

# Digital Divide Experienced by Formerly Incarcerated Individuals and Its Effect on Their Reintegration into Society

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## Abstract

Formerly incarcerated individuals are predominantly marginalized in terms of digital access attributed to rapid digital transformation. This has limited their ability to adequately prepare for employment post-release. This study sought to determine the digital divide experienced by those individuals and its effect on their reintegration into society. A quantitative cross-sectional research design was adopted, and data were collected from 65 formerly incarcerated individuals in North Carolina. Binary logistic regression results indicated that awareness among the incarcerated individuals insignificantly predicted class participation ( $B = [0.511]$ ,  $S.E. = [0.516]$ ,  $Wald = [0.979]$ ,  $p = 0.323$ ). The study further revealed that there was no significant difference between formerly incarcerated individuals with no class participation and their willingness to learn and apply ( $M = 2.45$ ,  $SD = 0.522$ ) and with class participation ( $M = 2.76$ ,  $SD = 0.435$ ;  $t(50) = -1.958$ ,  $p = 0.056$ ). The analysis also showed that there was no difference between formerly incarcerated individuals with no class participation and their self-efficacy to learn and apply ( $M = 3.318$ ;  $SD = 0.84477$ ) and with class participation ( $M = 3.414$ ;  $SD = 0.8616$ ;  $t(44) = -0.324$ ,  $p = 0.747$ ). Finally, the study results revealed that there was a significant relationship between incarcerated individuals who want to learn IT skills and their employment prospects after incarceration ( $r = 0.576$ ;  $p = 0.000$ ). The study results indicated that despite participation and awareness in correctional education having a positive and significant relationship with class participation, it does not directly lead to improved self-efficacy or willingness to learn and apply digital skills.

## Keywords

Digital Divide, Formerly Incarcerated Individuals, Digital Skills, Reintegration, Recidivism

## 1. Introduction

Technology has transformed every aspect of our daily activities including work, private, and public life. New technologies, devices, and systems are invading the world at an exponential rate (Gulain et al., 2022) and changes are necessary for smooth adaptation. Technology has created a massive transformation through digitalization changing people's interactions with each other, how and where they work, how they receive information, communicate, search and apply for jobs, and even pay bills (Iivari et al., 2020). Increased productivity, competitive advantage, and cost savings for companies and individuals alike are all desired outcomes of digital transformations. Digitalization is the act of transforming physical information, assets, or materials into binary or electronic (digital) forms for storage and use on a computer and other mobile devices (Pearce-Moses, 2005). Digitalization transfers materials from analog formats that people can ingest to a digital format accessible on various digital platforms like the Internet. Digital information is created and disseminated through various formats at an accelerating rate (Khan et al., 2015). The transition from physical print to digital content has expedited the utilization and growth of the Internet providing access to more people in less time. Some factors related to accessibility and usage of the Internet include pricing, reliability, geographic location, socioeconomic status, and age. These factors can impact the overall experience with technology, reducing unemployment, improving quality of life, and boosting citizenship, and access to public services (Khan et al., 2015) if you have access.

The digital divide refers to the division between people who have, and others who do not have access to digital information. This division limits access to opportunities that have gone through digitalization such as job applications, e-healthcare, and virtual education (Almajali & Maqableh, 2015). This divide creates large disparity gaps between people and negatively affects education, employment, and economic growth opportunities (Kaba & Said, 2013). According to a study by Andersson and Gronlund (2009), there is a positive correlation between Information and Communication Technology (ICT) utilization and economic development. The utilization of digital devices and technologies for access to content and resources has proven to accelerate economic growth and facilitate job creation; however, its impact is not uniform across certain geographies, demographics, and socioeconomic groups (Khan et al., 2015).

Since two-thirds of the world population possess mobile devices, this has quadrupled the number of people who have access to the internet to four billion, since 2005. Despite these developments, more than 3.6 billion have no access to the internet, since one-third of the world population has no mobile phones (Tenhunen, 2022). Studies have shown that most disadvantageous and vulnerable groups of individuals face digital exclusion in society including former prisoners, current prisoners, people with disabilities, and older people, especially those with lower wages (Robinson et al., 2020; Blomberg et al., 2021; Seo et al., 2020).

Preliminary data from the [Bureau of Justice \(2023\)](#), revealed that as of November 31st, 2022, the US prison population was 1,230,000, which is a 2% increase from 2021, with a majority of those incarcerated being black (32%), followed by white (31%), Hispanic (23%), multiracial or some other races (10%). Other races include American Indian or Alaska Native, and Asian (2%), Native Hawaiian, or other Pacific Islander (1%), respectively. Those in prison often face sexual violence and physical abuse, substance abuse difficulties, and mental health challenges ([Stefanidou et al. 2020](#)). To confound the situation, prisoners also lack access to the digital space, creating digital collateral consequences ([Robinson et al., 2020](#); [Blomberg et al., 2021](#); [Seo et al., 2020](#)). This is against the recommendations of international organizations that prisons should resemble the outside world ([World Health Organization, 2019](#)).

The marginalization of formerly incarcerated individuals in terms of digital access can be attributed to digitalization ([Reisdorf et al., 2022](#)) and the transition from physical books and material to digital content through the Internet. One calendar year removed from society would equate to three to four cycles of digital change. For example, Apple released nine versions of the iPhone from September 2021 to September 2022 ([Goodwin et al., 2023](#)). This is further exacerbated by their financial and social challenges after prison release and isolation from digital technologies. This has limited their ability to job search ([Williams, 2023](#)). While the availability of opportunities for digital access has improved due to the advancements in technology and digital platforms, formerly incarcerated people find themselves on the losing end of this divide. Most correctional facilities have little to no communication access to the outside world, including access to the Internet. Some facilities allow their residents to communicate with family and friends through text messaging and writing letters through apps, but there is no direct access to the internet or digital content. This creates unintended consequences such as a lack of digital literacy and workforce inequities when they attempt to assimilate back into society. While incarceration is a direct consequence of breaking a social norm or law, digital equity is, and should be, a human right for all ([Robinson et al., 2020](#); [Blomberg et al., 2021](#); [Seo et al., 2020](#)).

This study aimed to answer the following research questions: RQ1: To what extent are incarcerated individuals aware of the opportunity to take educational courses in correctional facilities and how does this awareness influence their participation in such courses? RQ2: To what extent is there a relationship between formerly incarcerated individuals' participation in educational courses while in correctional facilities and their willingness to learn and apply IT skills? RQ3: To what extent is there a relationship between formerly incarcerated individuals' participation in educational courses while in correctional facilities and their level of self-efficacy in learning and applying IT skills? RQ4: To what extent is there a relationship between formerly incarcerated individuals' perception of digital skills as important for future employment prospects, and their willingness to learn?

Research on the formerly incarcerated is limited in comparison to other top-

ics, it was in the backdrop of this gap that this study was conducted to examine the impacts of excluding incarcerated individuals from society and denying them access to the internet, which impedes their rehabilitation efforts, when released, around education and employment preparation, thus creating a vicious cycle of recidivism. This lack of access has created and continuously exacerbated the digital divide and promotes inequities because these individuals are being left behind as the world transitions into the digital economy.

## 2. Literature Review

### 2.1. Digital Inequities and Incarceration

Previous studies have illustrated the intersection of digital inequities and incarceration in various ways and how the digital divide has worsened the challenges for prisoners and former prisoners (Reisdorf & Julia, 2022; Blomberg et al., 2021; Seo et al., 2020). Reisdorf and Julia (2022) and Blomberg et al. (2021) have indicated that incarcerated individuals have limited access to technology thus hampering their ability to acquire digital skills and impacting their ability to integrate back into society. Seo et al. (2020) agree that although some correctional facilities offer education and reentry programs, their training on digital literacy and skills is not comprehensive; therefore, leaving former prisoners significantly disadvantaged in the digital world. Zivanai and Mahlangu's (2022) systematic literature review revealed that a lack of digital skills has made it difficult for ex-prisoners to cope with the reintegration challenges, thus negatively impacting their lives post-release. Based on these studies it is evident that access to technology, educational opportunities, and reintegration challenges are some of how digital inequalities and incarceration intersect.

Further, employment barriers, digital literacy, access to health and social services, and communication with loved ones are also some of the ways digital inequalities and incarceration intersect. Murphy and Soricone (2021) found that the digital divide among ex-prisoners can lead to underemployment thus encouraging recidivism. Robinson & Smith-Jackson (2023) survey points out that lack of exposure to information technology by ex-prisoners due to digital transformation is a primary blocker for hiring formerly incarcerated individuals. Hwang et al. (2023) used semi-structured interviews, where they found that digital inequalities can impede access to health and social services since most of these services have moved online. As Seo et al. (2020) indicated earlier, some correctional facilities offer digital communication tools with loved ones such as email or video visits, which might not be accessible to all inmates, thus exacerbating the feeling of disconnection from society. These studies implied that addressing digital inequities is critical in addressing the reintegration of former prisoners as they navigate the digital society.

### 2.2. Digital Divide

The digital divide is used to describe issues surrounding unequal access to ICTs,

as well as impacts and disadvantages to individuals or groups that lack adequate access to technology and the internet (Tewathia et al., 2020; Lythreatis et al., 2022). The digital divide has numerous forms and has been applied across diverse socio-justice phenomena throughout the years with three primary uses. These forms include the original use of the digital divide as the dichotomies of haves and have-nots (Fang et al., 2022), another as the approach with expansive considerations between individuals, their households, businesses, geographic areas, as well as socioeconomic factors (Reza, 2021), and the last form explains how digital inequalities influence the social structure arguing that there is no single simple issue, but an accumulation of social, economic, and technological issues similar to an ecology (Helsper, 2021). For this body of work, Helsper's digital divide definition will be applied and used, stating the digital divide and access to ICTs and the internet are not only technical and economically dependent but are also based on other factors such as cultural, social, personal, and political capital. These layers are complex and tend to mirror the social strata but produce different outcomes regarding knowledge and life chances that reinforce the status quo (Helsper, 2021).

Three levels of the digital divide have been proposed by researchers to better understand various aspects of technology access and how it affects people's engagement in society (Lythreatis et al., 2022; Tewathia et al., 2020; Aissaoui, 2021). The first level of the digital divide involves the access divide, which refers to the gap between those who do not have access to physical technology such as the Internet and computers, and those who have (Lythreatis et al., 2022). Infrastructure development, affordability programs, public access solutions, and education and awareness have been proposed as strategies to bridge the access divide gap (Lythreatis et al., 2022). The second level of the digital divide is the usage divide, which involves the disparities in utilizing digital technologies for economic, e-government, health services, and education opportunities, despite the access to technology (Tewathia et al., 2020). Inclusive design, awareness campaigns, digital literacy, and skills training are some of the strategies proposed to address the usage divide (Tewathia et al., 2020). The third level of the digital divide is the skills divide, which involves the need for skills to evaluate and compose information using digital technology, beyond access and usage (Aissaoui, 2022). Other strategies include public awareness campaigns, workforce development programs, community education programs, and incorporating digital literacy in education (Aissaoui, 2022). These studies agree that socioeconomic status, age, geographical location, and education opportunities are some of the factors contributing to the digital divide (Lythreatis et al., 2022; Tewathia et al., 2020; Aissaoui, 2022). Addressing various levels of the digital divide is very critical in ensuring equitable access to information for formerly incarcerated individuals despite their socio-demographic status.

### **2.3. Digital Divide and Formerly Incarcerated Individuals**

Formerly incarcerated individuals have been significantly impacted by the digital

divide, this has affected how these individuals have access to social services, health care, education, and employment. Several studies (Reisdorf & Julia, 2022; Blomberg et al., 2021; Seo et al., 2022). Reisdorf and Julia (2022) demonstrated formerly incarcerated persons lack access to ICTs during their period of incarceration thus making it difficult to navigate various aspects of life. Blomberg et al. (2021) used interviews with 45 formerly incarcerated women and found that lack of internet access and digital devices during the COVID-19 pandemic influenced their educational opportunities, job applications, and post-incarceration supervision requirements. Seo et al. (2022) identified skills barriers and technology access facing 75 women as they transition from incarceration and their underlying motivation in navigating digital privacy online. The study identified lack of self-efficacy, mental health issues, concerns about ex-partners, and housing and financial situations pose challenges to the usage and access of technology. Digitalization promotes social skills, self-esteem, rehabilitation, and reintegration into society (Knight & Van de Steene, 2017; McDougall et al., 2017; Reisdorf & Jewkes, 2016; Toreld et al., 2018). Digital technology in correctional centers also increases digital literacy and promotes job-searching skills on re-entry (Ogbonnaya-Ogburu et al., 2019). According to McDougall et al. (2017), self-service technology significantly increases interest in technology, reduces disciplinary offenses in prison, and recidivism within the first year of release.

Various studies have proposed strategies for addressing the digital divide for formerly incarcerated individuals. Reisdorf and Julia (2022) and Mohohlwane (2021) both used qualitative research methodology to recommend the importance of implementing digital literacy training as part of reintegrating formerly incarcerated individuals back into society as these programs will help them navigate the digital world. Reisdorf and Julia (2022) also recommended the need to provide internet access during incarceration to facilitate full integration into society. This was supported by O'Hanlon and Broome (2022) through their qualitative study on the experiences of nine older formerly incarcerated individuals during their specialized reentry program. Employment support services have also been proposed to facilitate job search strategies, resume building, and application assistance as suggested by Reisdorf and Julia (2022) and Duwe and Henry-Nickie (2021). Cole (2022) recommended the implementation of Public-Private Partnerships especially with tech companies as this can offer the knowledge and tools required to navigate the digital space. Smith (2020) and Seo et al. (2022) advocated for the implementation of policy initiatives to reduce recidivism among formerly incarcerated individuals in the digital age. These initiatives include funding for digital literacy programs. Implementation of strategies addressing the digital divide is critical in ensuring formerly incarcerated individuals have a fair chance and success in integrating into the digital age.

#### **2.4. Education and Employability of Former Prisoners**

Correctional facilities offering education and training can promote increased

employability among incarcerated individuals. Some researchers such as [Walk et al. \(2021\)](#) have reiterated that correctional-based vocational training centers are likely to train prisoners to attain different skills which can attract employers from different settings to give them employment. Similarly, handling different jobs requires experience and skills, and correctional facilities offering education and job training allow prisoners to acquire marketable skills and knowledge, which attracts employers ([Fox et al., 2023](#)). According to [Duwe and Henry-Nickie \(2021\)](#), correctional centers allowing prisoners to attain certificates can bridge the gap between the prisoners and employers thus allowing them to have successful re-entry and opportunities in employment sectors. These training programs often include classroom instruction and hands-on training. Vocational courses typically include but are not limited to plumbing, HVAC, masonry, auto mechanics, welding, and machine work which typically includes face-to-face and hands-on instructions. The ability to participate in more digital courses is limited due to availability and potential security risks.

Some correctional facilities may not be permitted to offer or undertake some courses due to the potential threat to prison security and internet access issues ([Hopkins, 2015](#)). A national survey conducted in 2003 by state educational administrators ([Erisman & Contardo, 2005](#)) reported approximately half of correctional facilities offered educational courses using video or satellite instruction. Web-based technology using the internet was rarely used because of security concerns. Learning management systems (LMS), like those used in schools and universities, such as Blackboard, Canas, or Moodle, can be configured to restrict access beyond the content needed for the courses. Limiting user access is something that can be isolated at the server/domain level with the assistance of a LMS technician. Just as large corporations build and use systems to keep unwanted users out, most systems can be designed to keep students from accessing unapproved sites and content on the internet ([Chappell & Shippen, 2013](#)). Some legitimate challenges and risks are associated with introducing technology into secure settings. Not all technology will require internet access, but those programs that do should be scrutinized diligently with the intent of circumventing security risks with incarcerated students.

While there are valid concerns and potential risks when accessing the Internet within correctional facilities, the lack of opportunities and fundamental rights to learn and maintain digital skills is more detrimental and poses a greater risk to those impacted. Without adequate exposure to digital education, skills, and knowledge, we continue promoting inequities and illiteracy that leave individuals unprepared to return to society and be productive citizens. Universities and corporations have been offering courses and training with limited internet access to learn the needed material. These security-based safeguards and protocols can be adapted and adjusted for correctional facilities. Correctional education programs improve the confidence of prisoners to work in different employment sectors as the skills attained make them competent and attractive in the work environment ([McCann et al., 2018](#); [Razali et al., 2021](#)). Overall correctional facil-

ities offering education programs including career technical education can foster skills development among prisoners which allows them to be more attractive in the employment sectors.

The aspect of promoting education in correctional facilities is a critical point for increasing employability among prisoners. As an illustration, [Denver & Megan \(2019\)](#) found that correctional education allows incarcerated students to enroll in different college-level courses and degree programs which makes them attain college credits that earn them opportunities in employment sectors. Additionally, [Steckley et al., \(2021\)](#) maintained that despite incarcerated individuals attaining education for different jobs, giving them mentorship programs also improves their skills, a signal to employers indicating their capability for employment. For effective re-entry into society, correctional facilities instill knowledge in incarcerated individuals by allowing them to obtain certificates in masonry or carpentry, which gives them confidence in self-employment ([McCann et al., 2018](#)). Contrary, some scholars have alluded that lack of training and education among incarcerated individuals may fail to get employed due to limited skills ([Goger et al., 2021](#)). Consistency in the results indicates that correctional facilities providing education programs and digital literacy to incarcerated individuals may improve their skills toward employment leading to successful re-entry.

## **2.5. Digital Skills Development in Correctional Education and Workforce Reentry**

Integrating digital education in correctional facilities opens job opportunities and effective re-entry into the workforce. Correctional centers incorporating technological education may enhance digital skill development among incarcerated individuals which constitutes digital skills leading to workforce entry ([Mohlwane, 2021](#)). According to [Robinson and Smith-Jackson \(2023\)](#), integrating technology into the education curriculum of incarcerated individuals allows them to obtain basic computer skills, and teaches them how to use software including Microsoft Office which increases their chances of workforce re-entry. Obtaining basic computer skills including digital design has become a crucial factor in increasing the ability of individuals to remain competent in workforce settings as most employers prefer individuals with new technological skills ([Foster, Jordan, & Michelle, 2022](#)). Analyzing data from [Becker-Pestka \(2022\)](#) participants, integrating online learning platforms in correctional education proportionately allows incarcerated individuals to leverage their digital skills and experiences, especially among those with a desire to use technological equipment in the workforce. Overall, incorporating digital skills development into the correctional education curriculum can enhance the attainment of needed digital skills which allows them to have effective workforce re-entry.

Although there is an increase in research focusing on digital skills development in correctional education promoting workforce reentry among incarcerated individuals, there are inconsistencies in research findings. Long-standing

strategies including technological education have been reported to enhance digital skills development among incarcerated individuals bridging the digital divide, some scholars have reported conflicting results as some fail to re-enter the workforce (Reisdorf, Bianca, & DeCook, 2021). As an illustration, study findings by Duwe and Henry-Nickie (2021) show that certification and credentials obtained from digital training while in correctional facilities have become crucial strategies for incarcerated individuals' re-entry into the workforce. Similarly, Rantanen et al. (2021) also reinforced that correctional centers with simulated working environments can engage individuals in using Microsoft Office which significantly reflects real tasks in readiness for their expected jobs. Despite correctional facilities offering digital education, limited access to computers and internet connectivity can deter digital skills development among incarcerated individuals (Järveläinen & Rantanen, 2021; Reisdorf et al., 2022). Contradiction in the findings necessitates a need for study on the topic to provide empirical evidence that can be dependable.

## 2.6. Correctional Education Programs and Motivation

Correctional facilities providing education programs to inmates can influence their awareness. Prior research studies have indicated that correctional facilities imparting inmates with knowledge is a critical factor that allows them to understand the importance of education in their lives as it influences their ability to obtain job opportunities (Behan, 2021; Pendleton, Jennifer, & Rebecca, 2020). Other researchers including Dewey et al. (2020) have also alluded that higher education courses offered in correctional centers can equip inmates with different skills thus empowering them to be mentors and advocates to their peers. Educating inmates increases awareness of the importance of being educated, consequently allowing them to mentor others by sharing their life experiences. Additionally, the ability of correctional facilities to train inmates how to communicate, write, and read significantly correlates with an increased understanding of information which enlightens them on available job opportunities or programs that can positively impact their lives (Giannoulis, Antonopoulou, & Halikiopoulos, 2022).

Limited studies have been completed on participation in correctional education and motivation. Schlesinger (2005) conducted a study interviewing 15 incarcerated African American males about participation in correctional education. Schlesinger (2005) found many of the students had negative experiences in school which impacts their desire to learn, and the ability to motivate students depends on what motivation students possess, and what they find motivating. Most of the responses for motivation were non-educational. The most stated reason to participate in correctional education was social interaction—to spend time with family, friends, and affiliates. Another popular non-educational response was to get a break from the restrictive conditions of the correctional facility. Others mentioned they participated in courses to receive payment. There were fewer responses for educational or personal motivations. Some were moti-

vated to learn and gain skills in preparation for release. Others were motivated by self-improvement and becoming role models for their loved ones. Schlesinger (2005) recommends building a connection or relationship with the students due to social interaction being the primary motivation for most students participating in correctional education courses. Building a relationship would help acknowledge the humanity of each learner and establish insights into how they want to learn. Building a relationship with the student is only one strategy of motivation. Learning should also be fun and exciting. That also motivates students.

A new technique called gamification: adding game elements to non-game contexts (Deterding et al., 2011a, 2011b) can help motivate students. It engages users to embrace behaviors through competition and collaboration. Gamification uses the motivational power and competitiveness of a good game, unlike traditional learning, which can pivot, adjust, and deliver information as needed (Gee, 2003) creating a balance between difficulty and one's ability. Gamification has been tested and used across several industries including healthcare, employee productivity, and ecology, but the benefits to the learning experience when applied to education have limited scope (Barata et al., 2013). Previous experiments show that gamification can improve learning outcomes, motivation, and diligence. McClean et al. (2001) show students learning biology with a video game performed 30% better in their assessments than those learning without. Moreno (2012) had similar findings in his experiment, where students used a video game to improve their programming skills and performed 12% better on the exam. Gamification can be used to increase motivation, learning, as well as awareness. Consistency in the findings indicates that promoting education in correctional facilities empowers inmates thus creating awareness and motivation for successful reintegration into society.

### 3. Research Methodology

A quantitative cross-sectional research design was adopted in this study to assess the detrimental impacts of the digital divide on formerly incarcerated individuals as it aims to leave no man behind in this digital age. This study design was justified as it allowed the collection of primary data at one single point in time to understand the attitudes and experiences of former prisoners with multiple incarcerations. This design also allowed the researcher to quantify elements of the study and identify significant patterns that can assist in policy development and enhance digital equity among the incarcerated.

The data collected focused solely on the interest and previous participation in correctional courses, the perception of an IT career, as well as the desire and willingness to learn IT. Because incarcerated individuals are a protected group, previously incarcerated individuals were surveyed reflecting on their time during incarceration and what they would have been willing to do while incarcerated. This research was reviewed and approved by the Institutional Review Board. A short pilot survey was developed systematically with exploratory questions about

perceptions, thoughts, experiences, and willingness to learn IT skills. The pilot survey was valuable in enhancing the execution of the research. The pilot study ensured collecting high-quality data on the main study, was possible to reflect perceptions. The survey was structured with Likert scales for respondents to rank their responses ranging from “strongly disagree” to “strongly agree” using a five-point scale. The survey also provided respondents with the opportunity to provide additional information, supplying supporting qualitative data through open-ended questions. Combining Likert-scale and open-ended questions in the survey, created a robust methodological approach that addressed perception of the people in incarceration. The survey was distributed across several local correctional transition facilities across North Carolina. Constructs measured using Likert scales were transformed to form composite variables to establish the relationship between the study variables. Both descriptive and inferential statistics were used. Inferential statistics that were used include binary logistic regression, independent sample t-tests, and Pearson correlation analysis.

#### 4. Results

**Table 1** provides the demographic characteristics of the study respondents focusing on gender, race, level of education, and age categories. Regarding the gender of the respondents, 72.3% (47) of the respondents identified themselves as male compared to only 10.8% (7) who indicated female, while the remaining 16.9% indicated missing. In terms of race, Black or African Americans were the majority constituting 64.6% (42) of the study participants, following at a distance 13.8% (9) were white. Two respondents indicated two or more races and one indicated Hispanic/Latino or Spanish Origin. The table also indicated the distribution of the respondents in terms of education levels, with the highest proportion holding a High School Diploma or GED (43.1%), followed by Some High School (21.5%), 10.8% (7) holding a Bachelor’s degree and only 7.7% (5) having an Associates. The largest group of the respondents (47.2%) were aged between 44 and 56 years, followed by 57+ who constituted 30.2%. Smaller portions fell within the 31 - 43 and the 18 - 30 age categories constituting 15.1% and 7.5% respectively. According to the data, the majority of the formerly incarcerated individuals in North Carolina were males, Black or African American, had High School Diploma/GED, and were aged between 44 and 56 years.

**Table 1.** Demographics of respondents.

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Missing	11	16.9	16.9	16.9
	Female	7	10.8	10.8	27.7
	Male	47	72.3	72.3	100.0
	Total	65	100.0	100.0	

## Continued

		Race			
Valid	Missing	11	16.9	16.9	16.9
	Black or African American	42	64.6	64.6	81.5
	Hispanic/Latino or Spanish Origin	1	1.5	1.5	83.1
	Two or More Races	2	3.1	3.1	86.2
	White	9	13.8	13.8	100.0
	Total	65	100.0	100.0	
		Level of Education			
Valid	Missing	11	16.9	16.9	16.9
	Associates	5	7.7	7.7	24.6
	Bachelors	7	10.8	10.8	35.4
	High School Diploma/GED	28	43.1	43.1	78.5
	Some High School	14	21.5	21.5	100.0
	Total	65	100.0	100.0	
		Age Category			
Valid	18 - 30	4	7.5	7.5	7.5
	31 - 43	8	15.1	15.1	22.6
	44 - 56	25	47.2	47.2	69.8
	57+	16	30.2	30.2	100.0
	Total	53	100.0	100.0	

#### 4.1. Binary Logistic Regression

This non-parametric statistic was conducted to determine the extent to which incarcerated individuals were aware of the opportunity to take educational courses in correctional facilities and how this awareness influenced such courses. **Table 2** indicated that class participation can be moderately successfully predicted by class awareness using the logistic regression model as indicated by  $-2$  Log likelihood (71.077), Cox & Snell (0.019) and Nagelkerke R squared (0.026). These values indicated that class awareness has a significant relationship with class participation, though exists confounding factors that could explain class participation.

**Table 2.** Model summary.

Step	$-2$ Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	71.077 <sup>a</sup>	0.019	0.026

<sup>a</sup>Estimation terminated at iteration number 3 because parameter estimates changed by less than 0.001.

**Table 3** indicated that binary logistic regression was effective in determining whether class awareness can determine whether formerly incarcerated individuals could participate in a class or not. The logistic model correctly classified that 78.8% of the formerly incarcerated could participate in classes, this was possible through comparing actual observed outcomes and those predicted by the binary logistic regression model.

**Table 3.** Classification.

Observed		Predicted			
		Class Participation		Percentage Correct	
		No	Yes		
Step 1	Class Participation	No	0	11	0.0
		Yes	0	41	100.0
Overall Percentage					78.8

Based on **Table 4**, it was evident that binary logistic regression analysis indicated that class awareness among the incarcerated individuals insignificantly predicted class participation ( $B = [0.511]$ ,  $S.E. = [0.516]$ ,  $Wald = [0.979]$ ,  $p = 0.323$ ). The odds ratio ( $Exp(B) = [1.667]$ ) indicates that for each one-unit increase in class awareness, the odds of participating in class by those in incarceration could increase by a factor of 66.7%, controlling for other variables not included in the model.

**Table 4.** Variables in the equation.

	B	S.E.	Wald	Df	Sig.	Exp(B)	95% C. I. for EXP(B)	
							Lower	Upper
Step 1 <sup>a</sup>								
Class Awareness (1)	0.511	0.516	0.979	1	0.323	1.667	0.606	4.586

<sup>a</sup>Variable(s) entered on step 1: Class Awareness.

### 4.2. Independent Sample T-Test

This test was used to answer RQ2 and RQ3. The test was used to examine if there is a relationship between formerly incarcerated individuals' participation in educational courses at correctional facilities and their willingness to learn and apply IT skills. **Table 5** indicated that there was no significant difference between formerly incarcerated individuals with no class participation and their willingness to learn and apply ( $M = 2.45$ ,  $SD = 0.522$ ) and with class participation ( $M = 2.76$ ,  $SD = 0.435$ );  $t(50) = -1.958$ ,  $p = 0.056$ ). The mean difference between those who had participated in class (mean difference =  $-0.302$ , 95% CI:  $-0.611$  to  $0.008$ ) was not statistically significant, implying that class participation among prisoners does not significantly affect their willingness to learn and apply.

**Table 5.** Independent sample t-test on relationship between participation and willingness to learn and apply IT skills.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Class Awareness	Equal variances assumed	3.489	0.068	-1.958	50	0.056	-0.302	0.154	-0.611	0.008
	Equal variances not assumed			-1.759	13.944	0.101	-0.302	0.171	-0.669	0.066

Group Statistics on Class Participation: No 11 (M = 2.45; SD = 0.522); Yes 41 (M = 2.76; SD = 0.435).

On the RQ3, an independent sample t-test was also conducted to determine if there is a relationship between formerly incarcerated individuals' participation in education courses while in correctional facilities and their level of self-efficacy in learning and applying IT skills. **Table 6** indicated that there was no difference between formerly incarcerated individuals with no class participation and their self-efficacy to learn and apply (M = 3.318; SD = 0.84477) and with class participation (M = 3.414; SD = 0.8616);  $t(44) = -0.324, p = 0.747$ . The mean difference between those who had participated in class (mean difference =  $-0.09610$ , 95% CI:  $-0.69370$  to  $0.50149$ ) was not statistically significant, implying that class participation among prisoners does not significantly affect their self-efficacy to learn and apply.

**Table 6.** Independent sample t-test on the relationship between class participation and self-efficacy in learning and applying IT skills.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Self Efficacy	Equal variances assumed	0.147	0.704	-0.324	44	0.747	-0.09610	0.29652	-0.69370	0.50149
	Equal variances not assumed			-0.328	17.072	0.747	-0.09610	0.29341	-0.71494	0.52274

### 4.3. Pearson Correlation Analysis

This analysis was conducted to determine the relationship between formerly incarcerated individuals' perception of IT skills as important for future employ-

ment prospects and their willingness to learn IT skills. **Table 7** indicated there was a significant and medium relationship between incarcerated individuals who want to learn IT skills and their employment prospects after incarceration ( $r = 0.576$ ;  $p = 0.000$ ). This implied that the will to learn IT skills has an effect on employment after incarceration.

**Table 7.** Pearson correlation analysis.

		Will to Learn	Employment Prospects
Will to Learn	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	49	
Employment Prospects	Pearson Correlation	0.576**	1
	Sig. (2-tailed)	0.000	
	N	48	49

\*\*Correlation is significant at the 0.01 level (2-tailed).

## 5. Discussion

The study results revealed that class awareness has a significant relationship with class participation and the odds of participating in class by those in incarceration could increase by a factor of 66.7%, though there exist confounding factors that could explain class participation. This study's findings support that of [Behan \(2021\)](#); [Pendleton, Jennifer and Rebecca \(2020\)](#) who established that correctional facilities imparting inmates with knowledge is a critical factor that allows them to understand the importance of education in their lives as it influences their ability to obtain job opportunities. [Dewey et al. \(2020\)](#) also supported these studies by stating that higher education courses offered in correctional centers can equip inmates with different skills thus empowering them to be mentors and advocates to their peers. Increased understanding of information that enlightens them on available job opportunities or programs that can positively impact their lives ([Giannoulis, Antonopoulou, & Halkiopoulos, 2022](#)). Consistency in this current study's findings and the existing literature indicates that promoting education in correctional facilities empowers inmates thus creating awareness and reducing recidivism.

The study also revealed that class participation in other courses among prisoners does not significantly affect their willingness to learn and apply. This finding was in tandem with that of [Järveläinen and Rantanen \(2021\)](#) and [Reisdorf et al., \(2022\)](#), who argue that despite correctional facilities offering digital education, limited access to computers and internet connectivity can deter digital skills development among incarcerated individuals. This contradicts the findings by [Reisdorf, Bianca, & DeCook \(2021\)](#) who argue those long-standing strategies including technological education have been reported to enhance digital skills development among incarcerated individuals bridging the digital di-

vide, some scholars have reported conflicting results as some fail to re-enter the workforce.

This study also revealed that class participation in other educational courses among prisoners does not significantly affect their self-efficacy to learn and apply digital skills after incarceration. This is supported by the findings of [Seo et al. \(2022\)](#) agree although some correctional facilities offer education and reentry programs, their training on digital literacy and skills is not comprehensive and this has left former prisoners significantly disadvantaged in the digital world. This finding contradicts that of [Duwe and Henry-Nickie \(2021\)](#), correctional facilities allowing prisoners to attain certificates can bridge the gap between the prisoners and employers thus allowing them to have successful re-entry and opportunities in employment sectors. [Becker-Pestka \(2022\)](#) adds that integrating online learning platforms in correctional education proportionately allows incarcerated individuals to leverage their digital skills and experiences, especially among those with a desire to use technological equipment in the workforce. Contradiction in study findings with the extant literature might be attributed to the small sample size in this study. The inability to apply digital skills after incarceration might be attributed to a lack of comprehensiveness in these skills.

On the final research question, it was revealed that the willingness to learn IT skills during incarceration has a significant effect on the employability of formerly incarcerated individuals. This finding is supported by [Murphy and Soricone \(2021\)](#); [Robinson & Smith-Jackson \(2023\)](#) and [Hwang et al. \(2023\)](#). [Murphy and Soricone \(2021\)](#) found that the digital divide among ex-prisoners can lead to underemployment thus encouraging recidivism. [Robinson & Smith-Jackson \(2023\)](#) survey points out that lack of exposure to information technology by the formerly incarcerated due to digital transformation is a primary blocker for hiring formerly incarcerated individuals. [Hwang et al. \(2023\)](#) found that digital inequalities can impede access to health and social services since most of these services have moved online. This finding implied that addressing digital inequities is very important in addressing the reintegration of former prisoners as they navigate the digital society.

## 6. Conclusion

Based on the study results and conclusion, this paper concludes that despite participation and awareness in correctional facilities education has a positive and significant relationship with class participation, but it does not directly lead to improved self-efficacy or willingness to learn and apply digital skills. The significant positive relationship between the employment prospects of formerly incarcerated individuals and their perception of digital skills indicated a clear reintegration pathway for former prisoners into society by focusing on digital skills that are aligned with the labor market. These correctional facilities can significantly contribute to individuals' reentry back into society and recidivism reduction with the proper education. Based on these arguments, correctional facil-

ities can not only ensure that these educational programs are relevant but also improve their participation and awareness among the prisoners, as this will be practically linked to the employability of formerly incarcerated individuals.

## 7. Study Limitations

This study was limited in sample size, thus limiting the generalizability of the study findings. Further study participants were from a specific geographic location (North Carolina), which might apply to all formerly incarcerated individuals. Further, this study might be subject to self-reporting bias from study participants regarding their perceptions of digital skills, awareness, and participation in education programs, thus contributing to social desirability bias. Finally, this study failed to identify other factors that might influence recidivism and reintegration into society.

## Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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