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An Exploratory Quantitative Analysis of Black Formerly Incarcerated People's Digital Literacy

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Abstract

The reentry challenges that formerly incarcerated people (FIPs) face are well-documented in prior research. However, the digital inequality this population faces has received less consideration in reentry research. In particular, there has been little research conducted to quantitatively assess FIPs' digital literacy skills and their relationship with demographic and incarceration-related variables. The current study is exploratory and addresses this limitation by using quantitative data from 73 Black FIPs in Michigan to examine relationships between their digital literacy, demographics, and incarceration-related variables. The analyses conducted included bivariate correlations, ordinary least squares (OLS) regressions, and post hoc power analyses. The findings reveal that FIPs with more extensive incarceration histories fare worse in terms of the composite digital literacy scale and multiple digital literacy subscales. Age and disability status were also associated with specific digital literacy skill subtypes. These findings suggest that digital literacy skills are shaped by FIPs' backgrounds, especially their incarceration histories. Thus, FIPs are experiencing a new "digital collateral consequence" of incarceration, resulting in structural barriers to reentry that must be addressed through policy and programming. However, because the posthoc power analysis found that the regression models were underpowered, the need for additional research replicating this study with larger and broader samples cannot be understated.

Keywords

digital literacy; incarceration; race; reentry; technology

1. Introduction

The United States criminal legal system holds almost two million people in carceral settings (Sawyer & Wagner, 2025). Among those two million, Black and Native American individuals are overrepresented. For example, Black people make up 14% of the US population but 41% of the correctional population (Sawyer & Wagner, 2025). Similar disparities are found when focusing on community supervision, a period of supervised release in the community in lieu of incarceration or following a term in prison. Recent data shows that Black people makeup 23% of the US community supervision population and 35% of the parole population (Kaeble, 2024). The racial disparities that minoritized system-involved people face are exacerbated upon exiting prison. Most formerly incarcerated people (FIPs) will encounter collateral consequences of incarceration (e.g., felony discrimination in the labor market) during reentry, but existing research demonstrates that Black and other minoritized FIPs are the most impacted (Hoskins & Sanders, 2019). This is because of their intersectional identities (i.e., being Black and having a criminal record), which place them at the margins of the societal hierarchy and manifest as worse post-release outcomes (Crenshaw, 1991; Smiley, 2023). For example, Black FIPs experience high levels of economic marginalization, often due to more difficulty finding employment or being underemployed (Couloute & Kopf, 2018; Williams et al., 2019). They also have higher rates of housing instability (Couloute, 2018b).

Incarcerated people, and FIPs, are also vulnerable to experiencing digital inequality, or challenges accessing technology and developing digital skills (Reisdorf & Rikard, 2018). This is because they experience limited access to technology, the Internet, and digital literacy programming while in prison and are unable to improve their digital skills upon release due to continued digital deprivation (Reisdorf et al., 2021; Sanders, 2025). For Black FIPs, it is plausible that digital inequality was a challenge they experienced prior to incarceration, as Black people disproportionately encounter digital inequality (Digital Equity Act of 2021, 2021; Mossberger et al., 2006). Thus, their incarceration may have worsened pre-incarceration digital inequality issues Black FIPs faced.

Additionally, many FIPs are a part of other vulnerable populations who disproportionately experience digital inequality. For example, FIPs disproportionately experience poverty and have lower education and literacy levels (Couloute, 2018a; Michon, 2016; Sawyer & Wagner, 2025). However, despite their multiply marginalized status, existing digital inequality and reentry research have yet to focus intentionally on Black FIPs or use quantitative methods in this research area. In fact, the authors are unaware of any quantitative studies assessing what factors are related to FIPs' digital literacy skills. As a result, researchers and practitioners' ability to identify FIPs who are the most vulnerable to digital inequality is limited.

The current study intends to address these limitations by building on prior research and the first author's pilot study (see Sanders, 2025). The pilot study included interview data from 28 FIPs. In their interviews, FIPs qualitatively explained how their age and length of incarceration impacted their experiences with digital inequality, but no quantitative analyses were conducted. The study was not intersectional or focused on multiply marginalized FIPs (i.e., Black FIPs) but included FIPs of all racial/ethnic backgrounds, and the Internet Skills Scale (ISS; van Deursen et al., 2014, 2016) was not used to measure FIPs' digital literacy. Building on this, the current study uses quantitative data from 73 Black FIPs to examine the relationship between their digital literacy skills, which are measured using the ISS (van Deursen et al., 2014, 2016), and several demographic characteristics (i.e., age, disability, employment, household income, education level, and length of lifetime incarceration). The study's overarching goal is to assess what factors are related to Black FIPs' digital literacy and use the findings to inform practical implications aimed at reducing Black FIPs' digital exclusion. The research serves as a first step to ensuring that Black FIPs are included in the digital world and eliminating structural and material barriers to online access.

2. Literature Review

2.1. Race and Reentry

The overrepresentation of Black people in the criminal legal system is a consequence of the United States' racial history and association of Black people with criminality and violence (Hinton & Cook, 2021; Hinton et al., 2018), and as Black people are funneled through the criminal legal system, the racial discrimination they face worsens. Currently, Black people are three times as likely as their White counterparts to be on community supervision and make up over a quarter (35%) of the parole population (Kaeble, 2024). Black FIPs also encounter more difficulty being awarded parole due to repeat parole denials and having more pre-release conditions to satisfy (Moyd, 2022; Nembhard & Robin, 2021). Once they are released, Black FIPs are more likely to receive supervision violations, including those at the lowest supervision level (Saunders & Midgette, 2023). Consequently, scholars argue that Black FIPs face a "racialized reentry" process (Western & Sirois, 2019).

After leaving prison, FIPs are tasked with meeting various supervision conditions, such as finding employment and regularly meeting with their supervising agent (Jones, 2018). However, the collateral consequences of incarceration and other reentry barriers negatively impact FIPs' ability to meet their supervision conditions (J. M. Ortiz & Wrigley, 2022). This is especially true for Black FIPs, as they also encounter racial inequality and discrimination in addition to the stigma of having a criminal record (Hoskins & Sanders, 2019). For example, unemployment data shows that Black male FIPs have an unemployment rate of 35.2%, but for White male FIPs, the unemployment rate falls to just 18.4% (Couloute & Kopf, 2018). These employment disparities are likely a consequence of racial discrimination in the labor market, with research showing that Black people with *and* without criminal records are less likely to receive job callbacks than White people with criminal records (Decker et al., 2015; N. R. Ortiz, 2014; Pager, 2003). Black FIPs also have higher lifetime earning losses ($358,900) than their White counterparts ($267,000) and earn about $561 less monthly when they are employed (Craigie et al., 2020; Western & Sirois, 2019). These disparities may be due in part to the communities Black FIPs reenter, as they are characterized by structural barriers like low job prospects, economic disadvantage, and low social capital (Cobbina, 2009; Roddy, 2024; Roddy et al., 2022). In turn, reentry becomes more difficult for Black FIPs, and returning to a technology-dependent society adds to these barriers.

2.2. Digital Inequality

The world has become increasingly reliant on technology since the 1970s, and rapid technological advancements continue to increase in the wake of the Covid-19 pandemic (De' et al., 2020). Still, many Americans are digitally excluded and lack access to the Internet, technology devices, and digital literacy skills, and marginalized groups are most impacted (Gonzales, 2016; Vogels, 2021). The Digital Equity Act (2021) identified eight covered populations who disproportionately experience digital inequality in the US:

low-income households, aging populations, incarcerated individuals (including FIPs), veterans, people with disabilities, people with language barriers, racially and ethnically minoritized people, and people living in rural areas. Many individuals may fall into multiple covered population groups, exacerbating risk factors for digital exclusion. For example, someone could be an older individual who lives in a rural area (Mubarak & Suomi, 2022; Warren, 2007), or an older individual may have a disability and struggle to access technology (Perrin & Atske, 2021).

The impacts of digital inequality on people's day-to-day lives cannot be understated. For example, people who experience digital inequality are more likely to be mobile phone dependent, meaning they rely solely on their mobile phones to access the Internet (Reisdorf & DeCook, 2022; Vogels, 2021). This leads to less diverse technology use, lower digital literacy skills, and challenges completing online tasks (Anderson & Horrigan, 2016; Correa et al., 2020; Pew Research Center, 2021). For instance, the online job search is now the most popular job search method (Faberman & Kudlyak, 2016), and applications typically require the completion of online forms and uploading materials, which is difficult for people with less digital literacy. This is especially so for people who have lower education levels, are currently unemployed, older, or mobile phone dependent (Anderson & Horrigan, 2016; Grosholz et al., 2024; Smith, 2015), and it leads to higher rates of unemployment, underemployment, and job search burnout (Bejaković & Mrnjavac, 2020; Bergeson-Shilcock et al., 2023; De Marco et al., 2023).

2.3. Digital Inequality and Reentry

Incarcerated people and FIPs are one of the eight covered populations disproportionately impacted by digital inequality (Digital Equity Act of 2021, 2021). The digital inequality FIPs experience occurs as a consequence of the digital deprivation in prisons (Reisdorf et al., 2021), with older FIPs and those serving longer sentences being the most vulnerable (Grosholz et al., 2024; Hwang et al., 2023; Reisdorf & DeCook, 2022; Reisdorf et al., 2021). However, even short stints of technological disruption are detrimental to digital skill development (Gonzales, 2016); therefore, FIPs who spent short or multiple amounts of time incarcerated may encounter digital inequality as well (Sanders, 2025).

Adding to this, many FIPs fall into multiple covered populations, making them multiply marginalized. For instance, incarcerated people typically come from low-income, racially/ethnically minoritized backgrounds, and Black people are also one of the most digitally disadvantaged groups, making Black FIPs members of two covered populations (Digital Equity Act of 2021, 2021; Sawyer & Wagner, 2025). This makes it unsurprising that many of the causes of Black FIPs' disproportionate system involvement overlap with those causing digital inequality. Case in point, both digital and carceral inequality are products of concentrated poverty, lower levels of educational attainment, and racial segregation (Chetty et al., 2020; Mossberger et al., 2006). For example, Black people living in historically redlined areas face digital redlining (i.e., the discriminatory disinvestment in broadband infrastructure by service providers), resulting in higher payments for lower-quality broadband service and diminished access to employment, social services, education, and healthcare opportunities (M. L. Wang et al., 2024).

Additionally, many incarcerated people also have multiple and complex needs and physical, mental, or learning disabilities (Bunn, 2019). And older FIPs have numerous reentry concerns, such as digital literacy issues and age-based discrimination in the workforce (Grosholz et al., 2024). More generally, FIPs have lower education and literacy levels (Couloute, 2018a; Michon, 2016), which are factors linked to lower digital literacy skills (van Dijk, 2020), but limited programming options and scheduling conflicts make improving one's education difficult before and after release (Couloute, 2018a; Jones, 2018; Ogbonnaya-Ogburu et al., 2019; L. Wang, 2023). This then furthers FIPs' vulnerability to digital inequality (Sanders, 2025).

2.4. The Current Study

Existing research provides a foundation for the current study and informs the study's hypotheses, but it still suffers from limitations. Specifically, there are few studies using quantitative approaches (e.g., McDougall & Pearson, 2020; McDougall et al., 2017), and the authors are unaware of any existing studies assessing what factors are related to FIPs' digital literacy skills and focusing on multiply marginalized FIPs. Instead, most of the research conducted is qualitative and focused on all FIPs. These research areas are important and provide rich information on all FIPs' digital inequality experiences, but the dearth of intersectional quantitative studies limits our understanding of which FIPs are most vulnerable to digital literacy skill deficits. Accordingly, the current study addresses these limitations by using linear regression to assess relationships between digital literacy skills, demographic characteristics, and incarceration-related variables for 73 Black FIPs. The central research question is: Are age, disability status, current employment status, education level, income, and length of lifetime incarceration related to formerly incarcerated people's digital literacy skills?

Based on the prior research, we expect:

H1: Older age is associated with lower digital literacy skills among FIPs.

H2: Having a disability is associated with lower digital literacy skills among FIPs.

H3: Being unemployed is associated with lower digital literacy skills among FIPs.

H4: Lower educational attainment is associated with lower digital literacy skills among FIPs.

H5: Greater socioeconomic deprivation is associated with lower digital literacy skills among FIPs.

H6: Longer cumulative time incarcerated is associated with lower digital literacy skills among FIPs.

3. Methods

3.1. Recruitment and Sampling

Participants in the current study were recruited through purposive and snowball sampling methods. First, 39 state and local organizations working with FIPs were contacted and asked to share the study's information with their clients. Fourteen of the organizations agreed, including eight that allowed the first author to host in-person recruitment sessions. The study's flyers were also sent to libraries and community centers, as FIPs may frequent these organizations. The majority of participants (74%; $n = 54$) were recruited from the local organizations, followed by snowball sampling (20.5%; $n = 15$). The remaining participants were individuals who participated in the pilot study (Sanders, 2025) and met the current study's eligibility criteria (5.5%; $n = 4$). To be eligible for the study, participants must have been: (a) over 18 years old, (b) currently on parole supervision for a felony offense or have not completed supervision within the last five years (i.e., no later than 2019), (c) on supervision for at least three months to ensure they have some experiences on parole, (d) identify as Black, and (e) under supervision in Genesee County, Macomb County, Oakland County, or Wayne County, Michigan (MI). Those counties were chosen because they have high Black populations and include major cities like Detroit and Flint (US Census Bureau, 2021). The final sample included 73 Black FIPs.

3.2. Data Collection

The current study's data come from a mixed-method study that primarily used a narrative qualitative approach. The quantitative data was collected during the beginning and end of the interview and included questions about demographics, technology access, and digital skills. All quantitative and qualitative questions were pilot tested twice with two Black FIPs who also work in the reentry space. IRB approval was obtained in 2023, and data collection occurred from May 2024 to October 2024. Prior to their interview, participants completed an eligibility screening, informed consent, and contact information survey. They were then assigned a "Case ID" number that was kept with their data, and received information explaining the interview's focus and how their data would be used. Participants also chose their own pseudonyms.

Data was collected over the phone, in private areas, with the calls lasting between one and two hours. All participants consented to audio recording, which was conducted through Otter.ai. After the interview, participants received a $60 USPS Money Order or Visa gift card and resource lists. To assist with data collection and transcription, the first author hired a team of graduate and undergraduate students and provided interview sensitivity and transcription training. The first author and the graduate students conducted all interviews, with the first author conducting the majority (69.9%, n = 51) of the interviews. The undergraduate students focused on cleaning and quality checking the Otter.ai transcriptions and removed all personally identifying information from the transcripts. The first author cleaned the quantitative data.

3.3. Measures and Analytic Strategy

To examine associations among digital literacy skills, demographic characteristics, and incarceration-related variables, we conducted a series of descriptive and bivariate correlation analyses in STATA 17 and used the ISS as the digital literacy measure (van Deursen et al., 2014, 2016). The analysis proceeded in several steps. First, we computed descriptive statistics (mean, standard deviation, range, and frequency distributions where appropriate) for all study variables. These included the ISS's six continuous indicators of types of digital literacy skills: operational, information navigation, social, creative, mobile, and a composite digital literacy average. van Deursen et al. (2016) found that these indicators, excluding the composite score, explained 64% of the variance in their initial sample (N = 630) and had high levels of internal consistency (α = 0.86–0.94). The full test results (N = 1,107) demonstrated the scale's reliability and consistency across socio-demographic groups. The measures had appropriate levels of convergent and discriminant validity (AVE = 0.50–0.84, MSV = 0.08–0.45, ASV = 0.04–0.31), and composite reliability scores were high (α = 0.82–0.94; van Deursen et al., 2016).

The five skill areas were operationalized using statements, which were directly adapted for the current study (see the Supplementary Material for the full list of items). Operational skills refer to one's ability to operate digital media (e.g., "I know how to complete online forms"). Information navigation skills refer to one's ability to search for, select, and evaluate online information (e.g., "I find the way in which many websites are designed confusing"), and social skills concern one's ability to safely use digital media as a communication tool (e.g., "I know when I should and shouldn't share information online"). Lastly, creative skills concern one's ability to use digital media to create new digital media (e.g., "I know how to design a website"), and mobile skills refer to one's ability to use a mobile phone device (e.g., "I know how to install apps on a mobile device"; see van Deursen et al., 2014, 2016). The scales' scores ranged from one to five, with scores of one to two indicating low skills, three indicating moderate skills, and four and five indicating high skills (van Deursen et al., 2014, 2016). Descriptives were also calculated for demographic and background variables, including age, education, household income, years incarcerated over the life course, current employment status, and disability status. Binary variables (e.g., current employment, any disability) were summarized using proportions.

Second, we conducted pairwise Pearson correlation analyses to assess the strength and direction of linear associations among all continuous and binary study variables. Pairwise correlations were selected over listwise deletion to maximize the use of available data, given minor differences in sample sizes across variables. The statistical significance of each correlation coefficient was evaluated at the $p < .05$ level. All variables were checked for distributional assumptions prior to analysis. No evidence of extreme skew or outlier influence was found in the continuous variables. Correlation matrices were supplemented with descriptive statistics in tabular form.

Finally, we conducted six separate multiple linear regression analyses. Each model used a different digital literacy outcome as the dependent variable: the composite digital literacy scale (Model 1) and five domain-specific subscales—operational skills (Model 2), information navigation (Model 3), social digital skills (Model 4), creative digital skills (Model 5), and mobile skills (Model 6). These outcomes were treated as continuous variables, consistent with prior uses of similarly constructed scales.

In each model, the same set of independent variables was included to examine their relative predictive power: years incarcerated, age, completed education, current employment (binary), and disability status (binary). These predictors were selected based on theoretical relevance to digital literacy disparities (Digital Equity Act of 2021, 2021; Grosholz et al., 2024; Reisdorf et al., 2021; Sanders, 2025; Vogels, 2021). All variables were entered simultaneously (standard OLS estimation) in each model. Continuous predictors (e.g., years incarcerated, age, education) were unstandardized to retain interpretability. Binary predictors (employment and disability status) were dummy-coded (0 = no, 1 = yes). Standard errors were robust to heteroskedasticity, and multicollinearity diagnostics were checked and found acceptable (VIFs < 2.0).

3.4. Power Analysis

A post hoc power analysis was conducted to assess whether the current regression model was adequately powered to detect the observed effects. Using a sample size of $N = 72$, an R^2 of 0.55, and five predictors, the estimated statistical power was approximately 0.43, which is notably below the conventional threshold of 0.80. This indicates that the model is underpowered and subject to an elevated risk of Type II error (i.e., failing to detect true effects). Accordingly, the results should be interpreted with considerable caution, as non-significant findings may reflect insufficient power rather than the absence of meaningful associations, and statistically significant effects may be unstable or sample-specific. Consistent with the exploratory nature of the study, these analyses are best understood as identifying preliminary patterns and potential relationships rather than providing definitive tests of the proposed hypotheses. While limited in inferential strength, the findings offer a useful foundation for future research employing larger samples and more robust designs to validate and extend these results.

4. Results

4.1. Sample Demographics

Participants' average age was 43.9, and the majority of participants (80.8%; $n = 59$) were male. All participants were Black, but two identified as multiracial. Most participants (53.4%; $n = 39$) had at least a high school diploma or GED and were employed (61.6%; $n = 45$). Still, most participants' (64.4%; $n = 47$) annual household income was below the federal poverty guidelines, as they had an annual income between $0 and $30,000. On average, participants had spent 12 years incarcerated most recently and 15.2 years incarcerated over their lifetime. In terms of their technology access, 90.4% ($n = 66$) had access to Wi-Fi, and all but one participant (98.6%; $n = 72$) had access to a phone. Comparatively, just over half of participants (54.8%, $n = 40$) had access to a computer. Participants' digital literacy was measured using the ISS (van Deursen et al., 2014, 2016), with scores ranging from one to five. On average, participants scored 3.7 on the scale, indicating moderate digital literacy skills. On the subscales, participants' average scores were strongest for social (4.2), mobile (4.1), and operational (3.9) skills and weakest for information navigation (3.1) and creative (3.1).

4.2. Bivariate Analyses

Descriptive statistics and bivariate correlations among all study variables are presented in Table 1. As expected, the six digital literacy indicators—including the composite score and five subscales—were all strongly and positively correlated with one another (rs ranging from 0.61 to 0.98, $p < .05$), suggesting that these dimensions represent overlapping, but distinct, aspects of digital competence. The composite digital literacy scale showed especially high correlations with operational skills ($r = 0.98$, $p < .05$) and creative digital skills ($r = 0.93$, $p < .05$), supporting its role as a broad summary measure.

Several variables were correlated with digital literacy indicators. The key variable of interest, years incarcerated over an individual's life course, was negatively correlated with all six digital literacy outcomes (e.g., $r = -0.64$ with the composite scale, $p < .05$), indicating that more extensive incarceration histories are associated with lower digital skills. Age was also negatively correlated with digital literacy measures, with the strongest correlation observed for operational skills ($r = -0.64$, $p < .05$). In contrast, disability status was positively correlated with all digital literacy outcomes (e.g., $r = 0.32$ with the composite scale, $p < .05$), a pattern that was further explored in multivariate models.

Other demographic variables showed more modest or inconsistent relationships. Education was positively but weakly correlated with information navigation skills ($r = 0.25$, $p < .05$), while current employment was negatively associated with operational skills ($r = -0.23$, $p < .05$). Household income and education were moderately correlated with each other ($r = 0.61$, $p < .05$), but neither showed strong zero-order associations with the digital literacy outcomes. These correlations provided initial support for the hypothesized relationships and informed the selection of predictors included in the regression models that follow.

Table 1. Correlations and summary statistics of relevant variables.

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Digital literacy (composite)	—										
2. Operational skills	0.98 *	—									
3. Information navigation	0.74 *	0.74 *	—								
4. Social digital skills	0.82 *	0.76 *	0.54 *	—							
5. Creative digital skills	0.93 *	0.88 *	0.67 *	0.71 *	—						
6. Mobile skills	0.83 *	0.82 *	0.61 *	0.71 *	0.69 *	—					
7. Years incarcerated	−0.64 *	−0.66 *	−0.47 *	−0.40 *	−0.60 *	−0.54 *	—				
8. Age	−0.60 *	−0.64 *	−0.50 *	−0.31 *	−0.54 *	−0.49 *	0.72 *	—			
9. Education (years completed)	0.18	0.15	0.25 *	0.22	0.18	0.03	−0.08	−0.05	—		
10. Current employment	−0.21	−0.23 *	−0.23	−0.11	−0.18	−0.19	0.10	0.09	−0.19	—	
11. Any disability	0.32 *	0.32 *	0.30 *	0.34 *	0.24 *	0.27 *	−0.06	−0.24 *	0.19	−0.21	—
N	72	72	72	72	72	72	73	73	73	73	73
M/%	3.71	3.86	3.1	4.22	3.06	4.09	15.22	43.97	3.67	38.36%	49.32%
SD	1.09	1.25	1.16	1.02	1.28	1.12	12.01	12.33	3.12	—	—
Range	1–5	1–5	1–5	1–5	1–5	1–5	1–47	24.4–71.1	1–10	0,1	0,1

Notes: ** $p < .01$, * $p < .05$.

4.3. Multivariate Analyses

Our first regression model examined the association between individual characteristics and the composite digital literacy score. The model accounted for a substantial proportion of variance ($R^2 = 0.51$). Years incarcerated were a significant negative predictor ($\beta = -0.04$, $p < .01$), indicating that longer incarceration histories were associated with lower overall digital literacy (see Table 2). Disability status was positively associated with digital literacy ($\beta = 0.44$, $p < .05$), suggesting that individuals with disabilities reported higher digital literacy. Other predictors, including age ($\beta = -0.02$, $p > .05$), education ($\beta = 0.02$, $p > .05$), and current employment ($\beta = -0.20$, $p > .05$), were not significantly associated with the composite outcome.

Table 2. Regression results of relevant variables on digital literacy scales and subscales.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Digital literacy (composite)	Operational skills	Information navigation	Social digital skills	Creative skills	Mobile skills
Years incarcerated	−0.04** (0.01)	−0.05** (0.01)	−0.02 (0.01)	−0.04** (0.01)	−0.05** (0.01)	−0.04** (0.01)
Age	−0.02 (0.01)	−0.02 (0.01)	−0.03 (0.01)	0.01 (0.01)	−0.02 (0.01)	−0.01 (0.01)
Education	0.02 (0.03)	0.02 (0.03)	0.06 (0.04)	0.04 (0.04)	0.04 (0.04)	−0.03 (0.04)
Current employment	−0.20 (0.20)	−0.29 (0.22)	−0.27 (0.24)	0.04 (0.23)	−0.17 (0.25)	−0.25 (0.23)
Any disability	0.44* (0.20)	0.49* (0.22)	0.37 (0.25)	0.62** (0.23)	0.34 (0.26)	0.44† (0.24)
Constant	4.86** (0.46)	5.47** (0.51)	4.24** (0.56)	4.04** (0.52)	4.31** (0.59)	5.15** (0.54)
Observations	72	72	72	72	72	72
R-squared	0.51	0.55	0.36	0.28	0.42	0.36

Notes: Standard errors in parentheses; ** $p < 0.01$, * $p < 0.05$.

The second model regressed operational digital skills on the same set of predictors and showed the highest explanatory power of the six models ($R^2 = 0.55$). As in the previous model, years incarcerated were significantly and negatively associated with operational skills ($\beta = -0.05$, $p < .01$). Age was not a significant predictor at the .05 level, but illustrated a trend towards statistical significance ($\beta = -0.02$, $p < .10$), suggesting a potential decline in operational skill levels with increasing age. Disability status again emerged as a significant positive predictor ($\beta = 0.49$, $p < .05$). Neither education ($\beta = 0.02$, $p > .05$) nor employment ($\beta = -0.29$, $p > .05$) significantly predicted operational skills.

The third model focused on information navigation skills and explained 36% of the variance ($R^2 = 0.36$). Unlike the other models, years incarcerated was not a statistically significant predictor ($\beta = -0.02$, $p > .05$). Age was not a significant predictor at the .05 level, but illustrated a trend towards statistical significance ($\beta = -0.03$, $p < .10$), while disability status showed a positive but non-significant relationship ($\beta = 0.37$, $p > .05$). Neither education ($\beta = 0.06$, $p > .05$) nor employment ($\beta = -0.27$, $p > .05$) was significantly related to information navigation.

The fourth model accounted for 28% of the variance in social digital skills ($R^2 = 0.28$), the lowest among the six models. Years incarcerated remained a significant negative predictor ($\beta = -0.04$, $p < .01$). In contrast to other models, age had a small and non-significant positive association ($\beta = 0.01$, $p > .05$). Disability status was a strong positive predictor ($\beta = 0.62$, $p < .01$), indicating that participants with disabilities reported higher social digital competencies. Neither education ($\beta = 0.04$, $p > .05$) nor employment ($\beta = 0.04$, $p > .05$) significantly predicted social digital skills.

The fifth model, predicting creative digital skills, explained 42% of the variance ($R^2 = 0.42$). Years incarcerated continued to negatively predict skill levels ($\beta = -0.05$, $p < .01$). However, all other predictors—including age ($\beta = -0.02$, $p > .05$), education ($\beta = 0.04$, $p > .05$), employment ($\beta = -0.17$, $p > .05$), and disability ($\beta = 0.34$, $p > .05$)—were not statistically significant in this model.

The final model examined mobile digital skills, accounting for 36% of the variance ($R^2 = 0.36$). Years incarcerated was again negatively associated with mobile skills ($\beta = -0.04$, $p < .01$). Disability status was not a significant predictor at the .05 level, but illustrated a trend towards statistical significance ($\beta = 0.44$, $p < .10$). Other variables including age ($\beta = -0.01$, $p > .05$), education ($\beta = -0.03$, $p > .05$), and employment ($\beta = -0.25$, $p > .05$) were not significantly associated with mobile digital skills.

The results provide mixed support for the hypothesized associations. H1, which posited a negative association between age and digital literacy, received only weak support: Age was not statistically significant at the .05 level in any model, though marginal trends toward a negative association emerged for operational and information navigation skills. H2 was not supported in the expected direction; contrary to expectations, disability status was positively associated with digital literacy and reached statistical significance in several models, including composite, operational, and social skills. H3 found no support, as employment status was not significantly associated with digital literacy in any model. Similarly, H4 was not supported, with educational attainment showing no significant relationship across outcomes. H5 also lacked support, as socioeconomic deprivation was not a significant predictor in the analyses. However, H6 was consistently supported: Longer cumulative time incarcerated emerged as a significant negative correlate across most models, indicating an association with lower digital literacy.

5. Discussion

5.1. Review of the Results

The current study investigated whether age, disability status, current employment status, education level, income, and length of lifetime incarceration were related to digital literacy skills and had several hypotheses. Two of the six hypotheses were marginally supported by the multivariate findings. The results showed that both age (H1) and years incarcerated (H6) were negatively associated with participants' digital skills, including particular types of digital skills (e.g., information navigation skills). These findings align with what is expected based on the extant research showing that older individuals have more difficulty using technology (Grosholz et al., 2024; Hwang et al., 2023; Mubarak & Suomi, 2022). Additionally, many of the qualitative studies on digital inequality and reentry find that FIPs who have spent longer or more frequent amounts of time incarcerated more often mention experiencing digital literacy deficiencies (Reisdorf et al., 2021;

Sanders, 2025). The current study, however, is the first to demonstrate that there is a statistically significant relationship between the length of lifetime incarceration and digital literacy skills.

These findings can be further contextualized by considering the experiences of Black FIPs, who are disproportionately affected by structural inequalities in the criminal justice system. Prior research suggests that Black individuals often face longer periods of incarceration and may reenter the community at older ages compared to less-minoritized groups (Pettit & Gutierrez, 2018); they also return to areas that have reduced resources related to reentry that hold potential in decreasing deficits in digital literacy (Roddy & Durante, 2026). Given that both age and cumulative time incarcerated were associated with digital literacy in this study, such disparities may contribute to widening digital skill gaps. This suggests that observed differences in digital literacy are not only individual-level phenomena but may also reflect broader systemic inequities that shape access to, and opportunities for, digital skill development.

Comparatively, the disability results showed inverse findings from the expected hypothesis (H2), as it was positively related to participants' digital skills. This finding is unexpected because prior research shows that individuals with disabilities disproportionately experience digital inequality (Digital Equity Act of 2021, 2021; Perrin & Atske, 2021). However, it is possible that FIPs with disabilities in this sample may have had more access to resources and support, allowing them to improve their digital skills. Furthermore, disability was measured as a binary "yes/no" variable, meaning it accounted for physical, mental, and learning disabilities. If this category were parsed out into more specific categories, the findings may change. Thus, more research is needed to support or refute this finding.

5.2. Theoretical and Practical Implications

This study is the first of its kind to quantitatively explore how demographic characteristics are related to Black FIPs' digital literacy skills, adding to the intersectional reentry scholarship (Crenshaw, 1991). The findings demonstrate that age and time spent incarcerated over the life course were the two most important factors negatively impacting participants' skills, which is in line with prior research (Grosholz et al., 2024; Sanders, 2025; van Deursen et al., 2016). Given that Black FIPs face longer periods of incarceration and reenter society at older ages, it is plausible that they will be more vulnerable to digital literacy deficiencies as well (Pettit & Gutierrez, 2018). This may further exacerbate Black FIPs' employment, housing, and other reentry outcomes (Couloute, 2018b; Couloute & Kopf, 2018; Reisdorf et al., 2021).

There are several steps practitioners can take to lessen digital literacy skill gaps. First, practitioners should pay special attention to FIPs who are older, have spent longer periods of time incarcerated, and are a part of multiple Digital Equity Act (2021) covered populations (e.g., Black FIPs), as they are the most vulnerable to digital literacy deficiencies. One way to do so is by assessing incarcerated people's digital literacy skills upon entry into prison and considering digital literacy a responsivity factor, or a unique characteristic to consider when matching FIPs to interventions and services (Bonta & Andrews, 2016). Practitioners may find utility in adding the ISS or specific sub-scale questions to their existing risk-needs-responsivity assessments (van Deursen et al., 2014, 2016). Doing so would illuminate which FIPs should be recommended to in-prison digital literacy programming or connected with resources (e.g., libraries) post-release. For example, if an older individual is paroling out of prison, practitioners may point the individual to local resources offering digital literacy courses or tech support. Similarly, research suggests that there are benefits to increasing access to technology and digital literacy programming in prisons, especially those that use a peer mentoring model (Burley, 2023; Castek et al., 2015; Mufarreh et al., 2021). Thus, practitioners may find utility in reviewing existing prison digital literacy programs and implementing more opportunities for technical upskilling throughout the duration of a prison sentence. These changes may prove fruitful not only for FIPs' digital skill development but also for the broader prison environment (Mufarreh et al., 2021).

5.3. Limitations

This study offers valuable insights into the digital literacy of Black FIPs, but several limitations must be acknowledged. First, the relatively small sample size ($N = 72$) constrained the statistical power of the analyses, increasing the risk of Type II error and limiting the ability to detect smaller, yet potentially meaningful, associations. Additionally, the sample was drawn exclusively from four counties in Michigan with large Black populations. While this focus allowed for an in-depth analysis of a multiply marginalized group, it limits the generalizability of the findings to other geographic regions, racial or ethnic groups, or FIPs who differ in reentry experiences or levels of digital access.

The study's cross-sectional design prevents any causal inferences regarding the relationships between demographic characteristics, incarceration histories, and digital literacy outcomes. While a negative association between years incarcerated and digital skills was observed, it remains unclear whether extended incarceration directly impairs digital skills, or whether pre-existing inequalities contribute both to lower digital literacy and greater exposure to the criminal legal system. As such, future longitudinal research is needed to disentangle these relationships.

There were also some measurement limitations, which warrant consideration. Digital literacy was assessed using a validated self-report scale (van Deursen et al., 2014, 2016), which captures perceived rather than actual skills. Self-reported measures are subject to recall error and social desirability bias, particularly in skill-based domains where overestimation may occur. The scale also does not assess task-based digital performance, which could provide more objective evidence of skill proficiency. Moreover, the scale was designed over a decade ago, and although most of the items remain relevant, there are new additions that could be made. For example, adding a statement about one's comfort level with AI tools would be a strong addition to the measure, and updating the examples of social media sites listed in the social sub-area from "Twitter and Tumblr" to "Instagram and TikTok" may be more familiar to some participants. Researchers conducting studies with system-involved populations may also find utility in adapting the measures to reentry-specific areas, such as employment.

Additionally, the positive association between disability status and digital literacy was an unexpected finding and may reflect unmeasured heterogeneity within the sample or uncontrolled confounding. The study did not disaggregate types of disabilities, which could mask meaningful variation in how different physical, cognitive, or learning impairments relate to technology use and skills. The finding may also be due to people with disabilities' increasing use of digital assistive technologies (i.e., assistive technology, such as screen-readers, used to independently engage in life activities) because using digital assistive technologies increases their familiarity with technology more broadly (The Royal Society, 2025).

The sampling strategy introduces additional limitations. Participants were primarily recruited through reentry service providers and community organizations, which may have introduced selection bias. Those who are more socially connected or who have accessed reentry services may be more likely to participate in research and may also have higher levels of digital engagement than FIPs who are more isolated or disconnected from institutional support. This could lead to an upward bias in estimates of digital literacy across the sample. Moreover, the study focused on a limited set of predictors, including age, disability, employment, education, income, and years incarcerated. While theoretically relevant, these variables do not capture the full range of influences on digital literacy, such as access to digital devices during incarceration, participation in digital skills programs, housing stability, or mental health status—all of which could significantly impact skill acquisition and use.

5.4. Future Research

These limitations point to several directions for future research. Larger and more demographically diverse samples are needed to capture the heterogeneity of the FIP population and allow for intersectional analyses across race, gender, disability status, and geographic location. Longitudinal studies would be especially valuable for tracking changes in digital skills over time and establishing causal pathways between incarceration experiences, reentry conditions, and digital outcomes. Integrating performance-based assessments of digital skills alongside self-reported measures would also strengthen the validity of future findings.

Future research should also examine institutional and environmental factors that may shape digital inclusion, such as prison technology policies, access to digital literacy programming, and the digital infrastructure of reentry communities. The unexpected relationship between disability and higher digital literacy underscores the need to disaggregate disability types and incorporate more nuanced measures of health, functional status, and health literacy. In addition, there is a clear need for evaluations of digital reentry interventions (i.e., literacy bootcamps or job application training programs) using experimental or quasi-experimental methods to assess their impact on skill development and economic outcomes.

Finally, work in the area of digital literacy for reentrants would benefit from the development of a theory-driven framework that accounts for both structural and individual-level barriers to digital inclusion among FIPs, especially multiply marginalized FIPs. Such a framework could help explain how incarceration intersects with other forms of marginalization to affect digital skill acquisition and could guide the design of targeted interventions. Overall, while the present study provides an important quantitative foundation, addressing these limitations through more rigorous and expansive research will be critical to advancing digital equity for formerly incarcerated populations.

6. Conclusion

The current study quantitatively assessed the relationship between Black FIPs' digital literacy skills and demographic and incarceration-related variables. This study is the first to quantitatively explore these relationships, and some of the findings supported existing findings in the qualitative digital inequality and reentry literature. Most notably, the results demonstrated that FIPs with more extensive incarceration histories fare worse in terms of their overall digital literacy skills and specific subtypes of digital literacy skills. Older FIPs also fared worse in terms of specific subtypes of digital literacy skills. Therefore, the results indicate that digital literacy skills are shaped and influenced by FIPs' backgrounds, especially their incarceration history, and these digital skills deficiencies can result in more digital collateral consequences during reentry. Thus, correctional facilities and reentry organizations should consider how they can better equip this population with digital literacy skills to ensure they are able to meet key reentry needs and overcome digital collateral consequences.

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Conflict of Interests

The authors declare no conflict of interests.

Data Availability

Due to the sensitive nature of the data, it is not publicly available.

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Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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