successful use of the immaterial components of a cellphone, such as voicemail, wifi, and phone numbers. Knowing how to use these different devices and platforms was knowledge that was sometimes delegated among a number of different people (see Ghosh, 2016 for similar practices among low-literacy users in Ghana and India). For example, Gershon interviewed one man who could never remember how to check his voice mail. Every day, he visited a friend of his, a local store-owner who was always at the store and helped him check his voicemail:

- Ilana:** Do you ever find that people left messages for you for a job?
Bob: Maybe once or twice, they call me back and then I get back at them when I go to Tom's. I got there a lot. Like today, I will go by there later. Most of the time, he'll call me before the day is out and ask me to come by. And then when I'm there, I'll ask him to check my phone. He'll say, "I'm not going to keep doing this. Let me show you again." But he's my buddy, so he does it for me.

While Bob may have been extreme in his inability to remember how to check his messages, Gershon came across a number of similar instances. One woman handed Gershon her phone in the middle of an interview, explaining that her daughter had turned off her wireless connection because she disliked the music her mother played through her phone. Could Gershon figure out how to turn it back on, the interviewee

wondered (she did after some trial and error). In other words, while no one reported sharing ownership of a device with another on a regular basis, they would occasionally talk about sharing tasks related to these devices (such as checking voicemails) with others on a regular basis. Delegation of immaterial storage and access practices was often disseminated across the community.

Another immaterial access problem, changing phone numbers, was an employment stumbling block for people in this sample, and one that has been described in previous technology maintenance research (Gonzales, 2014; Gonzales et al., 2016). That work found that changing numbers often disrupted the job search process. When that happened in this sample, people reported announcing their new phone numbers on Facebook or occasionally by email to all their contacts. Access to the Internet was essential for being able to contact friends and family when phone numbers were unstable. They were constantly receiving new numbers from their friends and family as well — their contact list was ever-shifting.

Especially germane to job hunting, area codes turned out to be a significant indexical marker that functioned to store information. Despite the fact that changes in phone number within low-income networks seem to be quite commonplace, an area code still indicated residence. As an example, Janet explained that she had recently gotten a new phone, and she was very disappointed to find that she still had a Santa Cruz area code. She had recently moved back to Oakland after having lived in Santa Cruz for 5 years. She said that all her friends kept asking her if she was still in Santa Cruz when she circulated her new phone number. When seeking employment, area codes were thought to signal other aspects of employability as well, which is consistent with previous work that finds the technology is used to conceal stigmatized identities, such as homelessness (Le Dantec and Edwards, 2008). If people had a 415 or 510 area code, this signaled that they had local ties and probably lived near public transportation in the Bay Area. However, an area code from outside the region risked signaling that he or she was transient and had not lived in the area long enough to get an Obamaphone locally. Applicants perceived that this might also signal being a high-risk employee—someone ready to move on without warning. As a result, efforts were made to have the *right* area code at the right time.

In short, in this sample, area codes and geographic residence is still very much linked, although linked in a different way than during a landline era. Indeed, now they are linked together precisely because of the way that people experience digital instability.

Workarounds for the dependably unstable

As the infrastructure and repair literatures both note, system breakdown is often a moment to highlight the necessity of cellphones (Graham and Thrift, 2007; Kuipers and Bell, 2018). In the case of personal digital infrastructure, this becomes apparent when we explore the workarounds that people must enact to maintain open communication.

Having a stable phone number while applying for jobs is clearly essential. One needs a place to get messages from interested potential employers and ideally the person answering the phone does not announce that the number belongs to a homeless shelter. But it is not simply phone connection that is important, as smartphones often function for

low-income populations as their primary Internet access (Tsetsi and Rains, 2017). In an interview, Gershon asked June if she could get online with her phone, and she answered,

June: Not anymore. I don't know what happened. It just stopped. So . . . and the little screen was too small to play with, but I was able to do a few things. But on June 10 it just stopped. I don't know what happened. And I'm like, what's wrong with my email?

Hana: Can you get a new phone? Can you replace it if it's broken?

June: I don't want to because I got my resume out there with this number right now. And I don't feel like taking out the time to call people. Give me a month or two. Because it's a pain in the ass . . . Without a phone, oh my gosh, I don't know. People can't call you back, you know! You can call them, and they'll be like, "Who is that," Who doesn't have a phone today? . . . How come you don't have a phone, what is your situation? It seems unstable to me. Do I want to risk it? Thank god for the free phone.

In particular, for June, getting a new phone number was a headache because she had job applications circulating with a phone number and she needed to be accessible on the number that she had provided. While her phone was not fully functional, at least it received calls, and so she was unwilling to replace the phone and thus be forced to call all the potential employers with her new number, signaling her precarious situation.

Because many of our informants were homeless in addition to being unemployed, another common problem that required workarounds was finding places to charge devices and access Wi-Fi (see also Humphry, 2014; Vázquez et al., 2015). The library was an important place to access these resources. Yet, outlets and terminals were in high demand and a lack of transportation—an essential component of finding and maintaining work in California—further complicated their search. As David described,

You were allowed 3 hours per day total through the whole library system. I would work for an hour in Pasadena and then go to the South Pasadena library, and then I'd go to the San Marino library, and I'd get my 3 hours that way. It required some traveling around. I didn't have a car, so I'd bike or take the train.

Sometimes people gave up on libraries all together to avoid these constraints. Leroy noted, "If I can afford a coffee, then yeah. McDonald's and Burger King also have free wifi. Sometimes it's my traveling office."

To complicate matters, institutional, corporate, and individual infrastructures are often intertwined in problematic ways that may shift responsibility for effective workarounds between clients, organizations, and the state. Many interviewees pointed out that technology access signaled reliability more broadly. To illustrate, Gershon's interview with a recruiter who specialized in finding caregivers revealed that she screened out possible caregivers who did not always answer their phones. The recruiter admitted her company's expectations of technological access was unrealistic, expectations which point to the interdependency between institutional offerings and individual resources:

When we hire, we show them how to look at a computer and see their schedule, but we still get people telling us they don't know their schedule. People have problems just logging in. And some people don't have computers, so they should go to the library. And we hate it when phones get shut off, because we should be a priority, you need to talk to us. If you are having financial problems—talk to us, and we can help. We give out advances a lot. We don't advertise that, but we do. I would love it if we could give a stipend for phone or gas—something that helps get the job done. Not just paid. . . . And how do you give someone \$20 and tell them to put it towards their phone bill? I wish we could give all caregivers a company phone.

This recruiter was willing to imagine a different delegation of responsibility between the staffing agency and the caregivers, a workaround that more closely resembled what California already made possible through its Lifeline Assistance, albeit only for those who qualified. This California-based recruiter was clearly encountering people living on the poverty line, despite the fact that they made too much to qualify for general assistance.

The delegation of responsibility within community-based organizations

The consequences of digital disruption are widespread and often overlooked, as indicated by the lived experiences of individual interviewees. Their experiences are shaped both by state and federal policies, as well as norms of job-seeking in the region. Given this, it is important to understand structural solutions that have been explored to fill gaps in the job-seeking process created by digital disruption. Although these solutions evolve as technological innovation and policies evolve, the following sheds additional insight into and the role delegation plays in responses to digital instability at an organizational level. Non-profit organizations are as involved in trying to manage how responsibility for technology maintenance was delegated as much as the clients they served (see also Le Dante and Edwards, 2008; Moser, 2009). As an example, we turn to Community Voice Mail (CVM), an organization now defunct in the United States, in part because funders believed Google Voice would eventually serve the same role, another delegation of responsibility between non-profit and technology corporation. The organization is still active among indigenous communities in Canada, partially because the Canadian government has no program comparable to Lifeline Assistance.

CVM was founded in 1991 by Pat Berry, inspired largely because of the plight of a homeless job seeker. Pat worked in Seattle's Labor Temple, a building that housed the headquarters of a number of the city's unions. James, a garrulous homeless man, would often stop by for a cup of coffee and to chat about his life experiences, which included stories about working with heating, ventilation, and air conditioning. They wanted to help him, but he was not a former union member. In the United States, this is a constant policy problem—you cannot get help unless you belong to a defined subgroup. One week, Pat received a request from an employer for a worker who knew how to fix air conditioning. She did not have anyone on her rolls with this skill who was free, but she quickly thought of James. Yet she had not seen James in a few days and realized she had no idea how to reach him. This was frustrating for her, and she figured out a solution, relying on a relatively new technological innovation at the time. Only a few years earlier, companies had begun installing voicemail systems which were not linked to specific

landlines—users could dial a number from any phone and receive any messages that had been left at a phone number reserved for that particular user. Pat realized that this technology could be used effectively by homeless people, who otherwise had no reliable way to receive messages that did not also signal, at the same time, that they were homeless. While occasionally homeless shelters would take messages, anyone answering the phone would announce what organization the potential employer was calling, and these messages, once written down, might also risk being misplaced.

CVM re-configured how responsibility for receiving and storing phone messages were stored. Homeless people could circulate the number, assured that they had complete control over the message that callers heard when they dialed the number. The messages would be preserved until they choose to delete the message. Unless they gave the number to someone else as well, they and the local CVM staff were the only ones with access to the messages. In addition, when potential employers left a message, they initially experienced this particular version of voice mail as second-order information that the person was likely to be employed, to be connected to a larger institution that could supply an individual voicemail, since at the time, primarily large companies, hospitals, and universities had this technology.

While homeless people would obviously use their voice mail to receive and store a wide range of messages, the fact that potential employers could leave messages captured the imagination of funding agencies. Within the first 2 months of establishing CVM, 70% of its users found jobs, a statistic that led to significant recognition from Ford Foundation, which gave them an innovation award in 1992. Part of the appeal for funders was that here was an instance in which a relatively cheap access to technology was seen as providing homeless people with the necessary tools to find employment. In a sense, this was an example of a different kind of delegation of responsibility, in which technological solutions allowed funders to overlook the socio-economic reasons why people might be homeless in the first place, and focus instead on a solution for a certain stage in the job search process that became an obstacle for homeless people without access to all the infrastructure of people who are housed. This success led over time to CVM's expansion; by 2005, CVM had offshoots in 43 cities around the country. Moreover, this type of institutional response to problems caused by the diffusion of technology across the job-market sector underscores that technology can, at times, also ameliorate these problems.

In the process of expansion, CVM also struggled with the same problems of technological maintenance that we have been describing occurs on an individual basis. Each city's branch initially had its own machines for storing voice mailboxes that had been adapted from hospitals for this particular use. Yet when the machines broke down, often no one on site knew how to fix it. The headquarters in Seattle often had to field a few too many questions about how to fix these machines, engaging with the complicated struggle of describing over the phone how to repair these machines. Finally the director, Jennifer Brandon, decided to switch to another technology so that the Seattle office housed all the equipment that contained the actual voice mailboxes, centralizing the responsibility for maintaining the technology. Maintenance, in other words, is a problem at all levels of scale.

Conclusion

As recently introduced technologies alter how hiring takes place, job seekers have had to develop new strategies in response. In the United States, looking for work these days requires technologies that presuppose a home—a mobile phone that can be charged easily as well as relatively long stretches of access to a computer with Internet. Earlier studies of dependably digitally unstable job seekers showed that they had to develop techniques for disguising their instability by, for example, by concealing from potential employers that they could not pay their phone bill by claiming instead to be traveling (Gonzales et al., 2016). Instead, those interviewed for this study had access to free phones through the government, and computers through public libraries, but their phones were constantly breaking or being stolen and public libraries had time limits on computer usage. In other words, informants often knew that they were going to be without access to digital technology at some point in a month, they just did not know when. As a result, this group of people had to develop anticipatory strategies for maintaining channels of communication and storing information.

Part of the work of keeping people on the margins connected to channels of communication involves figuring out how best to relegate control over maintaining access to technology. As delegations of responsibility become more centralized in institutions—non-profits, corporations, and governments—some of the burden of maintenance is removed from individuals. Yet, in many cases, this requires a new set of maintenance practices for low-income citizens, such as learning how to circumvent restrictive cellphone replacement policies or storing digital employment materials in multiple locations. By and large, sharing the burden of maintenance, such as is done in California per state Lifeline policy, seemed to help reduce the burden of staying connected and looking for work. Compared to participants from previous technology maintenance studies (Gonzales, 2014, 2016; Gonzales et al., 2016), informants in this study had minimal problems ensuring some form of voice service, despite the fact that many still had to expend a fair amount of effort to replace frequently lost, stolen, or broken phones. Although shared delegation creates new types of maintenance at the individual level, these experiences appeared to be less burdensome than the workarounds required when delegation of maintenance falls more directly on the individual alone. Our informants value different technologies accordingly, depending on whether they were responsible for maintaining the technology or whether a company, non-profit organization, or other person could assume responsibility.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Ilana Gershon  <https://orcid.org/0000-0003-0447-0694>

Notes

1. Based on Gershon's own ethnographic research.
2. There are many important reasons to ensure digital connection. Low-income and homeless populations may benefit just as much from the entertainment offerings of information and communication technologies (ICT) (such as videos, music, news) as the instrumental support (e.g. contacting with social services, employers, etc.) (Gui et al., 2016). We do not dismiss those broader reasons for connection even as we focus on issues of unemployment.

References

- Akrich M (1992) The de-scription of a technical object. In: Bijker WE and Law J (eds) *Shaping Technology/Building Society: Studies in Sociotechnical Change*. Cambridge, MA: MIT Press, pp. 205–224.
- Blumberg SJ and Luke JV (2016) Wireless substitution: early release of estimates from the National Health Interview Survey, January–June 2016. National Center for Health Statistics. Available at: <https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201705.pdf>
- Carnevale A, Jayasundera T and Repnikov D (2014, April) *Understanding Job Ads Online Data: A Technical Report*. Georgetown University.
- Christen K (2012) Does information really want to be free? Indigenous knowledge systems and the question of openness. *International Journal of Communication* 6: 2870–2893.
- Eubanks V (2011) *Digital Dead End: Fighting for Social Justice in the Information Age*. Cambridge, MA: The MIT Press.
- Eyrich-Garg KM (2011) Sheltered in cyberspace? Computer use among the unsheltered “street” homeless. *Computers in Human Behavior* 27(1): 296–303.
- Fung B (2017) This low-cost phone and internet program wastes millions in federal funding, auditors say. *Washington Post*, 29 June. Available at: <https://www.washingtonpost.com/news/the-switch/wp/2017/06/29/critics-say-this-low-cost-phone-and-internet-program-is-riddled-with-waste-and-abuse-theyre-right/>
- Gershon I (2017) *Down and Out in the New Economy: How People Find (or Don't Find) Work Today*. Chicago: University of Chicago Press.
- Ghosh I (2016) Contextualizing intermediated use in the developing world: findings from India & Ghana. In: *Proceedings of the 2016 CHI conference on human factors in computing systems (CHI '16)*, San Jose, CA, May, pp. 355–359. New York, NY: ACM.
- Gonzales AL (2014) Health benefits and barriers to cell phone use in low-income U.S. neighborhoods: indications of technology maintenance. *Mobile Media and Communication* 2(3): 233–248.
- Gonzales AL (2016) The contemporary US digital divide: from initial access to technology maintenance. *Information, Communication and Society* 19(2): 234–248.
- Gonzales AL, Calarco J and Lynch T (2020) Technology problems and student achievement gaps: a validation and extension of the technology maintenance construct. *Communication Research* 47(5): 750–770.
- Gonzales AL, Ems L and Suri R (2016) Cell phone disconnection disrupts access to healthcare and health resources: a technology maintenance perspective. *New Media and Society* 18(8): 1422–1438.
- Graham S and Thrift N (2007) Out of order: understanding repair and maintenance. *Theory, Culture, and Society* 24(3): 1–25.
- Gui X, Forbat J, Nardi B, et al. (2016) Use of information and communication technology among street drifters in Los Angeles. *First Monday* 21(9): 7.

- Humphry J (2014) The importance of circumstance: digital access and affordability for people experiencing homelessness. *Australian Journal of Telecommunications and the Digital Economy* 2(3): 55.1–55.15.
- Jackson S (2014) Rethinking repair. In: Gillespie T, Boczkowski P and Foot K (eds) *Media Technologies: Essays on Communication, Materiality and Society*. Cambridge, MA: MIT Press, 221–240.
- Johnson L (1988) Telephone assistance programs for low-income households: a preliminary assessment. Report, Rand Corporation, Santa Monica, CA, February.
- Kelty C (2005) Trust among the algorithms. In: Ghosh R (ed.) *CODE: Collaborative Ownership and the Digital Economy*. Cambridge, MA: MIT Press.
- Kuipers J and Bell J with Hazen J, et al. (2018) Intimate materialities in cellphone repair: performance, anxiety, and trust in DC repair shops. In: Kuipers J and Bell J (eds) *Linguistic and Material Intimacies in Cellphone Communication*. New York: Routledge, pp. 237–265.
- Latour B (1992) Where are the missing masses? The sociology of a few mundane artifacts. In: Bijker WE and John Law J (eds) *Shaping Technology/Building Society: Studies in Sociotechnical Change*. Cambridge, MA: MIT Press, pp. 225–258.
- Le Dantec CA and Edwards WK (2008) The view from the trenches: organization, power, and technology at two nonprofit homeless outreach centers. In: *Proceedings of the 2008 ACM conference on computer supported cooperative work (CSCW '08)*, San Diego, CA, 8–12 November, pp. 589–598. New York: ACM.
- Ling R (2012) *Taken for Grantedness: The Embedding of Mobile Communication into Society*. Cambridge, MA: MIT Press.
- Makarewicz T (1991) The effectiveness of low-income telephone assistance programmes: Southwestern Bell's experience. *Telecommunications Policy* 15(3): 223–240.
- Miles MB, Huberman AM and Saldana J (2013) *Qualitative Data Analysis: A Methods Sourcebook*. 3rd ed. Thousand Oaks, CA: SAGE.
- Moser MA (2009) Text “superpowers”: a study of computers in homeless shelters. *Science, Technology, & Human Values* 34(6): 705–740.
- Neale J and Stevenson C (2014) Homeless drug users and information technology: a qualitative study with potential implications for recovery from drug dependence. *Substance Use & Misuse* 49(11): 1465–1472.
- Norris P (2001) *Digital Divide: Civic Engagement, Information Poverty, and the Internet Worldwide*. New York: Cambridge University Press.
- Pew Research Center (2016) Key indicator demographic highlight report March 15, 2016. Pew Research Center Internet Project Survey, 9–12 January 2014. Available at: <http://www.pewinternet.org/data-trend/internet-use/latest-stats/>
- Rice E and Barman-Adhikari A (2014) Internet and social media use as a resource among homeless youth. *Journal of Computer-Mediated Communication* 19(2): 232–247.
- Rideout VJ and Katz VS (2016) *Opportunity for All? Technology and Learning in Lower-Income Families* (A report of the Families and Media Project). New York: The Joan Ganz Cooney Center at Sesame Workshop.
- Robinson L (2014) Endowed, entrepreneurial, and empowered-strivers: doing a lot with a lot, doing a lot with a little. *Information, Communication and Society* 17(5): 521–536.
- Smith A (2015) Searching for work in the digital era. Report, Pew Research Center, Washington, DC, November.
- Srinivasan R (2017) *Whose Global Village? Rethinking How Technology Shapes Our World*. New York: New York University Press.
- Stiegler B (1994) *Technics and Time*. Paris: Galilee.

- Tsetsi E and Rains SA (2017) Smartphone Internet access and use: extending the digital divide and usage gap. *Mobile Media and Communication* 5(3): 239–255.
- Van Dijk JAGM (2005) *The Deepening Divide: Inequality in the Information Society*. Thousand Oaks, CA: SAGE.
- Vázquez JJ, Panadero S, Martín R, et al. (2015) Access to new information and communication technologies among homeless people in Madrid (Spain). *Journal of Community Psychology* 43(3): 338–347.
- Viswanath K and Kreuter MW (2007) Health disparities, communication inequalities, and e-health: a commentary. *American Journal of Preventative Medicine* 32(Suppl. 5): S131–S133.
- Woelfer J and Hendry D (2010) Homeless young people's experiences with information systems: life and work in a community technology center. In: *Proceedings of the SIGCHI conference on human factors in computing systems (CHI '10)*, Atlanta, GA, April, pp. 1291–1300. New York: ACM.

Author biographies

Ilana Gershon is the Ruth N. Halls professor of anthropology at Indiana University. She has written about hiring practices in the US in her book, *Down and Out in the New Economy: How People Find (or Don't Find) Work Today* (Chicago, 2017).

Amy Gonzales is an associate professor of communication at University of California, Santa Barbara. Her work examines the effects of social interaction via communication technologies on individual identity, social support, and well-being and the consequences of disrupted access to communication technology.