# Closing the Digital Gap for Incarcerated Students Using Learning Management Systems in the USA

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Abstract:     This study explores the current digital access and the feasibility of integrating Learning Management Systems (LMS) in correctional facilities to bridge the educational digital gap among incarcerated students in the USA. Using a cross-sectional design and quantitative methodology, data were collected through structured questionnaires from 94 incarcerated students. Results showed low digital access (overall mean = 2.31, SD = 1.337) but high feasibility for LMS integration (overall mean = 3.61, SD = 1.195). Key challenges identified include funding, staff training, and logistical constraints (overall mean = 3.75, SD = 1.205). Pearson correlation analysis indicated a strong positive association (r = 0.875, p = 0.001) between digital access and LMS feasibility, suggesting that improved digital access significantly enhances LMS integration feasibility. Recommendations include increasing funding, providing comprehensive training, and improving digital infrastructure to enhance educational outcomes for incarcerated students.

## 1 INTRODUCTION

Providing incarcerated students with digital and technological skills may enhance their career prospects, enable inexpensive higher education via online programs, and lead to better-paid jobs. Competitive college education is encouraged to be provided by the colleges running higher education in the correctional facilities, This must be accomplished despite strict limitations and constraints imposed upon these programs. According to Tanaka and Cooper (2020), state Departments of Corrections (DOC) limit computers, books, and internet access for inmates, and educators must arrange and teach around DOC security regulations. Davis et al. (2014) found that while most states permit students limited computer use in their institutions, less than half permit offline Internet access, and even fewer permit restricted Internet access, according to a 2013 survey of state correctional education directors. Therefore, incarcerated students in the United States face a challenge in closing the digital divide due to limited technological and educational resource availability. In Maryland State none of the colleges running college education in the prison is using any form of LMS the excuse is security concern. Also, insufficient money and human ability to acquire, deploy, maintain, and monitor sophisticated technology are other causes. Technology may transform education. Technology enhances educator-student relationships, reinvent education and teamwork, eliminate equity and accessibility barriers, and personalize learning experiences for all learners (King & South, 2017). This work explores the digital gap for incarcerated students using LMS to address the challenges faced by incarcerated students in accessing educational resources and technology in the USA. "The incarcerated students undergo much stress, a particular hour set for learning may not be conducive for learning by the incarcerated students" (Badejo & Chakraborty, 2022).

## 2 BACKGROUNDS

The Incarcerated are disadvantage in educational achievement than the general population. According to Bender (2018), a substantial portion of the 2.3

million Americans in prison are deprived of crucial opportunities, with 41% lacking high school graduation, as opposed to 18% in the general population, and only 24% of federal prisoners having tertiary education compared to the 48% in the overall population. Recent data indicates that only 35% of state prisons offer college courses, which reaches a mere 6% of the entire state prison population nationwide despite the educational needs of incarcerated individuals being substantial (Delaney et al., 2016). According to a study by the US Department of Education in 2016, state and local prison spending growth rate was three times higher than that of pre-K-12 public education between 1979 and 2013 (Bender, 2018). To put this into perspective, Bender (2018) explains that Maryland spends $12,000 for each pre-K-12 public school student and $37,000 per incarcerated student.

Despite the stringent prohibition of internet access in correctional facilities, colleges and universities in the US that offer prison education programs are increasingly digitizing to educate incarcerated individuals. Pokornowski (2023) states that the reinstatement of federal Pell funding for incarcerated individuals has heightened the need to comprehend the significance of technological accessibility within prison education initiatives. An excellent example of a university endeavoring to broaden its scope is Ashland University, located in the northwest region of Ohio. Sullivan (2019) explains that the institution's digitized prison education program has reached fifty correctional facilities in Georgia, Minnesota, West Virginia, Missouri, Louisiana, and Washington, DC. Additionally, Sullivan (2019) states that Peninsula College in Washington initiated an educational program that enables incarcerated students of Clallam Bay Corrections Center to utilize technology to complete assignments, but traditional classroom instruction remains the primary mode of instruction.

Implementing digital literacy in prison education is difficult due to restricted technology and resources, prison infrastructure, and safety concerns. According to Tolbert et al. (2015), the main reason prison agencies limit access to new technologies for education programs and students is security. In fact, most prison agencies limit computer use to classrooms or computer labs and prohibit incarcerated individuals from accessing the Internet. Djeki (2022) explains that colleges need students to authenticate on both ends of an encrypted connection for sensitive data transmission to protect communication and personal data. This additional security stops inmates from sharing login passwords to complete schoolwork or communicate with instructors. Moreover, adopting sophisticated technologies in correctional education incurs direct and indirect costs. The United Nations Office on Drugs and Crime (2018) estimated direct education expenses per offender ranged from $1,400 to $1,750, with correctional education reducing re-incarceration costs by $8,700 to $9,700 per convict. Additional expenditures include software, annual license charges, and subscriptions to vendors. A further obstacle pertains to the perspectives held by policymakers, prison administrators, and the general public regarding the suitability and cost-effectiveness of implementing educational technology as a service for incarcerated individuals.

Information is increasingly accessible inside the jail walls using various technologies and platforms. According to a 2015 study by the US Department of Education (DoE), educational technology holds significant potential for enhancing and expanding correctional education despite limited resources (Tolbert et al., 2015). The research offered many technological avenues for corrective education growth. Due to the limited availability of open internet connection inside correctional facilities, the DoE focused on deploying controlled networks, such as Wide Area Networks (WANs) and Local Area Networks (LANs) (Tolbert et al., 2015). According to Raher (2024), jailed individuals and their families pay significantly more for digital services such as e-messaging than the general community. Tanaka and Cooper (2020) emphasize that DOC must prevent predatory fees for prison higher education programming as advances in technology become increasingly common since there is a resource gap in prison education technology. Besides revenue generation, digitization of prison education can cut costs and workload in prisoner education initiatives.

Since the stay of incarcerated students in correctional institutions is temporary, their conduct during this time greatly affects their futures. According to Meyer (2024), adequate educational interventions increase the chance of repeating mistakes and recidivism. This emphasizes the necessity for correctional systems and society to support digital education programs for inmates actively. These programs use LMS to bridge the digital gap and provide educational resources and skills development. Such projects empower detained students by helping them stop bad habits and improve their chances of reintegration (El Ghazali & Benbrahim, 2024). Digital education in prisons is a proactive step toward breaking down barriers, fostering positive change, and contributing to criminal justice system rehabilitation.

# 3 PROBLEM STATEMENT

In the US there are challenges of integrating digital literacy in incarcerated education include technology and resources, prison architecture and structure, and inmates' security. The word is moving with the speed of light in technology usage and the incarcerated are not to be left behind. The lack in correctional educational programs is the integration of modern technologies such as LMS. Current techniques of offering education correctional facilities do not foster digital literacy and talents of the incarcerated students. The deficiency of LMS usage makes it hard to acquire the necessary and sufficient digital competencies and perpetuates the lack of access to education and thus the challenge of reintegrating offenders into society upon release from incarceration. Thus, the current gap in the delivery of correctional education is indeed significantly large due to the inexistence of an integrated, particularly a tech-centered, strategy. This study explores the practicality of LMS in meeting the educational needs of incarcerated students and thus improving the existing education system in penitentiaries all over the United States.

# 4 CONCEPTUAL FRAMEWORKS

The Technology Acceptance Model (TAM) implies that perceived utility and ease of use impact whether prospective consumers would embrace a computer system (Thompson, 2019). This framework focuses on the potential user's expectations. Stamatiou et al. (2022) revealed that TAM responds to several concerns related to LMS and its utilizations for business and the intention of using LMS's for the digitized educational courses. It includes the confidence in the system along with the risks involved like the privacy concern in the use of the system. Since the factors that affect perceived usefulness and easy use affect the user experience, other variables such as the system characteristics, user differences, and environment may be incorporated into the TAM based research.

Within the framework of this research, TAM will be utilized to evaluate the attitudes and perceptions of incarcerated individuals regarding LMS. The analysis is guided by the model's fundamental constructs, such as perceived utility and perceived ease of use, to determine whether incarcerated students perceive the LMS as advantageous. As outcomes, behavioral intent to use LMS and actual usage will be investigated. Factors that impact the adoption of LMS, including inmates' prior technological experience, the perceived applicability of digital education, and the influence of prison personnel, will be determined with the use of the framework. The utilization of TAM in correctional facilities will yield valuable insights regarding the viability and prospective efficacy of incorporating LMS into prison to close the digital gap among incarcerated students.

# 5 RATIONALE BEHIND THE TOPIC

The study topic has significant implications for education and society. As the Incarcerated population are faced with gap in digital skills. Understanding and tackling this issue is vital because education breaks the recidivism loop. LMS designed for correctional settings could change how detained students access and use educational content. The study examines whether LMS can offer a comprehensive and adaptable instructional platform that surpasses traditional techniques. The research also addresses a significant social need to minimize recidivism and help reintegrate offenders into productive community members. The scientific community must find new ways to close the digital divide to ensure that no one is left behind. This project addresses a specific educational difficulty and promotes social fairness, breaks down institutional obstacles, and equips incarcerated students for personal and professional progress. Its ability to change lives, change educational paradigms, and make correctional facilities more inclusive and rehabilitative is the motivation.

# 6 RESEARCH QUESTIONS

1. What is the current level of digital access and educational resources available to incarcerated students in the United States?

2. What is the feasibility of integrating Learning Management Systems LMS in correctional facilities for educational purposes?

3. What are the key challenges and opportunities in implementing Learning Management Systems solutions in correctional education programs?

# 7  IMPORTANCE TO THE SCIENCE COMMUNITY

The scientific community values research for various reasons. First, it addresses an important and underrepresented education, technology, and criminal justice area. The study examines LMS in correctional facilities to improve educational possibilities for underserved populations. This research may influence criminal justice, education, and technology integration policies. A nuanced understanding of the challenges and opportunities of implementing digital education solutions in correctional settings can help the scientific community develop evidence-based strategies to close the digital gap for incarcerated students. This research also contributes to discussions about technology's transformative power in prison educational settings. The scientific community will learn how innovative approaches like LMS may be applied to varied situations, adding to the debate on education digitization and technology's role in social inclusion. The scientific community's involvement in this research is crucial to promoting good change inclusion and comprehending the complex dynamics of incorporating technology into criminal justice education frameworks.

# 8  LITERATURE REVIEW

The Literature review section describes previous studies on digital education, focusing on LMS. This section discusses earlier studies on prisons' digital education, LMS implementation challenges, and successful models. It also covers digital access restrictions, social reintegration, and digital inclusion and recidivism, providing an entire perspective. The gaps existing in the previous studies are also identified to form the basis of the current study.

## 8.1  Digital Education in Correctional Facilities

According to Fiorot (2024), numerous digitized colleges and universities are interested in offering online learning services to incarcerated students, indicating that online learning is gaining traction consistently in the US. The report on technology in correctional facilities in the US by Tolbert et al. (2015) identified the benefits and drawbacks of nationwide digitization of education programs. In addition, the report noted that sophisticated technologies have already been successfully implemented in correctional facilities across the US for data collection, case management, analysis, security, and communications monitoring. Consequently, digital education initiatives could benefit from the application of the same model (Tolbert et al., 2015). Johnson (2021) found that the Prison University Project (PUP), Prisoner Re-entry Institute, Prison-to-College-Pipeline (P2CP) at Saint Quentin State Prison in California, and Bard Prison Initiative are among the most significant models. Hopkins (2015) explored innovative learning methods offered by the Open University (OU) and the University of Southern Queensland (USQ), both of which have a history of delivering higher education to convicts. Hopkins (2015) discovered that the Portable Learning Environments for Incarcerated Adult Distance Education Students (PLEIADES) project tested an internet-free version of USQ's LMS on a prison education server and the distribution of eReaders. Moreover, the technologies were a feasible substitute for printed literature in prison education.

Sabharwal (2020) evaluated the usability elements that promote the LMS efficacy and learnability in a Victorian correctional facility using the four usability characteristics of effectiveness, adaptability, learnability, and acceptability. According to Farley and Seymour (2024), barriers to LMS deployment in prisons include inadequate communication, knowledge, technical assistance, prison system rigidity, and an excess of unnecessary material. Moreira et al. (2017) examined incarcerated students, applicants, and rehabilitation technicians' perceptions of distant learning and LMS in a Portuguese prison. According to the study, the prison education system was hampered by limited facilities, educational and technology resources, and teacher assistance. Farley (2015) described projects that use eBook readers, tablet computers, and Stand-Alone Moodle (SAM), a sustainable and innovative LMS that can be used by incarcerated students without internet access. According to Farley (2015), these technologies allow universities to offer incarcerated students course materials, activities, and assistance just like other students, which enhances student learning.

Moreover, according to Jha (2023), correctional facilities are implementing cloud technology as a workaround to enable offenders to download academic materials, thereby preventing unrestricted access to the internet. On the contrary, McFarlane and Pike (2019) assert that the provision of these literacies and skills to offenders is uncommon in correctional facilities as a result of resource constraints and the security vulnerabilities they present for the

administration of correctional centers. In order to reconnect Correctional Institution detainees with society, Stamatiou et al. (2022) advocate for the inclusion of LMS and restricted Internet access as essential components within the established framework of fundamental human rights.

## 8.2 Challenges of Digital Education in Prisons

In correctional institutions, there is a prevailing restriction on digital technology, effectively excluding a significant proportion of detained people from engaging in social events (Johnson, 2021). Barros et al. (2023) explain that inmates' future social reintegration is influenced by factors such as educational opportunities, internet access, and the availability of digital technology, notwithstanding the limitations or educational and justice policies that underpin the guidelines for educational services in correctional facilities. However, prisons typically impose restrictions on internet access and information and communication technology systems due to concerns over safety (Sellers, 2016).

According to Hopkins and Farley (2017), a strategic approach to the organizational systems and procedures of prisons' unique and demanding learning environment should guide customized digital learning technology. Hopkins (2015) and Sellers (2016) explain that the allocation of learning areas and schedules is contingent upon several factors: the degree of inmate adherence to state-mandated education policies, the prison staff's perspectives regarding learning and digital technologies, and the communities' social perceptions of inmates and their entitlement to education. Furthermore, it is well observed that the prison environment tends to hinder the process of acquiring knowledge, mainly owing to the presence of disruptive surroundings, limited availability of educational materials and personnel, and inadequate systems in place to facilitate concentrated, independent, and self-directed learning (Farley & Hopkins, 2017).

## 8.3 Digital Inclusion of Incarcerated Students

Meyer (2024) state that digital literacy helps people navigate the world and improves their lives. Research indicated that incarcerated people have limited internet access owing to security concerns that convicts would use technology to commit crimes and jeopardize prison security (Jewkes & Reisdorf, 2016). Cubias (2023) states that the level of digital inclusion

for inmates is also influenced by the perspectives of prison officials regarding the advantages of technology and their professional experience. For example, Mufarreh et al. (2022) found that seventy prison officials at institutions with more technology for prisoners had a more positive view of its impact. Moreover, Jewkes and Reisdorf (2016) contend that convicts decline the opportunity to utilize the provided technology out of concern for their privacy, personal safety, and the prison staff's exertion of control.

Reisdorf and DeCook (2022) discovered that digital disparities have a more significant impact on populations that are vulnerable and marginalized, such as previously incarcerated individuals. These individuals face multiple vulnerabilities such as advanced aging, disability, limited educational opportunities, low socio-economic status, gender-based marginalization, as well as racial and ethnic disparities within the US (Reisdorf and DeCook, 2022). According to Monteiro and Leite (2016), promoting social inclusion through online educational facilities is contingent upon factors such as access, instructional design, student traits, and the extent of engagement, action, and assessment. King (2019) emphasizes the need to allocate resources toward implementing technological advancements and establishing secure internet connections inside correctional facilities. According to King (2019), these efforts aim to provide fair and equal opportunities for incarcerated students to engage in educational activities and foster digital skills, considered essential competencies for jobs today.

## 8.4 Digital Inclusion and Recidivism

Meyer (2024) describes recidivism as the cycle of reoffending by an individual who has previously served time in prison. McDougall et al. (2017) found that increased engagement in digital inclusion activities while in prison has a beneficial effect on the inmate's motivation and aspirations, potentially leading to tremendous future success. As an illustration, a study involving 76 inmates revealed that the implementation of the prisoner self-service kiosk increased their acquaintance with contemporary digital technology, which directly influenced rehabilitation-related tasks (McDougall et al., 2017). Jewkes and Reisdorf (2016) explain that deprivation of digital inclusion among incarcerated individuals may have negative consequences. However, the resources available to instructors specializing in computer software fundamentals for incarcerated individuals remain extremely limited (Jewkes & Reisdorf, 2016). In a nutshell, while detainees receive

training in some aspects of technology use, the curriculum only touches a fraction of what can be covered. By Through advising action, the study recommendation offers a recipe for enhancing social equity and broader inclusion, "through advising action, the study recommendation offers a recipe for enhancing social equity and broader inclusion" (Badejo, Chakraborty, and Forbes, 2024).

## 8.5 Limitations of the Literature Review

The review provides insight into the prison digital education situation. However, it has significant limitations. First, the study focuses on the challenges and benefits of implementing LMS in correctional facilities rather than specific LMS platforms, their functions, and their relative efficacy. The literature review should also explore socio-economic and demographic aspects affecting incarcerated students' digital participation. Review emphasizes reducing the digital divide, but it should include more policy suggestions and tangible measures for legislators, correctional facilities, and educational providers to address these concerns. A more specific discussion of policy implications and concrete solutions will strengthen the US jailed student digital gap roadmap. While reviewing the literature, a study on the use of LMS in the USA to close the digital gap among incarcerated students in the USA is lacking in these articles.

## 9 RESEARCH HYPOTHESIS

**Null Hypothesis (H0):** There is no association between current digital access and the feasibility of integrating Learning Management Systems in correctional facilities.

**Alternative Hypothesis (H1):** There is an association between current digital access and the feasibility of integrating Learning Management Systems in correctional facilities

## 10 RESEACH METHOD

This section explains the methodology used in the study and begins by describing the research design and study setting to provide further insight into the efficacy of the study. The study acknowledges the overall influence of technology in prison settings by examining the participants, data sources, and data-collecting methods. This section will use data analysis and ethical issues to facilitate understanding of the study undertaken among incarcerated students inside prisons in the US.

## 10.1 Research Design

The study utilized a cross-sectional design and a quantitative methodology. Cross-sectional studies choose participants based on the research's inclusion and exclusion criteria. The preference for quantitative methodology stems from its capacity to provide results that show high reliability. The significance of this research lies in its need to establish global generalizability. For this study, data were collected through questionnaires, mainly physical copies, due to restricted internet access among 94 randomly sampled incarcerated students.

## 10.2 Research Context and Intervention

The research context is the US correctional facilities where the incarnated students are engaging in physical education. This study examines the application of LMS in correctional facilities to close the digital gap with the aim of improving educational prospects for incarcerated students. The intervention entails an examination of the potential implications on social reintegration and recidivism, an assessment of the viability and advantages of integrating LMS, and an analysis of the obstacles encountered in prison education.

## 10.3 Participants

Recruiting study participants is one of the factors that define the implementation of any successful research with people (De Oliveira, 2023). The respondents in this study encompass 94 freshly released incarcerated students in the US who engage or possibly can engage in online prison education employing LMS. As a way of doing empirical research on the factors that inform the dynamics, challenges and possibilities of delivering education digitally in correctional facilities, the study gathered data from the incarcerated students and related key-stakeholders.

## 10.4 Data Sources and Data Collection

Primary data was gathered through structured questionnaires for incarcerated college students. The survey questions were distributed to 94 respondents, and their feedback was stored for further analysis.

## 10.5 Data Analysis

The data analysis process involves systematic data arrangement and manipulation to address a research inquiry pertaining to closing the digital gap for incarcerated college students using LMS in the USA. The most recent version of IBM Statistical Analysis for Social Science Software (SPSS) version 29 was utilized to analyze the data.

## 10.6 Research Ethics

Preservation of anonymity, confidentiality, data protection, ethical governance, grievance procedure provision, research methodology appropriateness, and complete reporting of methods are the major ethical principles followed in this research. These fundamental ethical concepts are taken into account within the scope of this study.

## 10.7 Informed Consent

Incarcerated students were briefed on their role in research accomplishment. Additionally, all incarcerated students received consent from the correctional institution administration before taking part in the study. Administration and incarcerated students were educated on the significance of research in enhancing the quality of prison education and society. Participants signed the consent form as a demonstration of agreement.

## 10.8 Anonymity Principle

The principle of anonymity examines the confidentiality and protection afforded to incarcerated students. The data submitted by the participants is confidential; therefore, it would be considered a violation of privacy to reference specific identities or include their images. The present research adhered strictly to the principle of anonymity for participants and guaranteed them a confidential platform for deliberation.

# 11 ANALYSIS AND RESULTS

## 11.1 Sociodemographic Characteristics

This study assesses the sociodemographic characteristics of incarcerated students, including age, gender, race, education level, and incarceration duration, detailed in Table 1 below.

Table 1: Sociodemographic Characteristics.

| Variable | Frequency | Percent (%) |
|---|---|---|
| **Age** | | |
| Under 25 | 29 | 30.9 |
| 25-40 | 33 | 35.1 |
| Over 40 | 32 | 34.0 |
| **Gender** | | |
| 52 | 55.3 | 55.3 |
| 42 | 44.7 | 44.7 |
| **Race/Ethnicity** | | |
| Black or African American | 47 | 50.0 |
| Hispanic or Latino | 25 | 26.6 |
| White | 11 | 11.7 |
| Other | 11 | 11.7 |
| **Educational Background** | | |
| Primary | 46 | 48.9 |
| High school diploma or GED | 37 | 39.4 |
| College or higher | 11 | 11.7 |
| **Length of Incarceration** | | |
| Less than 3 years | 36 | 38.3 |
| 3-10 years | 46 | 48.9 |
| More than 10 years | 12 | 12.8 |
| **Technology Experience Prior to Incarceration** | | |
| None | 32 | 34.0 |
| Basic (e.g., email, browsing the internet) | 45 | 47.9 |
| Intermediate/Advanced (e.g., using office software, programming) | 17 | 18.1 |

Age distribution shows 30.9% (n=29) under 25 years, 35.1% (n=33) between 25 and 40 years, and 34.0% (n=32) over 40 years, indicating a wide age range in correctional education. Gender representation is slightly male-dominant with 55.3% (n=52) males and 44.7% (n=42) females. Racial composition is led by Black or African American individuals at 50.0% (n=47), followed by Hispanic or Latino at 26.6% (n=25), with White and Other each at 11.7% (n=11). Educational backgrounds reveal 48.9% (n=46) with only primary education, 39.4% (n=37) holding a high school diploma or GED, and 11.7% (n=11) having a college degree or higher, showing significant educational disparities. Length of incarceration data shows 38.3% (n=36) incarcerated for less than 3 years, 48.9% (n=46) for 3-10 years, and 12.8% (n=12) for more than 10 years. Technology experience prior to incarceration varies, with 34.0% (n=32) having no experience, 47.9% (n=45) with basic skills, and 18.1% (n=17) possessing intermediate or advanced skills, highlighting the need for education programs tailored to diverse technological backgrounds.

Table 2: Current digital access.

| Variable | Mean | Std. Deviation |
|---|---|---|
| I have regular access to a computer in my facility. | 2.14 | 1.197 |
| The technology available to me is up-to-date and well-maintained. | 2.26 | 1.269 |
| I have access to the internet for educational purposes. | 2.43 | 1.340 |
| The digital tools provided are adequate for completing my coursework or educational programs. | 2.33 | 1.323 |
| I feel confident in my ability to use the technology available to me. | 2.36 | 1.502 |
| I receive sufficient support from the facility staff for using digital tools. | 2.18 | 1.336 |
| The restrictions placed on digital access in my facility are reasonable. | 2.41 | 1.331 |
| I have been provided with enough training to effectively use the digital tools available. | 2.21 | 1.208 |
| Access to digital tools has improved my learning experience. | 2.28 | 1.282 |
| I am allowed enough time to use digital tools for my educational needs. | 2.54 | 1.584 |
| Overall | 2.31 | 1.337 |

Table 3: Feasibility of integrating LMS.

| Variable | Mean | Std. Deviation |
|---|---|---|
| Integrating LMS into educational programs enhances learning outcomes. | 3.67 | 1.213 |
| Adequate infrastructure (e.g., hardware, software) is available in the facility to support an LMS. | 3.38 | 1.174 |
| The facility's security measures are sufficient to safely implement an LMS without compromising security. | 3.38 | 1.069 |
| Access to technical support for troubleshooting LMS-related issues is available. | 3.35 | 1.189 |
| The integration of an LMS provides more diverse learning opportunities (e.g., courses, skills training). | 3.35 | 1.161 |
| Educators and staff within the facility are prepared and willing to adopt an LMS for teaching. | 3.77 | 1.274 |
| A budget is allocated for maintaining and updating the LMS software and hardware. | 3.84 | 1.194 |
| An LMS can effectively support individual learning styles and needs. | 3.86 | 1.197 |
| An LMS facilitates better tracking and reporting of student progress in educational programs. | 3.85 | 1.244 |
| Sufficient resources (e.g., training materials, instructional guides) are available to help students and staff effectively use the LMS. | 3.61 | 1.238 |
| Overall | 3.61 | 1.195 |

## 11.2 To Evaluate the Current Digital Access to Incarcerated Students in the United States

In order evaluate the current digital access to incarcerated students in the United States, this analysis uses a scoring system where mean scores range from 1.00 to 5.00 (Table 2). The scores are divided into three categories: low access (1.00-2.33), medium access (2.34-3.66), and high access (3.67-5.00).

Regular access to a computer has a mean (M) of 2.14 with a standard deviation (SD) of 1.197, while the technology's upkeep scores slightly higher at M = 2.26, SD = 1.269. Internet access scores a M = 2.43, SD = 1.340, slightly breaching medium access. The adequacy of digital tools (M = 2.33, SD = 1.323), confidence in using technology (M = 2.36, SD = 1.502), and reasonable restrictions on digital access (M = 2.41, SD = 1.331) also hover just above the low access threshold. Support from staff (M = 2.18, SD = 1.336), effectiveness of training (M = 2.21, SD = 1.208), and the impact of digital tools on learning (M = 2.28, SD = 1.282) all indicate significant room for improvement. The highest score, time allowed for digital tool usage, remains moderately low (M = 2.54, SD = 1.584). Collectively, these findings underscore a prevalent deficiency in digital access, with an overall mean of 2.31 and a standard deviation of 1.337, signaling a critical need for systemic enhancements to digital resources within these educational settings.

Table 4: Key challenges in implementing LMS.

| Variable | Mean | Std. Deviation |
|---|---|---|
| Hardware and software limitations hinder LMS implementation. | 3.63 | 1.200 |
| Security policies restrict LMS implementation. | 3.50 | 1.242 |
| Lack of technical support for LMS setup is a major issue. | 3.61 | 1.175 |
| Funding for LMS purchase and maintenance is challenging. | 3.69 | 1.192 |
| Staff struggle with LMS training. | 3.94 | 1.208 |
| Integrating LMS with existing programs is difficult. | 4.17 | 1.113 |
| Risk of inmates misusing LMS features is significant. | 3.71 | 1.151 |
| Customizing LMS for incarcerated learners is tough. | 3.55 | 1.258 |
| Cooperation from external organizations is hard to get. | 3.53 | 1.309 |
| Logistical constraints, like limited internet access, are major. | 4.17 | 1.206 |
| Overall | 3.75 | 1.205 |

## 11.3 To Assess the Feasibility of Integrating Learning Management Systems (LMS) in Correctional Facilities for Educational Purposes

The results presented in Table 3 highlight key areas of infrastructure, security, support, and educational diversity that are crucial for the successful adoption and implementation of LMS in these unique educational environments.

The overall mean (M) is 3.61 with a standard deviation (SD) of 1.195, high level of readiness and support for LMS. Specific findings include: the enhancement of learning outcomes by integrating LMS (M = 3.67, SD = 1.213) and the preparedness of educators and staff to adopt LMS (M = 3.77, SD = 1.274), both scoring in the high access category. Additionally, the budget for maintaining and updating LMS software and hardware is robust (M = 3.84, SD = 1.194), as is the support for individual learning styles and needs (M = 3.86, SD = 1.197), and the ability of LMS to facilitate better tracking and reporting of student progress (M = 3.85, SD = 1.244). Infrastructure support (M = 3.38, SD = 1.174), security measures (M = 3.38, SD = 1.069), technical support availability (M = 3.35, SD = 1.189), and the provision of diverse learning opportunities (M= 3.35, SD = 1.161) are slightly lower but still within the medium range. Resources available for effective LMS use also score well (M = 3.61, SD = 1.238). These metrics collectively indicate a conducive environment for effectively integrating LMS into correctional education programs.

## 11.4 To Identify Key Challenges in Implementing LMS Solutions in Correctional Education Programs

Table 4 presents the key challenges in implementing LMS in correctional education programs. The various factors are evaluated to understand the barriers and difficulties that might impede effective implementation.

The overall mean score of 3.75 (SD = 1.205) indicates that the challenges in implementing LMS solutions are generally high. Specific high challenges include securing funding for LMS (M = 3.69, SD = 1.192), providing adequate staff training (M = 3.94, SD = 1.208), integrating LMS with existing educational programs (M = 4.17, SD = 1.113), managing the risk of inmates misusing LMS features (M = 3.71, SD = 1.151), and addressing logistical constraints such as limited internet access (M = 4.17, SD = 1.206). Medium challenges involve overcoming hardware and software limitations (M = 3.63, SD = 1.200), navigating restrictive security policies (M = 3.50, SD = 1.242), dealing with the lack of technical support (M = 3.61, SD = 1.175), customizing LMS for incarcerated learners (M = 3.55, SD = 1.258), and securing cooperation from external organizations (M = 3.53, SD = 1.309).

## 12 PEARSON'S CORRELATION (HYPOTHESIS TEST)

**Null Hypothesis (H0):** There is no association between current digital access and the feasibility of integrating LMS in correctional facilities.

**Alternative Hypothesis (H1):** There is an association between current digital access and the feasibility of integrating LMS in correctional facilities.

The Pearson correlation analysis between current digital access and the feasibility of integrating LMS in correctional facilities yielded a correlation coefficient of 0.875. This indicates a very strong positive relationship. As digital access improves, the.

Table 5: Hypothesis.

| Correlations | | | | |
| --- | --- | --- | --- | --- |
| | | | REGR factor score 1 for analysis 1 | REGR factor score 1 for analysis 2 |
| REGR factor score 1 for analysis 1 | | Pearson Correlation | 1 | 0.875 |
| | | Sig. (2-tailed) | | .001 |
| | | N | 94 | 94 |
| REGR factor score 1 for analysis 2 | | Pearson Correlation | 0.875 | 1 |
| | | Sig. (2-tailed) | .001 | |
| | | N | 94 | 94 |

feasibility of LMS integration also increases significantly. The p-value of 0.001 is well below the alpha level of 0.05 and confirms that this association is statistically significant. Therefore, the study rejects the null hypothesis and accept the alternative hypothesis.

# 13 DISCUSSIONS

## 13.1 Demographic Profile

The age distribution of the incarcerated students was diverse with 30.9% falling below 25 years, 35.1% falling between 25 and 40 years of age and 34%.0% over 40 years. As for the gender distribution of participants, it was slightly more male-dominated with 55. 3% of male participants. The race distribution was primarily 50% of African American participants. On the other hand, 26. 6% was occupied by Hispanic or Latino whereas 11.7% was shared by both White and Others. Education level indicated that a significant number (48.9%) had only primary education, 39. 4% had a high school diploma or GED, 11%. 7% had some college or higher level of education.

Duration of imprisonment also differed where the largest percentage (48. 9%) were imprisoned for 3-10 years. Regarding technology experience before the prison mandate, the results varied from having no experience (34. 0%), having a basic experience (47. 9%), to an intermediate/advanced level of experience (18. 1%).

## 13.2 Current Digital Access

This study established that the level of digital access was generally low with an average mean of 2. 31 (SD=1. 337). Access to computers was not very frequent (M = 2.14, SD = 1.197), and the technology available to the participants was old and in poor working condition (M = 2.26, SD = 1.269). Internet connection for academic related use was a little better, but still unsatisfactory (M = 2.43, SD = 1.340). Coursework supports in terms of using technology were limited (M = 2.33, SD = 1.324), while the subjects' confidence concerning technology integration was relatively low (M = 2.36, SD = 1.502). As for staff support and training effectiveness, both mean scores were found to be low, at 2. 18 (SD = 1:336) and 2. 21 (SD = 1.208). Such results are indicative of an urgent requirement for improved digital assets within correctional education spheres. Research supports the need for technology for prisoners who are students. This study falls in tandem with Barros et al. (2023) and Farley and Seymour (2024) who also stress the low access of digital technology among incarcerated students. Addae (2020) study indicated that restriction to internet usage diminishes constructive learning engagements in correction facilities. Bradley and Davies (2021) posit that enhancing digital access significantly boosts learners' enrollment, as well as the continuity of education inside correctional facilities.

## 13.3 Feasibility of LMS Integration

While digital access was low among the respondents, the rating of LMS integration was high with a mean score of 3.61 (SD = 1.195). The proposed concept of LMS integration was considered helpful in increasing learning accomplishment (M = 3.67, SD = 1.213) and received the backing of educators' preparedness (M = 3.77, SD = 1. 274). Infrastructure was moderately available, with a mean rating of 3. 38 (SD = 1.174); security measures were sufficient, with a mean rating of 3. 38 (SD = 1. 069). Moderate mean ratings were given to technical support, which was given a mean rating of 3.35, (SD = 1.189), and diverse learning opportunities Mean = 3. 35, SD = 1. 161. The response towards allocating substantial budget for

LMS maintenance (M = 3. 84, SD = 1. 194) also spoke in favour of LMS integration feasibility. As for the utility of LMS in learning the effectiveness was revealed in the ability to accommodate individual learning styles (M= 3. 86, SD = 1. 197) and patrons' progress (M = 3. 85, SD = 1. 244). These findings lay a good footing for the adoption of LMS in correctional facilities though this depends on the improvement in digital access as noted by Stamatiou et al. (2022). Recent research substantiates LMS advantages. In their study Ayouni et al. (2021) established that LMS use in correctional education enhances learner participation. Dennis and Halbert (2022) identified that LMS enables the organizations to accommodate the various kinds of learning requirements in a more adaptable manner.

## 13.4 Key Challenges in Implementing LMS

The average score of challenges was high at mean of 3.61. The hurdles faced in the process of LMS were the compatibility of LMS with other ongoing programmes (Mean = 4. 17, S.D = 1. 113) and restricted internet connectivity (Mean = 4.17, S.D = 1. 206). Lack of funding for LMS and staff training was difficult (M = 3. 69, SD = 1. 192; M = 3.94, SD = 1. 208). Restricted physical and system capabilities (M = 3. 63, SD = 1. 200), prescriptive security polices (M = 3.50, SD = 1. 242), and the possibility of abuse (M = 3.71, SD = 1.151) . Other challenges included LMS customization for the incarcerated learners (M = 3.55, SD = 1. 258) and seeking external collaboration (M = 3. 53, SD = 1. 309). Meeting these hurdles is important for the proper implementation of LMS. Johnson (2021) pointed that strategies are needed that are specific to security and logistics needs. Stamatiou et al. (2022) and Johnson (2021) established that funding and staff training comprise the main challenges to implementation.

## 13.5 Hypothesis

The Pearson correlation analysis on digital access to LMS feasibility also revealed a strong positive correlation between the two variables (r = 0.875; p= 0.001). This statistically significant correlation indicates that as digital access enhances, the possibility of LMS integration enhances. Hence, to address the integration of LMS in correctional facilities, it is crucial to attend to the digital access concerns (Ross et al., 2023).

## 14 CONCLUSION AND RECOMMENDATIONS

This study signifies the importance of enhancing information and technology literacy within correctional facilities to address the existing gap in the education of inmates. Although there is currently limited access to digital resources, the high feasibility of LMS integration suggests the possibility of improving education outcomes through the use of technology in learning. Factors like funding, staff training, and organization logistics have to be carefully managed to enhance the effectiveness of LMS (Johnson, 2021). Therefore, it is crucial to upgrade the digital infrastructure in the prison and develop effective training programs for the staff and learners that will greatly improve the education of prisoners. In this way, correctional facilities will be able to provide an environment conducive to learning, thus helping incarcerated learners to improve as individuals and as professionals and, finally, reintegrate into society after their release (Stamatiou et al., 2022). Increased and improved universal access and LMS compatibility will ensure that incarcerated students have the skills and knowledge they need to succeed in the digital environment leading to improvements in overall educational attainment as well as a decrease in recidivism.

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