

Towards an Effective Digital Literacy Intervention to Assist Returning Citizens with Job Search

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ABSTRACT

Returning citizens (formerly incarcerated individuals) face great challenges finding employment, and these are exacerbated by the need for digital literacy in modern job search. Through 23 semi-structured interviews and a pilot digital literacy course with returning citizens in the Greater Detroit area, we explore tactics and needs with respect to job search and digital technology.

Returning citizens exhibit great diversity, but overall, we find our participants to have striking gaps in digital literacy upon release, even as they are quickly introduced to smartphones by friends and family. They tend to have employable skills and ability to use offline social networks to find opportunities, but have little understanding of formal job search processes, online or offline. They mostly mirror mainstream use of mobile technology, but they have various reasons to avoid social media. These and other findings lead to recommendations for digital literacy programs for returning citizens.

CCS CONCEPTS

- Social and professional topics → Computing literacy.

KEYWORDS

Returning citizen; formerly incarcerated; digital literacy; employment

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1 INTRODUCTION

Formerly incarcerated individuals, hereinafter referred to as *returning citizens*, face several challenges when released from prison, one of which is finding employment [3, 8, 26]. Job search is challenging for most people, but returning citizens face additional obstacles due to their criminal record and gaps in employment. Additionally, job search today involves digital elements, whether it is to search job postings, prepare resumes, apply online, or communicate via email. Yet, inmates have very limited opportunities to learn digital skills – at least in the U.S., prisons do not provide internet access, and digital literacy trainings if offered at all are limited [14, 28, 30].

Despite a considerable body of literature on the difficulties of reentry [2, 3, 8, 13, 26], there is almost no empirical research to understand the interaction between digital literacy and job search for returning citizens, nor scholarly efforts to design or evaluate digital literacy programs for them. This may be due to several factors: First, the massive rise in the U.S. prison population in the last quarter of the 20th century may have caused researchers to focus on more prominent issues of incarceration. Second, it is unclear whether the bottleneck to returning citizen employment is due to the lack of employable skills or difficulties with the process of job search. Third, the mainstreaming of digital tools in everyday life, and specifically for job search, is a relatively recent phenomenon, so it is only recently that those with long prison sentences have come home to a newly digital world. Whatever the reasons, the need for digital literacy presents a further obstacle to returning citizens seeking to lead productive lives.

We seek to understand how returning citizens search for jobs; how they interact with digital technologies, both in general and specifically for job search; and how to design digital literacy programs for them. To do this, we ran a two-phase study: In Phase I, we conducted semi-structured interviews with 23 returning citizens in the Greater Detroit area, with a protocol focused on their job-related skills, job search tactics, and digital technology use. Among the novel findings are that while returning citizens who faced long sentences emerge with almost no digital literacy skills, they are quickly provided a mobile phone – often a smartphone – by their family or friends; that many returning citizens have a range of employable skills, and are moderately capable of using their social ties to find opportunities, few are equipped with the more formal processes of job search, either online or offline; and that while returning citizens use digital technology for purposes similar to those of mainstream users – for basic communication, for entertainment, and for online information search – they are wary of social media for a range of reasons.

In Phase II, we piloted a six-week digital literacy course using an action research paradigm for a handful of returning citizens. The initial curriculum was designed based on findings from Phase I, but the actual classes offered further lessons that we immediately folded into the remaining classes: Among them, returning citizens are *hungry* for this knowledge – they own devices they know to be powerful, and which they want to understand better; managing diversity of incoming skill levels requires a combination of structured class time and open time for personalized, one-to-one instruction; significant work must be done to help students catch up to intuitive cognitive models that much of society now takes for granted.

To our knowledge, this is the first study of its kind. It extends prior human-computer interaction literature that explores the role of technology in job search, particularly among underserved populations [10, 11, 18, 20, 21, 39]. It also expands recent HCI research concerned with prisons and inmates [36] to concerns about how to reduce incarceration [4].

Our longer-term hope is to inform programs that assist returning citizens as they integrate back into society.

2 RELATED WORK

Challenges in Reentry

Returning citizens face many issues upon reentry including challenges obtaining employment, housing, social support, and healthcare (e.g., substance use rehabilitation) [3, 8, 16]. Employment is consistently ranked as one of the most critical issues for returning citizens to achieve upon reentry [3, 13]. In response, researchers have recommended reentry

services that address education, job seeking, job training, money management, life skills, personal relationships, and formal documentation such as driver's licenses [25]. Freeman [13] found that behavioral cognitive treatment, employer engagement with returning citizens, and healthcare-related support were effective forms of treatment. However, the effectiveness of actual reentry programs in assisting returning citizens is rarely evaluated [2, 13, 32], possibly because there is no consensus on what constitutes success upon reentry [2, 13].

Our work takes this large literature on returning citizens as a foundation, taking the consensus that employment is a key aspect of successful reentry as a starting point. We also confirm in the Findings section a point noted by much of this research – that the challenges of job search, healthcare, social support, and so forth can be mutually reinforcing [2, 3, 8]. The flip side of this, however, is that easing the burden of employment may have cascading positive effects on other life dimensions.

Returning Citizens and Job Search

Job search is challenging for returning citizens for a number of reasons. First, returning citizens' educational preparation and socio-economic background are lower than that for the general population, all of which sets up known barriers to employment [22]. Job search is also known to depend greatly on social networks and the ability to capitalize on them [39], but returning citizens tend to have either limited networks or networks less connected to legitimate work [6, 12]. Lastly, returning citizens must contend not only with the stigma of incarceration [27], but also with the dilemmas of whether and when to disclose their prior criminal history [16, 22].

Among researchers who focus on returning citizens, a few have identified the increasing reliance of job search on digital technology [28, 30], but that work does not report on returning citizens' actual digital literacy or examine possibilities for literacy training. Within the HCI community, one group has considered HCI in prisons and for inmates given the increasing use of technology in prison life [36], but they did not consider challenges post-release. Other relevant work includes research focused on job search among a range of underserved communities – low-income urban adults, homeless populations, older adults, and so on [10, 11, 18, 20, 21, 39], but while these explorations occasionally include a returning citizen or two among the participants, they do not identify trends particular to returning citizens.

Digital Literacy, Job Search, and Reentry

A Pew Research Study notes the critical importance of digital literacy in contemporary job search [30]. (We borrow a definition of digital literacy from the American Library Association: "the ability to use information and communication

technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills” [1].) Flipping traditional findings that show reliance on word of mouth, the study reports that online employment resources (79%) are now used by more people than personal networks (66%) [30].

To our knowledge, the only existing research to consider digital literacy in returning-citizen job search so far are Reisdorf and Rikard [28] and Sugie [34]. Topically, Reisdorf and Rikard’s paper is the most relevant for our study. They offer a sociological framework called ‘digital rehabilitation’ for incorporating digital skills when considering returning citizen reentry needs [28]. The digital rehabilitation model integrates a communication-theoretic model that sees digital exclusion as mirroring offline social exclusion [19] with a two-phase conceptualization of rehabilitation spanning time in prison and reentry. While their work is based in part on a study of digital encounters among inmates in England and Northern Ireland [24], they do not report empirical findings specifically about returning citizens. They do, however, call for reentry programs to pay greater attention to the digital, and our work is in part a response to that call.

Conversely, Sugie [34] delivers the only article we could find focused on returning citizens’ actual technology usage. The overall findings, based on returning citizens’ cell phone usage during three months immediately after their release are that there is heterogeneity in the patterns of returning citizen and their search for work, but the dominant pattern returning citizens used was consistent job search that was short lived after their first month, which did not coincide with increases in employment.

With respect to job search, there is a brief comment that raises more questions than it answers: that inconsistent job searching behavior possibly contributed to poor job search outcomes.

HCI and Job Search

Dillahunt et al. contribute a literature review of HCI research that explores the barriers that underserved job seekers face and key design insights from these investigations [11]. They found that underserved job seekers require support for their *social*, *personal*, and *societal* needs. *Social* needs include the need for social networks, especially to connect to job leads and to provide feedback on resumes and interviews, social resources, and emotional support; *personal* needs require effort from one’s self such as the ability to articulate one’s skills and career path and the ability to self-reflect; and *societal* needs refer to challenges that require government or community implementation such as the need for public transportation, support for combating discrimination, and childcare access. In terms of design insights, these authors found that low-resource job seekers had an overwhelming preference for

employment tools that addressed their *social* and *personal* needs. While some of these needs and digital concepts may be beneficial to returning citizens, the review of past HCI literature for underserved job seekers did not include this group. Underserved job seekers in this work included homeless youth [20, 21], youth with autism spectrum disorder (ASD) [18], and job seekers from low-income and transportation-scarce areas [10, 39]. As prior research calls out, exploring the employment needs of job seekers with prior felonies and ways to address these needs through design (beyond providing a list of felony-friendly companies) is an open research area [10].

All of this is to say that while there have been many efforts addressing adjacent issues, no studies so far offer an empirical exploration of how digital literacy and digital tool use intersects with job search among returning citizens, and no research has explored the design of digital literacy programs for them.

3 METHODOLOGY

Due to the exploratory nature of this research study we ran our study in two phases. In Phase I, we used a qualitative research methodology based on semi-structured interviews. In Phase II, we applied action research during a six-week pilot digital literacy training course.

Participant Recruitment

We sought returning citizens who had been released from prison within a year of the study, so as to ensure that their experiences of job search and re-integration were still fresh in their minds. Otherwise, we sought diversity in terms of age, gender, and background so as to cover a wide range of potential behaviors and experiences. Recruitment continued until we reached saturation in the interviews – when we only rarely heard new *classes* of information from participants – e.g., different ways of learning job skills, different aspects of smartphone use, etc. – even if the specifics continued to differ from person to person. Participants were recruited through five local reentry organizations (four non-profit, and one government agency) and snowball sampling.

Interviewees were pre-screened by phone to identify if they were 18 or over, were out of prison for less than a year, and identified as a returning citizen. We verified interviewees’ prison time using Michigan’s Department of Corrections Offender Tracking System after each interview session, which provides public records about state prison sentences. Ultimately, we interviewed 23 returning citizens.

Of our 23 participants, 19 were men and 4 were women (women represent only 7% of the U.S. prison population [7], so these numbers are proportionately skewed toward women, but we felt that without at least a few women, we would have too little data about their experience). One of our

participants was between 65-74 years of age; six were 55-64; eight, 45-54; four, 35-44; three, 25-34; and one, 18-25. Sixteen of the participants identified as African American, five identified as mixed race, one was White, and another was Hispanic. Ten of the participants' highest educational level was less than high school; eight had a high-school degree or Graduate Equivalency Diploma; and five participants had tertiary degrees, with one person with a doctorate. In a stark reminder of the income opportunities available to returning citizens, eighteen of our interviewees earned less than \$20,000 a year, and seventeen were unemployed (there is overlap between these groups, as several participants earned income informally). Five participants made over \$20,000 a year.

Twenty of the participants had been in state prison, two in a federal prison, and one in an out-of-state prison. Participants ranged in the nature of their convictions from controlled substance abuse, arson, assault, home invasion, identity theft, murder, perjury, possession of explosives, racketeering, robbery, sexual assault, and theft. Prison sentences ranged from 6 months to 45 years.

Each interview participant was also asked whether they would be interested in a digital literacy course for our Phase II. Out of those who responded positively (the vast majority), we shortlisted eight people based on our perceptions of their textual literacy, smartphone ownership, access to a laptop, and ability to perform well in a classroom context. In screening for these traits, we intentionally chose students who we thought would be easier to teach, in recognition of the fact that this was a pilot, and in anticipation of the significant efforts we would need to make week-to-week to adapt the curriculum. We called each candidate in turn, and asked whether they could attend six Sunday sessions, and we accepted the first four who assented for inclusion in Phase II. Though not by design, none of the accepted participants held a job.

Phase I: Interviews and Survey

We performed the interviews using a semi-structured protocol that explored interviewees' previous jobs or careers prior to being incarcerated, their work performed while being incarcerated (legal and illegal), their experiences once they returned home, the moment they obtained their first digital device upon return, their job search activities and experiences to-date, their general use of technology, and their expectations of what a digital literacy course would teach. At the end of the interview, we conducted short demographic survey that included basic questions about gender, age, income, educational level, and prison facility type (state vs. federal). We read surveys aloud to participants in anticipation of diverse educational backgrounds.

We conducted interviews in neutral locations such as libraries, fast-food restaurants, and reentry organization offices. Interviews ranged from 20 to 90 minutes, with the average length being 44 minutes. Participants were compensated \$30 for their time and transport costs.

Phase II: Action Research with Digital Literacy Classes

Using an action research paradigm [17], we held a pilot digital literacy training course that occurred as six three-hour sessions over successive Sundays in the summer of 2018. The pilot intended to include four participants, but only three were ultimately able to participate. The classes were conducted at one of our reentry partner's offices. Participants were compensated \$20 per hour of class, both to assist with transportation costs and to compensate for their time, as it was time they could have spent searching for work, finding resources, or building networks. Fieldnotes were recorded after each class, and most of the classes were additionally audio-recorded with permission of the participants.

Instruction was led by the first author, assisted by one to three university students, depending on the week. The class focused on digital skills appropriate for a laptop. An initial curriculum was developed based on insights from Phase I. However, following action research's plan-act-reflect cycle, each class resulted in findings that caused adjustments to future classes. As will be mentioned in the Findings, in some cases, these changes were significant.

Data Security and Data Analysis

All Phase I interviews and Phase II classes were audio recorded and transcribed. We followed a strict security protocol in handling participant audio recordings. All files were stored on our institution's cloud storage, which has been evaluated for security and approved by our institutional review board to hold sensitive data. In all work downstream of transcriptions, participant names were replaced with codes: P1, P2, ... P23.

For the Phase I data, we analyzed transcripts using thematic clustering and iterative summarization, with a focus on our research questions and content not revealed in previous literature. Two authors performed a preliminary clustering by reviewing the first four interview transcripts. Conversational segments focused on the same topics were physically cut and organized into piles (these segments often, but not always, followed the question sequence in the interview protocol). A couple of large piles were broken up into smaller piles, and a few small piles were merged. Once the interviews were clustered in this way, each pile was read and re-read to identify common themes or emerging patterns across interviewees. This process was then iteratively repeated with the remaining interviews. During iteration, a

few new clusters were created based on content that did not fit the original clusters. Ultimately, ten themes were identified, and these form the subsections and sub-subsections in the Phase I Findings section below.

For Phase II, we read through fieldnotes and reflected on the instructional experience after each class. As our goal in the reflection sessions was to refine the digital literacy curriculum in time for the following week, we analyzed the data by asking the following questions: (1) What, if anything, went well/poorly? (2) What were the possible causes of good/bad outcomes? And, (3) How could the content, nature, or organization of class activities be improved? Some but not all of the findings resulting from these reflections, along with the solutions we tried, are detailed in the Phase II Findings section.

4 PHASE I INTERVIEWS: FINDINGS

Daily life upon reentry – challenges faced, career aspirations, and social support – was very much as noted in sociological studies [3, 8, 13, 25]. Below, we only summarize these findings and move onto technology-specific issues which have not been detailed elsewhere.

Life Upon Reentry

Participants identified a range of issues upon reentry including challenges with getting around (e.g., going to parole check-in meetings, buying groceries), remaining sober, “staying out of trouble,” doing menial work at advanced ages, and dealing with boredom. However, consistent with prior literature, finding employment and maintaining health were the most salient issues [3, 8, 13].

Surprisingly, years in the prison system did not appear to dampen our participants’ career aspirations, though most were well aware of the difficulties attaining them. All participants aspired to be independent. And, differing from previous work, seven noted wanting to start a business of their own. A few seemed less interested in the nature of the job, as much in what it could allow them to obtain – a house or a car.

Still, participants were aware of the difficulty achieving their goals. Most participants acknowledged the reality that earning a living wage was itself difficult for them. We also found that very few participants mentioned formal education as a route to better jobs, and those who did had dubious notions of what constituted good education – some seemed to echo the marketing materials of predatory for-profit universities. We suspect these views were due primary to participants’ socio-economic backgrounds.

Among our participants, most had some form of family support and/or public assistance to assist with reentry, and this was highly valued. Families, intimate partners, and close friends were called out by almost all of our participants as

providers of everything from housing, food, money, transportation, encouragement, and social engagement. This differs from previous findings, but the difference is likely due to our recruiting methodology (as noted later in Discussion).

At the same time, participants did not always feel positive about their dependence. Many mentioned not wanting to be a burden to their support systems. Several participants wistfully mentioned altered family dynamics (compared against their pre-prison life) due to parents passing away or parents not being present in their lives. Some participants also mentioned a concern about being patrolled or lacking freedom in family contexts.

Interactions with Digital Technology

We next discuss how participants first came into contact with digital devices upon reentry, how participants learned to use the devices, and how participants used their technology.

Technology Ownership Access. Returning citizens who served a decade or more in prison noted with surprise that mobile phones, which had not existed before they entered prison, were now everywhere. And, all of our participants reported that they obtained a mobile phone from family or close friends soon after release – for most, this happened within days, even hours, of release. P5 (male, 25+, incarcerated for 4 years) mentioned a friend provided a phone within two weeks. P4 (male, 55+, incarcerated for over 40 years) mentioned obtaining his phone the day after release accompanied by his wife. P2 (male, 45+, in and out of prison since 17) stated that he received his phone fully set up from his brother. For the most part, our participants had smartphones, as we often witnessed during interviews.

It was also true for most of our participants that their mobile phone was the *only* form of digital technology they owned. Quite a few noted, however, that they lived with family members who owned laptops, MP3 players, video game consoles, and other forms of digital technology that they had some access to. A handful of our participants reported owning their own laptop.

Learning about Technology. Our participants unanimously mentioned that they learned about technology from family, intimate partners, and friends. There was a strong reliance on younger family members or friends for support on technical issues. Speaking about his grandson, P12 (male, 55+, in and out of prison since 39) remarked,

He is like 16. And me and him, we be joshing around. He likes to play games and stuff on it, and showing me how to do certain things on it. Because, you know, I’m kind of computer illiterate.

P4 (male, 55+, incarcerated for over 40 years) mentioned that his daughter and niece showed him how to “take pictures on it, how to download apps and get certain things or information... Google, YouTube, how, if you want to learn stuff, go to YouTube.”

But while learning from family, friends, and strangers was essential for basic digital literacy, it seemed to remain at a superficial or recreational level. Rarely did this type of learning provide skills to support job search. When we asked P2 (male, 45+, in and out of prison since 17) what items his girlfriend and nephew showed him how to use on his phone, he said,

Plenty of fish dot com. What else. Oh, how to use the internet, how to watch porn. The games, the little games you can get.

If friends and family were not sufficient for solid digital literacy, what about formal classes? A few participants mentioned seeking college courses to learn about technology, though only two enrolled. However, neither of them completed their courses. We suspect that there is a gap between what returning citizens readily learn from friends and family, and the formal digital literacy classes that are offered. P10 (male, 55+, incarcerated for over 30 years) said,

I went to a class... this summer and I thought I was gonna be able to do it. The lady was just... the professor, she was unforgiving, because she went, boom boom, boom, boom boom... I couldn't keep up with her... So, I went and I dropped that class.

Technology Usage and Social Media. Returning citizens used their smartphones for voice calls, entertainment, daily tasks (e.g., bus schedules), and occasional tasks relevant to job search. P2 (male, 45+, in and out of prison since 17) mentioned using their phone for calling and setting appointments. Somewhat rarer were consistent users of email and calendars. Most participants did not appear to make regular use of any specific mobile apps, but some participants mentioned specific websites such as Indeed.com for job search. In other words, with a key exception noted below, the everyday use of digital technology by returning citizens appears to mirror everyday usage by others.

When participants mentioned specific activities during our interviews, we sometimes asked them to show us what they did on their smartphones, and in general, they responded with a quick demonstration. These participants agilely performed basic functions such as unlocking the phone with a password, clicking on an icon, calling up a browser, or reading/sending text messages. A basic foundation of digital literacy appeared to be in place.

Only about half were *intentional* users of the internet – that is they used features such as online search or email, and vaguely understood that these activities entailed digital communication with infrastructure other than the phone itself. One participant was familiar with Google Assistant, and spoke of his first encounter with speech-based search with palpable awe. These participants primarily used online search, though sometimes the search seemed to be constrained to searches on YouTube. A few specifically mentioned YouTube as a site where they could learn new skills. For example, P4 (male, 55+, incarcerated for over 40 years) stated,

Yesterday I was on the phone, and I Googled rotors... My daughter got like a 2014 Malibu... So that's something I did, for instance. Like, I would know to do that now, as opposed to, I probably wouldn't have even thought about that [before].

One surprising finding was that despite tech-use patterns similar to mainstream use, returning citizens diverged when it came to social media. No participant frequented social media sites daily. There was hardly any mention of social media in our interview transcripts, despite direct prompts about it. It emerged that they had various reasons to actively avoid it. Some had specific parole restrictions on internet use. Others had restrictions on whom they could interact with, and social media was seen as a channel to transgress. For example, P14 (male, 45+, incarcerated twice since age 35) mentioned not wanting to stumble into inappropriate content while using the internet, so much so that he chose to stay with a feature phone. P10 (male, 55+, incarcerated for over 30 years) wanted to learn more about digital technology, but said that he did not want to become too attached to his phone. It seems possible that parole rules have spilled over into a general wariness of social media among returning citizens. P18 summed up,

I've never been into that social media – Instagram, Facebook. I don't even deal with it... Because everybody I know I basically can be in touch with. Like my family, I know all their numbers. I just never been into it really.

Interest in Digital Literacy Training. Finally, we asked participants whether they had any interest in digital literacy training programs. All participants responded with a resounding ‘Yes!’ when asked. Most participants expressed interest in learning advanced skills such as graphic design, web design, or computing skills that they thought could open the door to more opportunities. P13 (male, 55+, incarcerated for two years) said,

Maybe graphics... As far as designing a page or something like that. Like a page for a company on the computer.

Several participants stated that they wanted to learn everything there was to learn about computers. When probed, these participants were unable to unpack what they meant by 'everything.' P10 (male, 55+, incarcerated for over 30 years), referring to those with computer skills, said,

Everything. They do everything. They connect, and change over. They know how to go into a file. I don't know how to go into a file or anything of that nature. I don't know how to create a file. I need to know how to utilize a computer as it is.

Others were less ambitious but more specific. They wanted to learn basic skills such as how to set a calendar reminder, how to identify "useful apps," and how to search for specific information such as job opportunities.

Job Preparation and Job Search

In this final section of our findings from interviews, we report what we learned about job preparation and job search. Our participants all had employable skills, some acquired before prison and some during. These skewed overall toward menial or blue-collar skills, but not always – among our participants were people with skills in teaching, tattoo art, paralegal work, and theology. On the whole, however, they struggled to convert skills to income for a variety of reasons: discrimination against convicted felons in hiring, lack of familiarity with formal job application processes (both online and offline), and miscellaneous obstacles to closing on a job.

Prison Jobs and Learning Opportunities. Prison itself offered opportunities to gain work experience. Most of the work was blue collar work performed in support of the prison system itself. Common jobs included custodian or porter in prison – the latter a kind of correctional officer's assistant position involving tasks such as cleaning or organizing. Other common jobs included cooking, plumbing, painting, being on the yard crew, shoveling snow, removing trees, fixing machinery, and doing laundry. Income was at very low prison rates – P5 (male, 25+, incarcerated for 4 years) noted, "It had to have been, like, cents, though, a day. Because the pay rate at the end of the month was, like, 26 dollars" – but they nevertheless could translate to work outside of prison. One of our participants was hired after release by McDonald's as a technician.

A minority of participants mentioned holding white-collar jobs while in prison. They worked as tutors, librarians, teachers, and paralegals. One participant noted that educational institutions that serve prisons encourage people to learn about the law so as to better navigate the legal system with which they routinely interact. There was also a mention of

tattoo art as an income-generating skill practiced in prison. All of this work, of course, involves potentially employable skills.

And, though not formally work, some participants also mentioned "hustling" in prison as a way to earn income and food items. Hustles tended to involve some form of informal gambling or loan-making. For instance, P13 (male, 55+, incarcerated for two years) ran a lottery in prison:

I was the lottery guy. Okay, so what I did was... I would come to you and say, "Do you want to get in the lottery?" I had this big sheet that's got like 200 squares on it. And you could pick out your squares. But each square costs you a dollar... But I'm accepting food only. So you might have a can of tuna, which is a dollar. Meat stick, bag of chips, cakes, or whatever. So you take that and I put it in this big bag. And then in a couple of days, this bag is full with like 300 bucks... There's going to be a winner for 250. I'm taking 50 dollars off the top... I would do it twice a week.

Without conflating hustling with formal work, we can nevertheless surmise that the initiative and considerable social skills required to make such a scheme work might translate into skills for entrepreneurship, of which as we saw above, there was much interest.

It is also worth mentioning that prison frequently, if inconsistently, offers opportunities for formal learning. Many of our participants – especially those serving long sentences – took classes through formal prison programs, some of which were run in partnership with local colleges or universities. One impressive case involves a man who reportedly earned a doctorate in metaphysics while in prison. Another man incarcerated for over 40 years entered prison at a third-grade reading level but ultimately earned a bachelors degree in behavioral science. He reported that under rules that prevented the state for paying for more than one degree, he intentionally postponed graduation so that he would continue to be eligible to take courses. One notable theme among this group was that they would seek out prison transfers as a way to access different educational opportunities. For example, P10 (male, 55+, incarcerated for 30 years), remarked,

I was transferred about six times, and four of those times was on my own request because I was, you know I wanted to do something different.

These anecdotes emphasize success stories, but we mention that participants who took formal courses reported that it was a struggle throughout – to sniff out educational opportunities; to gain permission to enroll; to remain in a course to complete it; and so on. P1 (male, 60+, incarcerated since 17) said, "I took every opportunity I could get."

In any case, returning citizens appear to be reasonably prepared for the job market, though the degree to which their specific preparation matches their aspirations is highly variable.

Offline Job Search. Prison systems often provide reentry classes and resources about organizations that hire felons. However, these were generally perceived by our participants as inadequate: They were out of date, focused on low-wage jobs, or simply insufficient in terms of the breadth and depth of knowledge or support they offered. Meanwhile, government and non-profit resources for returning citizens are generally underfunded, so even when well-intentioned, they are unable to provide the intensive, individualized attention that returning citizens need [13]. As a result, returning citizens must rely on their own social networks and street smarts to find work, and they must do this while navigating some difficult constraints.

Among the constraints are parole restrictions that inhibit the type of work they could perform. This further narrowed job opportunities for some participants. For example P15 (male, 65+, incarcerated since 25) alluded to being geographically tethered during parole (a tether is a legal or electronically enforced restriction on where the parolee can go):

I'm tethered right now. I'm more restricted. Tethered for 90 days. After 90 days I'd be on tether where I can move around and go anywhere I want to in [this state]... And after I get out there I'm going to get a job. I can get a job now, but there's so much restriction on it.

Other constraints are those imposed by family on whom the returning citizen relies. Several of our participants mentioned pressures to get “just any job,” even if it did not fit their self-image.

Whatever the difficulties, returning citizens must nevertheless navigate an unfriendly job market. Because so much white-collar work is dependent on a successful background check (that would instantly disqualify our participants), the obvious options available to them are low-skill jobs – manual labor, retail jobs, and informal work. These jobs in turn appear to be less systematic than white-collar jobs in being posted online or on government job-matching services. As a result, our participants relied heavily on their (non-virtual) social networks, with friends and family again figuring prominently. Almost all of our participants had stories about landing or hearing of jobs through word of mouth.

But direct, offline interaction with potential employers was so important for our participants that many developed strategies to increase such opportunities. Some of our participants mentioned meeting people on the street, at job fairs, networking events, or even while driving on the road. When

asked how he found employment, P14 (male, 45+, incarcerated twice since age 35) said,

Just going down the road... Yeah. I mean, I've been at a stop light before. So, you're sitting at a light, a truck pulls up. [You say,] 'Hey, you guys doing any hiring?' 'Well, yeah. What kind of work you into?' 'Dude, I can work for you two days [free].'

Several participants mentioned informal work as options, as well. For example, P13 (male, 55+, incarcerated for two years) was a mechanic who worked on cars for family and friends on an as-needed basis. Another example was P2 (male, 45+, in and out of prison since 17) was a tattoo artist who took on informal jobs.

Job Search and Digital Technology. Not surprisingly, most participants mentioned using their mobile phone to call contacts about job opportunities, to arrange meetings, and to follow up with potential employers. Most participants additionally used online search on their smartphones to search for jobs. The job-searching site, Indeed.com, was mentioned frequently in this context, and several of our participants showed us how they searched for jobs on their smartphones.

Critically, however, online job search was fraught with unexpected challenges (unexpected to us, in any case), and online application processes – which almost all of our participants had encountered – presented a impenetrable obstacle.

P19's case illustrates one of the problems:

I start typing. I'll start answering questions. Next thing you know, it will throw me off and it will switch over to another list of jobs. Next thing, it will start talking about educational opportunities... 'Are you interested in this?' Like, I don't want to waste time on education until I get a job first.

We believe that this was an instance of pop-up ads and predatory advertising, though it was not clear whether the participant initially landed on an illegitimate site posing as a job-search site, or whether he accidentally clicked on an exploitative ad from a legitimate site. Other participants mentioned dialog boxes asking them questions such as, “Do you smoke?”, or “How old are you?” both of which seem likely to be illegitimate sites.

Some participants understood online job search to be a numbers game. P5 (male, 25+, incarcerated for 4 years), for example, searched for jobs in the Indeed app. He said,

I just apply to everything... They all look the same reasonable, I guess.

Going into this research, we imagined that writing resumes would be an important part of the job search process,

but we found it to be a marginal issue for most our participants for three reasons. First, the jobs they applied to often involved manual work that did not require resumes. P2, who had skills in plumbing, dry wall, framing houses, tree cutting, and tattooing, explained he never needed a resume. Second, jobs were sometimes offered by people they knew. P4 (male, 55+, incarcerated for over 40 years) said that those who hired him were “people that I’ve known since I was a kid. Or like, my auntie or she knows people.” And third, several participants noted that before release, they were given reentry readiness courses where a resume was the final product, and which sufficed for most job search purposes. The resumes were typically prepared on a computer without internet access, or by an instructor who typed the resume on their behalf. P14 (male, 45+, incarcerated twice since age 35) said,

Well, [the prison] had computers, but only staff was allowed to be on the computers... I told 'em I couldn't read and write. So, they went over, they did everything for me, printed everything out and gave it to me.

Finally, we heard from several participants how they navigated disclosing their criminal background during interviews. In our state as in many others, the Department of Corrections makes records of incarceration available online for public search. Participants varied in how they went about disclosing their criminal background but were all aware that their criminal history would come out eventually during their job search.

5 PHASE II ACTION RESEARCH: FINDINGS AND ITERATIVE COURSE DESIGN

We now turn to findings from Phase II. The sections below represent several iterations of the plan-act-reflect cycle of action research, with each cycle intended to improve on the curriculum.

Initial Curriculum

Our initial curriculum was developed in response to the insights from previous work, findings from Phase I, and our desire to run the course in a participatory manner. We thus skipped introductory concepts such as “This is what clicking means,” or “What is a website?” (common to existing digital literacy training materials) and instead designed each class around a practical job search or entrepreneurial goal that took simple digital skills for granted. Our hope was to simultaneously teach job-search/entrepreneurial skills and advanced digital literacy. For example, for the first class, the goal was to open a LinkedIn account and complete one’s own profile. This would serve as an entryway to social media with limited risk of breaking parole injunctions, while also provided job-search skills directly. A range of other such

decisions went into the curriculum design. An overview of the topics we *intended to cover originally*, numbered by week, is as follows:

- (1) Introductions, open lab, LinkedIn. Goal: start a LinkedIn profile and send messages to prospective employers.
- (2) Open lab, basic job search skills. Goal: learn to search for jobs on Indeed.com.
- (3) Open lab, marketing and advertising, content management systems. Goal: set up a simple personal webpage.
- (4) Open lab, customer insight, ready-made online tools. Goal: draft an online survey.
- (5) Open lab, budgeting, spreadsheets. Goal: start a monthly budgeting tool using Google Sheets.
- (6) Open lab, networking, social media. Goal: connect to non-felon, productive contacts on LinkedIn.

The First Class

The intended goals of the first class were largely not met, and after it, we revised the remaining lesson plans dramatically.

What Actually Happened. To begin with, only two of the students were able to attend. The other two were unsuccessful in their bids to have parole restrictions waived for the course. (The restriction was waived in time for the the third class for P3, but P4 was unable to attend any of the classes.)

We also found that starting with open lab exacerbated the problems of diversity in digital literacy, rather than alleviating them. P1 wanted to learn about Skype, because he had heard about making ‘free’ telephone calls. P2, though he brought a laptop with him, said that he did not know what he did not know, and wanted guidance on what he should learn first. He also expressed interest in writing a resume. His laptop flickered from the battery not holding charge. These issues required in-depth responses. Though 45 minutes were allocated to open lab, only minor tasks had been accomplished, issues (such as privacy settings) had been glossed over, and relatively little had been absorbed by the students.

Then, the students were brought back together for the session on LinkedIn. The hope for the end of the day was to have students set up with their own LinkedIn profiles and to send potential employers messages via the platform. In practice, P2 became stuck on account creation, and was ultimately unable to verify his account through either LinkedIn’s email or mobile-based verification methods. It eventually turned out that P2’s smartphone email app was not synchronizing correctly, but by the time that was understood, the class was over.

Reflections and Adaptations. The first class taught us a number of lessons: parole restrictions require weeks to negotiate, so students must be given plenty of advance notice about

classes. having students bring their own devices helps them to become better acquainted with their own devices, but it increases time needed for troubleshooting. Smartphone literacy does not necessarily translate to laptop literacy – basic computer skills must still be covered for some groups (the simplified interfaces of smartphones arguably give users an illusion of digital literacy). In order to establish a common base of understanding, it is helpful to start with somewhat more structure (efforts toward participatory design can go too far). Despite what participants said in interviews about resumes, they still valued the knowledge required to write formal documents on a computer.

We applied what we learned and changed the ensuing lesson plans each session. We held open labs at the end of each class, not at the beginning. We slowed down the pace of the classes. We eliminated per-class goals, in favor of smaller tasks. We added modules on basic digital literacy skills as well as on requested skills such as resume-writing. All of these changes were incorporated by the second class.

Further Iterations

Space does not permit a detailed account of every change in our curriculum, but we summarize some of the other key findings and adaptations from Phase II here.

We found that some of our students were less-than-fluent readers, and none were fluent typists. We had students practice typing during the initial ten minutes of the class for the last three classes, and we adapted teaching styles so as to verbally spell out strings the instructor typed during class demonstrations.

Students often clicked on ads and became lost in a maze of pop-up dialogues and predatory webpages. (We speculate that this was, in part, due to a combination of slow textual literacy among some participants, as well as lack of experience with critical media reading.) Lessons were adjusted to include a discussion of the Wild West that is the modern internet, as well as tips to avert these online traps.

We found that students often turned to their more familiar devices – their smartphones – even when their laptops were right in front of them, so we replaced the sixth session with a session on improving smartphone skills.

Our final curriculum (Week 2 onward) differed considerably from the one we initially planned:

- (2) Basics of Internet and email, open lab.
- (3) Online search, online job forms, and cover letters.
- (4) Typing, hyperlinks, online ads and click-bait, open lab.
- (5) Typing, files, folders, uploading/downloading, open lab.
- (6) Typing and smartphone literacy: Indeed.com app, web and voice-based search, finding apps, open lab.

6 DISCUSSION

Our work confirms and extends the existing literature on returning citizens and on HCI job search. First of all, we note that returning citizens are a unique subgroup of technology users, differing in key ways from other marginalized groups. For example, returning citizens often report a Rip-Van-Winkle-like experience¹ with respect to digital technology: Having been imprisoned in an age before widespread digital infrastructure, they are befuddled to enter a world in which friends and family eagerly put a smartphone in their hands. Their experience is reminiscent of, for example, technology interaction by older adults [40], but there are salient differences. Older adults who use smartphones can be fluent with sophisticated apps and websites; this did not appear to be the case with our participants. Many older adults are literate and have good educational backgrounds; many of our participants struggled with reading. Older adults rarely worry about pre-existing content about them on the internet; for our participants, their criminal records haunted them online.

Returning citizens rely on younger family members for technical help, echoing findings with both older adults in the developed world [40] and low-literate developing-world technology users[29], but unlike the latter, who often have others dial numbers or manipulate apps on their behalf, returning citizens use digital devices themselves.

And, while returning citizens generally seem to settle into a pattern of digital technology use similar to mainstream use – communication, entertainment, online search – they exhibit a major exception: Many refrain from social media, due to parole restrictions, wariness of its temptations, or uncertainty about its value.

Our work extends prior research exploring the use of mobile phones in job search [33], as well as work citing the important role of families in reentry [22], and the importance of social support in job search [11]. We find that family and friends – when they are supportive – play an essential role in providing access to and knowledge about technology. Yet, what is taught is often at a surface level and did not cover digital skills important to job search. Unlike prior work, social support did not include providing resume feedback for example [11]. In fact, our participants rarely had or required resumes in their job search. Returning citizens also did not immediately express the need for *personal* or *societal* needs as found in prior HCI research of underserved job seekers [11], although we know that these barriers exist outside of the immediate needs that were expressed.

¹In Washington Irving's well-known story set in colonial America, Rip Van Winkle falls asleep for 20 years and wakes up to a dramatically different post-Revolution America [23].

We also confirm past research that found that returning citizens relied more on their strong ties (than weak ties [15]) to acquire and search for jobs[9, 16] (a point also found with low-income groups more generally [39]). We think this is due to the increased set of challenges faced by returning citizens which include having to acknowledge their criminal histories on job application, gaps in work history, and decimated weak ties. Strong ties seem more likely to provide additional credibility, share outside employment opportunities, or pay to utilize the skills of returning citizens though this requires additional research to confirm. We additionally speculate that these trends are exacerbated with returning citizens' low digital literacy, which would incline them toward in-person interactions. And, while digital technology could serve a role in strengthening both strong and weak ties [9, 31, 37], our finding that many returning citizens may not use social media dampens this possibility supports a potential area of opportunity for future research. Turning to recommendations, our findings *could* inform technology design – the need for web browsers that certify legitimate sites (versus ad traps); clearer indications in browsers when navigating away from a site; and combination tutorial-wizards for job-search sites that allow returning citizens to learn basic online tasks step-by-step. But, in line with other research that discourage facile notions of tech-centric support [5, 35], we focus our recommendations on the design of digital literacy training programs that would build human capacity.

We offer the following as starting points for similar programs and further research. First, digital literacy courses may benefit from being integrated with larger goals such as employment or entrepreneurship, as the latter are returning citizens' ultimate aspirations. Second, the diversity of returning citizens seems a constant, so trainings that flexibly alternate between structured pedagogy and individualized one-on-one guidance may be the most fruitful. Third, content should convey basic mental models of digital technology as a way to scaffold practical skills and more sophisticated understanding. Fourth, challenges of textual non-literacy must be considered [10]. Fifth, job search skills are worth demonstrating on both mobile and larger computing devices. Finally, with respect to internet navigation, it seems imperative to ensure that returning citizens understand spam, ads, and other online scourges. Like other groups from low-socioeconomic backgrounds [38], these issues often confounded our participants.

A key limitation of our study is that our participants were a biased sample at multiple levels. Our recruiting strategy involved working through agencies that assist returning citizens, which means that we were less likely to have interviewed those not in touch with such organizations. Those who eventually participated were the ones with support required to respond appropriately and find transportation to

meeting sites. And, the participants we reached out to for Phase II had various advantages over the others. The net result is that the conclusions we have drawn undoubtedly skew optimistic; reality is likely even starker for the majority of returning citizens.

7 CONCLUSION

Overall, we extend a call in HCI for more support for returning citizens' job search beyond providing a list of felony-friendly employers [10]. Our work can also be seen as the first response to Reisdorf & Rikard's [28] call for research to investigate the role of digital literacy in reentry. We focus on what they call the "economic field" of activity, in which employment figures prominently. Our participants' stories of personal failings inextricably interleaved with heroic perseverance humbled us with their moral complexity. And while we are aware that a few digital literacy classes will do little to counter the structural and discriminatory forces working against returning citizens, they were the first to voice a desire to learn more about technology. Ultimately, we believe that, due to the unique circumstances of their rehabilitation and vulnerability, returning citizens deserve more attention and support, both from the HCI community and beyond.

REFERENCES

- [1] American Library Association. [n. d.]. Digital Literacy Definition | ALA Connect. <http://connect.ala.org/node/181197>
- [2] Doreen Anderson-Facile. 2009. Basic Challenges to Prisoner Reentry. *Sociology Compass* 3, 2 (2009), 183–195. <https://doi.org/10.1111/j.1751-9020.2009.00198.x>
- [3] Demelza Baer, Avinash Bhati, Lisa Brooks, Jennifer Castro, Nancy La Vigne, Kamala Mallik, Rebecca Naser, Jenny Osborne, John Roman, Shelli Rossman, Christy Visher, and Laura Winterfield. 2006. Understanding the Challenges of Prisoner Reentry: Research Findings from the Urban Institute's Prisoner Reentry Portfolio. *Reentry Research Findings* (2006). <https://www.ncjrs.gov/App/abstractdb/AbstractDBDetails.aspx?id=235103>
- [4] Matthew J. Bauman, Robert Sullivan, Chris Schneweis, Rayid Ghani, Kate S. Boxer, Tzu-Yun Lin, Erika Salomon, Hareem Naveed, Lauren Haynes, Joe Walsh, Jen Helsby, and Steve Yoder. 2018. Reducing Incarceration through Prioritized Interventions. In *Proceedings of the 1st ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS) - COMPASS '18*, Vol. 1953. ACM Press, New York, New York, USA, 1–8. <https://doi.org/10.1145/3209811.3209869>
- [5] Eric P.S. Baumer and M. Six Silberman. 2011. When the implication is not to design (technology). *Proceedings of the 2011 annual conference on Human factors in computing systems - CHI '11* (2011), 2271. <https://doi.org/10.1145/1978942.1979275>
- [6] Mark T. Berg and Beth M. Huebner. 2011. Reentry and the ties that bind: An examination of social ties, employment, and recidivism. *Justice Quarterly* 28, 2 (2011), 382–410. <https://doi.org/10.1080/07418825.2010.498383>
- [7] E Ann Carson. 2016. Prisoners in 2016 Summary. *Bureau of Justice Statistics Bulletin* (2016), 1–34. www.bjs.gov.
- [8] Jennifer E. Cobbina. 2010. Reintegration success and failure: Factors impacting reintegration among incarcerated and formerly incarcerated women. *Journal of Offender Rehabilitation* 49, 3 (2010), 210–232. <https://doi.org/10.1080/07418825.2010.498383>

//doi.org/10.1080/10509671003666602

[9] Tawanna R Dillahunt. 2014. Fostering Social Capital in Economically Distressed Communities. *CHI 2014. Proceedings of the 32nd Annual ACM Conference on Human Factors in Computing Systems* (2014), 531–540. <https://doi.org/10.1145/2556288.2557123>

[10] Tawanna R Dillahunt, Nishan Bose, Suleman Diwan, and Asha Chen-Phang. 2016. Designing for Disadvantaged Job Seekers: Insights from Early Investigations. *Proceedings of the 2016 ACM Conference on Designing Interactive Systems - DIS '16* (2016), 905–910. <https://doi.org/10.1145/2901790.2901865>

[11] Tawanna R. Dillahunt, Jason Lam, Alex Lu, and Ernest Wheeler. 2018. Designing Future Employment Applications for Underserved Job Seekers: A Speed Dating Study. *The 2018 ACM Conference on Designing Interactive Systems (DIS '18)* (2018).

[12] Daniel C. Feldman and Brian S. Klaas. 2002. Internet job hunting: A field study of applicant experiences with on-line recruiting. *Human Resource Management* 41, 2 (2002), 175–192. <https://doi.org/10.1002/hrm.10030>

[13] Richard Freeman. 2003. Can we close the revolving door?: Recidivism vs. employment of ex-offenders in the US. *Prisoner Reentry Roundtable, New York University*. (2003), 1–19.

[14] Laura E. Gorgol and Brian A. Sponsler. 2011. Unlocking potential: Results of a national survey of postsecondary education in state prisons. May (2011), 1–28. http://www.ihep.org/assets/files/publications/s-z/Unlocking_Potential-PSCE_FINAL_REPORT_May_2011.pdf

[15] Mark S. Granovetter. 1973. The Strength of Weak Ties. *Amer. J. Sociology* 78, 6 (5 1973), 1360–1380. <https://doi.org/10.1086/225469>

[16] David J Harding, Jessica B Wyse, Cheyney Dobson, and Jeffrey D Morenoff. 2013. Making Ends Meet After Prison. *Journal of Policy Analysis and Management* 32, 2 (2013), 296–322. <https://doi.org/10.1002/pam>

[17] Gillian R. Hayes. 2011. The relationship of action research to human-computer interaction. *ACM Transactions on Computer-Human Interaction* 18, 3 (2011), 1–20. <https://doi.org/10.1145/1993060.1993065>

[18] Gillian R Hayes, V Erick Custodio, Oliver L Haimson, Kathy Nguyen, Kathryn E Ringland, Rachel Rose Ulgado, Aaron Waterhouse, and Rachel Weiner. 2015. Mobile video modeling for employment interviews for individuals with autism. *Journal of Vocational Rehabilitation* 43, 3 (2015), 275–287.

[19] Ellen Johanna Helsper. 2012. A Corresponding Fields Model for the Links Between Social and Digital Exclusion. *Communication Theory* 22, 4 (2012), 403–426. <https://doi.org/10.1111/j.1468-2885.2012.01416.x>

[20] David G. Hendry, Norah Abokhodair, Rose Paquet Kinsley, and Jill Palzkill Woelfer. 2017. Homeless Young People, Jobs, and a Future Vision: Community Members' Perceptions of the Job Co-op. *Proceedings of the 8th International Conference on Communities and Technologies - C&T '17* (2017), 22–31. <https://doi.org/10.1145/3083671.3083680>

[21] David G Hendry, Jill Palzkill Woelfer, and Thuy Duong. 2017. U-District Job Co-op: constructing a future vision for homeless young people and employment. *Information Technology & People* 30 (2017), 602–628. <http://www.emeraldinsight.com/doi/full/10.1108/ITP-05-2015-0117>

[22] H. J. Holzer, S. Raphael, and M. A. Stoll. 2003. Employment barriers facing ex-offenders. *Center for the Study of Urban Poverty Working Paper Series*. (2003), 1–23. http://www.urban.org/uploadedPDF/410855_holzer.pdf

[23] Washington Irving. 1819. Rip Van Winkle. In *The Sketch Book of Geoffrey Crayon, Gent*. New York, Chapter Rip Van Wi. https://www.sas.upenn.edu/~cavitch/pdf-library/Irving_RipVanWinkle.pdf

[24] Yvonne Jewkes and Bianca C. Reisdorf. 2016. A brave new world: The problems and opportunities presented by new media technologies in prisons. *Criminology and Criminal Justice* 16, 5 (2016), 534–551. <https://doi.org/10.1177/1748895816654953>

[25] Pamela K. Lattimore, Danielle M. Steffey, and Christy A. Visher. 2010. Prisoner reentry in the first decade of the twenty-first century. *Victims and Offenders* 5, 3 (2010), 253–267. <https://doi.org/10.1080/15564886.2010.485907>

[26] Joan Petersilia. 2001. Prisoner Reentry: Public Safety and Reintegration Challenges. *The Prison Journal* 81, 3 (2001), 360–375. <https://doi.org/10.1177/0032885501081003004>

[27] Lincoln Quillian. 2005. What Employers Say Versus What They Do. *American Sociological Review* 70 (2005), 355–380. <https://doi.org/10.1177/000312240507000301>

[28] Bianca C Reisdorf and R V Rikard. 2018. Digital Rehabilitation: A Model of Reentry Into the Digital Age. *American Behavioral Scientist* (2018), 000276421877381. <https://doi.org/10.1177/0002764218773817>

[29] Nithya Sambasivan, Ed Cutrell, Kentaro Toyama, and Bonnie Nardi. 2010. Intermediated technology use in developing communities. *Proceedings of the 28th international conference on Human factors in computing systems - CHI '10* (2010), 2583. <https://doi.org/10.1145/1753326.1753718>

[30] Aaron Smith. 2015. Searching for work in the digital era. *Pew Research Center* (2015), 1–29. <http://www.pewinternet.org/2015/11/19/searching-for-work-in-the-digital-era/>

[31] Sandra Susan Smith. 2007. *Lone pursuit: Distrust and defensive individualism among the black poor*. Russell Sage Foundation.

[32] Amy L Solomon, Gillian L Thomson, and Sinead Keegan. 2004. Prisoner Reentry in Michigan. (2004). http://www.urban.org/UploadedPDF/411172_Prisoner_Reentry_MI.pdf

[33] N. F. Sugie. 2016. Utilizing Smartphones to Study Disadvantaged and Hard-to-Reach Groups. *Sociological Methods & Research* (2016). <https://doi.org/10.1177/0049124115626176>

[34] Naomi F. Sugie. 2018. Work as Foraging: A Smartphone Study of Job Search and Employment after Prison. *Amer. J. Sociology* 123, 5 (2018), 1453–1491. <https://doi.org/10.1086/696209>

[35] Kentaro Toyama. 2015. *Geek heresy: Rescuing social change from the cult of technology*. PublicAffairs.

[36] Sanne Verbaan, Clair Aldington, Roisin McNaney, and Jayne Wallace. 2018. Potentials of HCI for Prisons and Incarcerated Individuals. In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems (CHI EA '18)*. ACM, New York, NY, USA, SIG17:1–SIG17:4. <https://doi.org/10.1145/3170427.3185367>

[37] Christy Visher, Nancy La Vigne, and Jeremy Travis. 2004. Returning home: Understanding the Challenges of Prisoner Reentry. *Urban Institute* (2004). <https://doi.org/10.1037/e720382011-001>

[38] Jessica Vitak, Yuting Liao, Mega Subramaniam, and Priya Kumar. 2018. I Knew It Was Too Good To Be True : The Challenges Economically Disadvantaged Users Face in Assessing Trustworthiness , Avoiding Scams , and Developing Self-Efficacy Online. 2, November (2018). <https://doi.org/10.1145/3274445>

[39] E. Wheeler and T.R. Dillahunt. 2018. Navigating the job search as a low-resourced job seeker. *Conference on Human Factors in Computing Systems - Proceedings 2018-April* (2018), 1–10. <https://doi.org/10.1145/3173574.3173622>

[40] Kathryn Zickuhr and Mary Madden. 2012. Older adults and internet use. *Pew Research Center* (2012), 1–23.