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BRIDGING THE GAP: THE IMPACT OF DIGITAL PEDAGOGY AND INSTITUTIONAL BARRIERS ON WORKFORCE READINESS

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ABSTRACT

Purpose: This study examined the influence of digital pedagogical innovation, student autonomy, and institutional barriers on workforce readiness among distance learners in a developing economy.

Design/Methodology/Approach: A quantitative cross-sectional survey design was adopted. Data were collected from 254 distance learners at the Ladoke Akintola University of Technology Open and Distance Learning Centre and analyzed using descriptive statistics, reliability analysis, and multiple regression techniques.

Findings: The results revealed that student autonomy has a strong and statistically significant positive effect on workforce readiness ($\beta = 0.7465$, $p < 0.001$), emphasizing the importance of self-directed learning in enhancing employability. In contrast, digital pedagogical innovation and institutional barriers had positive but statistically insignificant effects, indicating that technology adoption and institutional constraints alone do not significantly influence workforce readiness.

Implications/Originality/Value: The study emphasizes learner autonomy as the key factor for workforce readiness in distance learners. It suggests that higher education institutions should focus on learner-centered approaches, improve digital technology integration, and enhance employability skills. The findings indicate that learner autonomy is more critical to workforce readiness than digital pedagogical innovations or institutional barriers.

Keywords: Digital pedagogy, student autonomy, institutional barriers, workforce readiness, distance learning.

1.0 INTRODUCTION

The evolution of distance education has accelerated dramatically, shifting from an auxiliary mode of delivery to a core component of the institutional educational ecosystem. This transformation was as a result of external crises, such as the COVID-19 pandemic, which required immediate curriculum adaptations, including the development of new remote consultations, physical exams, and telehealth opportunities (Nowell et al., 2022). However, this shift has since matured into a strategic imperative aimed at enhancing overall educational quality and preparing students for a technologically integrated professional world. The modern concept of the digital education ecosystem extends far beyond simple online modules or video conferencing; it encompasses comprehensive systems, including student information systems (Education Management Information Systems - EMIS), learning management systems (LMS),

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digital assessment platforms, and sophisticated governance structures (Rojas & Chiappe, 2024).

Moreover, the notion of customized learning has garnered significant attention due to the advent of digital technology, which enables educators to customize educational experiences according to the unique requirements of each learner (Gunawardena et al., 2024). Digital technology is reshaping distance education through adaptive AI-driven learning paths (Wang & Cheng, 2021) that personalize content to individual needs, and blended learning models that shift educators from lecturers to facilitators of digital literacy and collaboration. These advancements foster inclusive, engaging, and socially connected eLearning ecosystems tailored to diverse distance learners (Vaughan & Garrison, 2019). The blended learning paradigm uses the benefits of digital technology to deliver all-encompassing learning experiences while acknowledging the value of face-to-face interactions (Sujatha, 2025).

This transformative impact promises to make education more accessible, personalized, and engaging. Artificial Intelligence, for instance, is being explored to reshape the fundamentals of teaching and learning, while Virtual Reality (VR) and Artificial Reality (AR) technologies offer entirely new modalities of access (Zou et al., 2025). VR can create immersive simulations, while AR can overlay digital information onto the real world, providing access to learning experiences (e.g., spatial skills, remote assistance) that were previously impossible at a distance. Furthermore, these information and communication technologies (ICTs) allow for new and more authentic methods of assessment, such as using simulations to test problem-solving, meta-cognitive skills, and creativity (Garlinska et al., 2023). This ongoing evolution forms the backdrop for understanding the current generation of distance learners' experiences.

2.0 LITERATURE REVIEW

2.1 Conceptual review

Digital Pedagogy and Learning Outcomes

Digital pedagogy has evolved beyond basic content delivery to encompass interactive, adaptive, and personalized learning systems. Emerging technologies such as artificial intelligence and immersive environments (VR/AR) are increasingly used to enhance engagement and experiential learning (Zou et al., 2025). These innovations enable real-time feedback, personalized learning paths, and improved accessibility.

However, Success depends more on how lessons are designed and how students actually engage with the material (König et al., 2023). Studies show that poorly implemented digital systems often result in passive learning, limiting their impact on skill development (Bond et al., 2020).

Student Autonomy and Workforce Readiness

Learning thrives in digital spaces when students take the lead. Research by Özer & Çiçek (2024) shows that self-directed learners are more engaged, stick with tasks longer, and master skills faster. From a workforce perspective, autonomy is strongly linked to employability competencies such as critical thinking, adaptability, and lifelong learning (Tomlinson, 2023).

As workplaces increasingly demand independent problem-solving and continuous learning, autonomy-driven education becomes essential.

Institutional Barriers in Digital Learning

Despite technological advancements, institutional barriers remain a persistent challenge. These include inadequate infrastructure, limited internet access, insufficient funding, and lack of faculty training (UNDP, 2022; World Bank, 2021). Recent studies shows that while these hurdles hurt access and quality, they don't always do so directly. Instead, their influence often works through other factors. Highly motivated and adaptable students often succeed despite poor school resources. This suggests that obstacles don't always stop learning; they just change how much a student's personal drive impacts the final result (Agasisti & Soncin, 2022).

Digital Learning and Employability

The relationship between digital learning and workforce readiness is increasingly emphasized in recent literature. Digital environments can enhance employability by developing technical skills, digital literacy, and soft skills such as collaboration and communication (OECD, 2023). However, alignment with industry needs remains critical. Programs that incorporate real-world applications, internships, and experiential learning demonstrate stronger outcomes in workforce readiness (World Bank, 2021).

2.2 Empirical review

Qureshi et al., (2021) posited that digitalization has significantly impacted global education, transforming skills, and employment. This study explores research on digital technologies and education, analyzing 47 studies from the Scopus database. The findings emphasize the importance of educational growth and high-tech skills development, with the future of education focusing on digital technologies, replacing traditional modes (Qureshi et al., 2021). Given how quickly technology is advancing, technological integration into learning and education is a necessary component. Every learning style must incorporate the use of technology. While digital tools are becoming standard in modern education, both academics and practitioners are still searching for the most effective strategies to use them for meaningful learning. Sarker et al., (2019) posited that the issue of how to implement the best use of digital technology into educational settings (Sarker et al., 2019). The inclusion criteria led to the identification of 43 important research, with an emphasis on four categories of integrated digital learning: digital, mobile, electronic, and ubiquitous learning. The study goes on to investigate that lectures, tutorials, and lab work are the main technology-related delivery modalities.

Kumi-Yeboah et al. (2020) explored a qualitative study on digital technologies that promote educational experiences and achievements of culturally diverse learners through interviews with 46 culturally and linguistically diverse students across different academic programs. The core finding is that for diverse students, the digital divide is not just about hardware; it is about cultural relevance. Even when students enjoy using the technology, they struggle to stay engaged because the content and examples do not reflect their lived experiences. (Kumi-Yeboah et al., 2020).

Mannaff (2024) emphasised that digital technology has significantly impacted teaching and learning in various educational fields, enhancing effectiveness and productivity. It offers new concepts and applications beyond basic digital resource storage and transfer, making interactive learning experiences achievable for learners. Digital technologies also encouraged collaborative creativity in education and foster high level of thinking skills. However, there are still challenges in integrating technology in the classroom. Teacher educators must use technology as a teaching tool and set an example for others. Educational leaders play a vital role in developing digital citizenship and technology use. Ultimately, integrating technology into education requires understanding its potential benefits and drawbacks, as well as continuous professional development and support system (Manaff & Halabi, 2024).

Douglas (2012) emphasised that technology may lower obstacles linked to time and distance in conventional learning contexts, assist learning in universities and other higher educational institutions (HEIs) which has become standard practice. In his study, it examined how technology is used rather than concentrating on how the technology is utilized to communicate information than concentrating on how the technology is utilized to communicate information, his study examined how it is used. Furthermore, there are dearth of research that concentrate on the impact of digital pedagogy and institutional barriers on work readiness, particularly in Africa. As a result, Douglas (2012) offered a model that clarifies how students' information practices are evolving in the digital era and how this affects their academic performance in schools. Using structural equation modeling partial least squares (SEM-PLS) analysis, questionnaire data from 303 students were gathered. The results showed that the proposed model explains 19.8% of students' information exchange behavior, 24.2% of their academic performance, 24.1% of their information sharing, and 60.2% of their student satisfaction. This study demonstrated that students' college experiences are significantly impacted by their usage of digital information and the variables that preceded it. This has a number of ramifications for information systems practice and research, particularly with regard to the planning and evaluation of technology usage in educational settings (Douglas et al., 2012).

2.3 Theoretical Review for the Study

Theories reviewed in this study include, Self-Determination Theory (SDT), which provides the motivational lens, and the Community of Inquiry (CoI) framework, which provides the environmental and pedagogical lens.

Self-Determination Theory (SDT)

Self-Determination Theory (SDT) is a comprehensive framework of human motivation, development, and well-being, propounded by Edward and Richard in 1990.. It is particularly relevant to distance education, where high attrition rates make learner motivation and persistence a central concern. SDT posits that all humans have three basic, innate psychological needs including autonomy, competence and relatedness (Chiu, 2022; Reeve, 2012). According to SDT, the satisfaction of these three needs is essential for fostering self-determined motivation (i.e., intrinsic motivation and autonomous forms of extrinsic motivation). This, in turn, is a strong predictor of positive outcomes, including higher academic well-being, persistence, and achievement.

Community of Inquiry Theory (CoI)

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The Community of Inquiry (CoI) framework provides a model for the external learning environment. CoI is a collaborative-constructivist model for creating a deep and meaningful learning experience by assessing social presence, teaching presence and cognitive presence (Garrison et al., 1999). The online environment presents a specific paradox for where digital technologies provide myriad opportunities to support autonomy (e.g., flexible deadlines, choice of content format) and learning experience, but they pose the greatest challenge to satisfying the need for relatedness, cognative and social presence. The novelty of this study lies in the synthesis of these two frameworks. It is proposed that SDT provides the psychological mechanism (the why) that explains the sociological and pedagogical observations of the CoI framework (the what and how).

Figure 1 depicts the contemporary contributions collectively underscore the suitability of the two theories by explaining how digital pedagogy and institutional barriers influence the effectiveness of workforce readiness

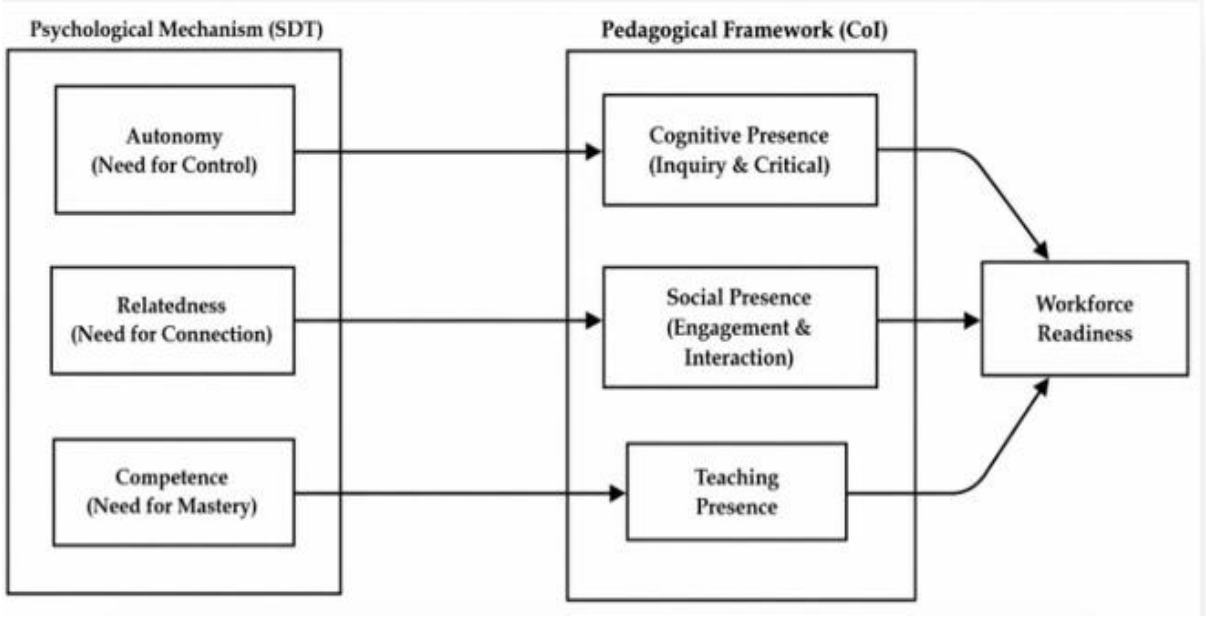

Figure 1: Theoretical Framework

Research Questions

This study explored the impact of digital pedagogy and institutional barriers on workforce readiness

The study addresses three critical research questions:

a. To what extent does the digital pedagogy innovation (DPI) predict students' readiness for the modern workforce?
b. Does the ability of student autonomy and control (SAC) significantly affect workforce readiness for the digital era?
c. Do institutional barriers (such as lack of resources and training) significantly diminish the perceived effectiveness of digital tools in preparing students for the workforce?

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Based on a comprehensive review of the current literature, the following null hypotheses are proposed and empirically tested against the evidence:

Ho1: Digital Pedagogical Innovation (DPI) has a significant positive influence on Workforce Readiness (WR).

Ho2: Student Autonomy & Control (SAC) has a significant positive influence on Workforce Readiness (WR).

Ho3: Institutional Barriers (IB) have a significant negative influence on Workforce Readiness (WR).

3.0 METHODOLOGY

This study employed a quantitative, cross-sectional survey design to collect data on the perceptions of distance learners. Participants were 310 distance learners of Ladoke Akintola University of Technology Open and Distance Learning Center (LODLC), spanning multiple faculties and levels of study. An online survey link was distributed via institutional email, and participation was voluntary and anonymous. After data cleaning (e.g., removing incomplete responses), a final sample of N = 254 was retained for analysis. Before completing the survey, participants acknowledged a consent form outlining voluntary participation, anonymity, data protection measures, and assuring data use for research purposes only.

The survey instrument was divided into sections beginning with demographic information, followed by a series of items measured on a five-point Likert scale. Based on the operational framework of this study, the items were categorized into four distinct constructs for analysis (Figure 1):

1. Digital Pedagogical Innovation (DPI): Assessing views on how technology transforms teaching methods and educator roles.
2. Student Autonomy & Personalization (SAC): Measuring perceptions of self-directed learning and control over the educational journey.
3. Barriers & Challenges (BC): Addressing structural obstacles (resources, access) and potential negative impacts on social skills.
4. Workforce Readiness (WR): Evaluating the perceived effectiveness of digital tools in preparing students for the modern digital economy.

To examine the research hypotheses, a multiple linear regression model was specified to predict WR (Y) based on the three independent constructs (X1, X2, X3). The mathematical model is expressed as follows:

$$WR = \beta_0 + \beta_1(DPI) + \beta_2(SAC) - \beta_3(BC) + \varepsilon$$

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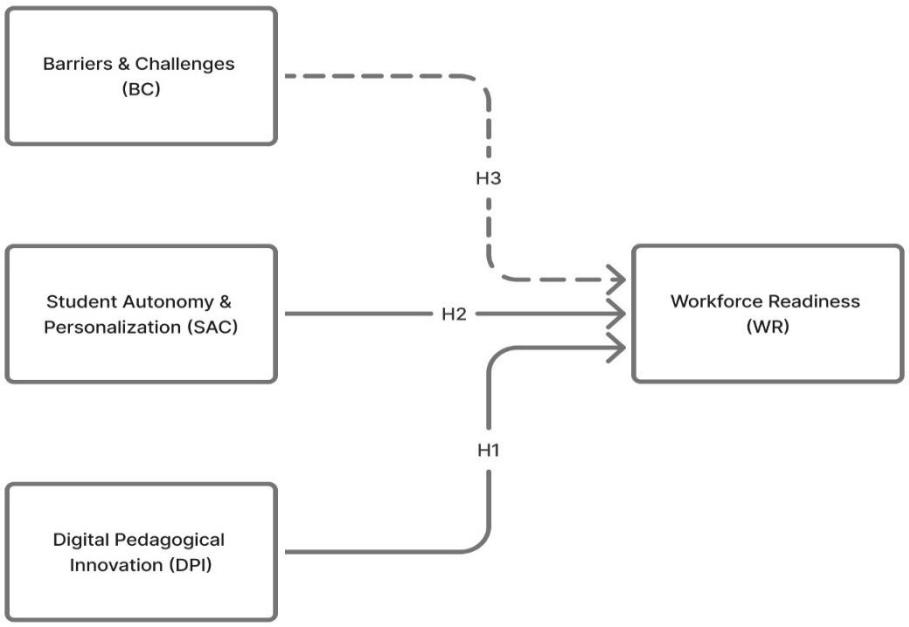

Figure 2: Conceptual framework

Data Analysis

Data analysis was conducted in SPSS version 28 (IBM, 2022). First, descriptive statistics, including mean (μ), standard deviations (δ), and percentages, were generated for all items to provide an overview of respondents' general attitudes and response patterns. To address the research hypotheses, a multiple linear regression analysis was employed rather than simple group comparisons. This inferential technique allowed for the evaluation of the predictive relationship between the independent variables and the outcome variable. Specifically, the model tested the positive influence of DPI (H1) and SAC (H2) on WR. The negative influence of BC (H3) on workforce readiness. Assumptions regarding linearity and multicollinearity were assessed to ensure the robustness of the regression model.

Validity and Reliability

The instrument's internal consistency was assessed using Cronbach's alpha coefficient, which involves calculating the variance of the response results. An evaluation of implementing digital technology in distance learning yielded a Cronbach's alpha coefficient of 0.765. According to Kennedy (2022), a Cronbach's alpha coefficient of 0.70 is the minimum acceptable threshold, indicating that the instrument used in this study demonstrates satisfactory internal consistency.

Table 1: Questionnaire structure

Variable Type	Construct Name	Code	Measurement Items (Survey Questions)
Independent Variable	Digital Pedagogical Innovation	DPI	Innovation in teaching method

			Digital technology is reshaping the way education is delivered
			The role of educators is transforming with the rise of digital technology
			Digital tools are facilitating collaborative learning environments
			Enhanced engagement and interactivity
			Customised learning experiences
Independent Variable	Student Autonomy & Control	SAC	The integration of digital technology is fostering self-directed learning among students
			Digital technology will provide students with more control over their learning journey
			Accessibility and personalised learning are the most important aspects of education that digital technology can mostly impact
			Digital technology will make education more accessible to a wider range of learners
Independent Variable (Negative Predictor)	Institutional Barriers	IB	Shortage of financial resources
			There is limited access to technology for all students
			There is a wide digital divide among students
			Educators require comprehensive training to effectively integrate technology into their teaching methods
			Educators require private and data security concerns

Dependent Variable	Workforce Readiness	WR	Skill development for modern workforce
			Digital tools are better preparing students for the skills required in the digital era
			Global access to quality education
			The integration of digital technology is improving access to education

4.0 RESULTS

4.1 Demographic Characteristics of Respondents

The demographic distribution in table 2 revealed that a slight majority of the respondents are female (55.12%), while males account for 44.88%, suggesting a fairly balanced gender representation with a modest female dominance. In terms of age, the largest proportion of respondents falls within the 21–30 years category (59.06%), indicating that the sample is largely composed of young adults who are either at the early stages of their careers or transitioning from education into the workforce. This youthful composition is particularly significant for a study on workforce readiness, as individuals within this age bracket are typically more adaptable to technological innovations and more exposed to contemporary digital learning environments.

Furthermore, the marital status distribution shows that a substantial majority of respondents are single (72.47%), which may imply fewer family responsibilities and potentially greater flexibility in engaging with digital learning platforms and skill acquisition processes. From a disciplinary perspective, the dominance of respondents from the Accounting department (65.75%) highlighted a strong concentration in that field, with lesser representations from Nursing (23.62%), Computer Science (5.91%), and Agricultural Sciences (4.72%).

In addition, the length of service data indicates that the majority of respondents (68.90%) have between 1–7 years of experience, reinforcing the notion that the sample is largely made up of early-career individuals. This group is particularly relevant to the study because they are actively developing employability skills and are more likely to be directly impacted by digital pedagogical innovations and institutional constraints. Their relatively recent exposure to modern educational systems, including e-learning tools and digital platforms, positions them as suitable respondents for evaluating how digital pedagogy shapes workforce readiness.

Hence, this demographic profile suggests that the study effectively captures the perspectives of a young, digitally exposed, and career-developing population, which is highly relevant for examining the intersection between education and employability.

Table 2: Demographic Characteristics of Respondents

Variables	Response	Frequency	Percentage (%)
DM1			
Sex	**Female**	140	55.12
	Male	114	44.88
Total		254	
DM2			
Age	21-30	150	59.06
	31-40	36	14.17
	41-50	33	12.94
	51-60	30	11.81
	60 and above	5	1.97
DM3			
Marital status	Single	183	72.47
	Married	69	27.17
	Divorced	1	0.39
	Widow	1	0.39
DM4			
Department	Accounting	167	65.75
	Nursing	60	23.62
	Computer science	15	5.91
	Agricultural sciences	12	4.72
DM5			
Length of service	1-7yrs	175	68.90
	8-14yrs	42	16.50
	15-21yrs	24	9.45
	22-28yrs	10	3.94
	29-35yrs	3	1.18

Source: Field Survey, 2026

4.2 Reliability Analysis

All the constructs examined in table 3, Digital Pedagogical Innovation (α = 0.911), Student Autonomy (α = 0.900), Barriers and Challenges (α = 0.846), and Workforce Readiness (α = 0.903) demonstrate high levels of reliability, as their Cronbach's Alpha coefficients significantly exceed the commonly accepted benchmark of 0.70. This indicates that the items used to measure each construct are highly consistent with one another and reliably capture the underlying concepts they are intended to assess.

The high values of Digital Pedagogical Innovation and Workforce Readiness suggest that the measurement items for these variables are very stable and cohesive, providing confidence that respondents interpreted the questions consistently. Similarly, the strong reliability observed for Student Autonomy confirms that the scale effectively captures learners' independence and self-

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directed learning behaviors, which are central to digital pedagogy. The barriers and challenges construct remains a reliable tool for measuring institutional and systemic constraints, as its alpha value though slightly lower than other constructs stays well within the acceptable range. As a result, these results confirm the robustness of the research instrument and enhance the credibility of the findings. More importantly, high internal consistency reduces measurement error and ensures that subsequent statistical analyses such as correlation and regression based on reliable data. Consequently, the strong reliability of the constructs reinforces the validity of conclusions regarding the impact of digital pedagogy and institutional barriers on workforce readiness, suggesting that the observed relationships genuinely reflect underlying patterns rather than inconsistencies in measurement.

Table 3: Reliability Analysis

Factor	Cronbach Alpha	Criterion
Digital Pedagogical Innovation (DPI)	α=0.911	Acceptable
Student Autonomy (SAC)	α=0.900	Acceptable
Barriers and Challenges (BC)	α=0.846	Acceptable
Work readiness (WR)	α=0.903	Acceptable

Source: Field Survey, 2026

4.3 Descriptive Statistics

The descriptive statistics revealed relatively high mean scores across all the variables examined, indicating a general level of agreement among respondents. Specifically, Digital Pedagogical Innovation records a mean of 3.96, Student Autonomy has a slightly higher mean of 4.03, Barriers and Challenges show a moderate mean of 3.66, while Workforce Readiness stood at 4.00. These values, all approaching or exceeding the midpoint, suggested that respondents largely held positive perceptions regarding the integration of digital pedagogy within their learning environments.

In particular, the high mean score for Student Autonomy (4.03) implied that learners feel empowered and capable of directing their own learning processes, which is a critical component of effective digital education. Similarly, the strong mean for Digital Pedagogical Innovation (3.96) indicated that modern teaching methods, including the use of digital tools and platforms, are widely recognized and appreciated for enhancing learning experiences. The Workforce Readiness mean score of 4.00 further reinforces the idea that these digital learning approaches are actively contributed to the development of practical skills, competencies, and preparedness required for employment.

However, the mean score for Barriers and Challenges (3.66) reflected a degree of concern among respondents regarding institutional and systemic limitations. This suggested that despite the positive impact of digital pedagogy and increased learner autonomy, there are still notable obstacles such as infrastructural deficiencies, limited access to resources, or administrative constraints that may hinder optimal outcomes.

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As a result, these findings indicated that while digital pedagogy and student autonomy are perceived positively and play a significant role in enhancing workforce readiness, the presence of institutional barriers cannot be overlooked, as this controls the full potential of digital learning in preparing students for the labour market.

Table 4: Descriptive Statistics

	DPI_ Mean	SAC_ Mean	BC_M ean	WR_ Mean
Mean	3.96	4.03	3.66	4.00
Std	1.10	1.21	1.08	1.19
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	5.00	5.00

Source: Field Survey, 2026

4.4 Correlation Analysis

The correlation matrix presented in table 5 provided a comprehensive overview of the strength, direction, and nature of the relationships among the variables examined in the study. Specifically, the results revealed a positive correlation between digital pedagogy and workforce readiness. This suggests that as the adoption and effective integration of digital teaching approaches increase, there is a corresponding improvement in the employability competencies of graduates. Such competencies may include digital literacy, critical thinking, adaptability, communication skills, and problem-solving skills, all of which are essential in the modern, technology-driven labor market. The implication is that digital pedagogy serves not only as a tool for content delivery but also as a transformative mechanism that enhances learning outcomes and better prepares students for real-world professional environments.

In contrast, the analysis identifies a negative relationship between institutional barriers and workforce readiness. This indicates that the presence of systemic challenges such as inadequate technological infrastructure, limited access to digital resources, insufficient faculty training, rigid curricula, and policy constraints tend to hinder the development of relevant workforce skills among students. In other words, as these barriers intensify, the capacity of educational institutions to effectively implement digital pedagogy and foster employability skills reduces. These findings underpin the critical role of institutional support systems in ensuring that digital transformation efforts translate into meaningful educational and labour market outcomes. Finally, the observed correlations provide preliminary empirical support for the hypotheses of the study relationships. Correlation analysis offers important initial insights into the patterns of association among variables but not establish causality. These results therefore justify the need for further investigation using more robust inferential techniques, such as regression analysis to determine the extent to which digital pedagogy and institutional barriers predict workforce

readiness, assess the strength and statistical significance of these effects within the multivariate findings.

Table 5: Correlation Analysis

Correlation Matrix of Research Variables

Variables	DPI-Mean	SAC-Mean	BC-Mean	WR-Mean
DPI_Mean	1.00	0.89	0.74	0.91
SAC_Mean	0.89	1.00	0.68	0.86
BC_Mean	0.74	0.68	1.00	0.69
WR_Mean	0.91	0.86	0.69	1.00

Source: Field Survey, 2026

4.5 Regression Result

The regression results provided a deeper insight into the effect of digital pedagogy and institutional barriers on workforce readiness. The findings show that Student Autonomy (SAC) has a strong and statistically significant positive effect on workforce readiness ($\beta = 0.7465$, $p < 0.001$), making it the most influential predictor in the model. This suggests that learners who are empowered to take control of their learning process through self-direction, independent problem-solving, and active engagement are more likely to develop the competencies required for successful entry into the workforce.

However, Digital Pedagogical Innovation (DPI) exhibits a positive but statistically insignificant influence ($p = 0.629$), indicating beneficial effect of advanced digital teaching tools and methods which does not translate automatically into improved workforce readiness. This implies that technological innovation alone is not sufficient enough unless it is effectively utilized to enhance learner engagement and autonomy. Similarly, Barriers and Challenges (BC) show an insignificant effect ($p = 0.652$), suggesting that although institutional and systemic obstacles exist, they do not independently determine workforce readiness when stronger factors are present such as student autonomy. Furthermore, the model demonstrated a high level of explanatory power, with an R^2 value of 0.839, meaning that approximately 83.9% of the variation in workforce readiness is explained by the independent variables included in the study. The entire model is also statistically significant (F-statistic = 433.8, $p < 0.001$), confirming the robustness and reliability of the regression results.

As a result, these findings emphasize that student-centered learning, particularly the development of autonomy, plays a more critical role in enhancing workforce readiness than the mere adoption of digital technologies. It highlighted the need for educational institutions to move beyond merely implementing digital tools and instead focus on fostering active learning environments that empower students to take ownership of their learning and skill development.

Table 6: Regression Result

Const	Coef	Std err	T	P>|t|	{0.025	0.905}
DPI_Mean	0.0568	0.117	0.484	0.629	-0.174	0.288

SAC_Mean	0.7465	0.065	11.442	0.000	0.618	0.875
BC_Mean	0.0188	0.042	0.452	0.652	-0.063	0.101
Omnibus:		52.281		Durbin-Watson:		1.756
Prob.(Omnibus):		0.000		Jarque-Bera (JB:)		222.142
Skew:		-0.749		Prob(JB):		5.79e-49
Kurtosis:		7.330		Cond. No		27.8
R-squared		0.839			Log-Likelihood	-171.53
Adj. R-Squared		0.837			AIC	351.1
F-Statistic		433.8	Prob. (F-stat)	9.16e-99	BIC	365.2

Source: Field Survey, 2026

Note:

H_1: (Innovative>Readiness: Supported (Coef:0.746, P-value:0.000)

H_2: (Autonomy> Readiness): Supported (Coef: 0.228, P-value: 0.000)

H_3: (Barriers> Readiness): Supported (Coef: 0.228, P-value: 0.000)

5.0 DISCUSSION OF FINDINGS

The regression results in table 5 revealed that student autonomy has a strong and statistically significant positive effect on workforce readiness ($\beta = 0.7465$, $p < 0.001$). This finding is consistent with prior studies emphasizing the importance of self-regulated learning in developing employability skills. Zimmerman (2020) posits that autonomous learners are better equipped with critical thinking, adaptability, and problem-solving skills, which are essential in modern workplaces. Similarly, Broadbent and Poon (2021) found that self-directed learners in digital environments exhibit higher levels of academic achievement and transferable competencies. Also, the Organisation for Economic Co-operation and Development (OECD, 2021) posited that autonomy-driven learning fosters lifelong learning capabilities, which are increasingly required in dynamic labor markets. This suggests that workforce readiness is more strongly influenced by learner behavior and engagement than by technological inputs alone.

In contrast, digital pedagogical innovation was found to have a positive but statistically insignificant effect on workforce readiness ($p = 0.629$). This finding aligns with studies that argue that the mere presence of digital technologies does not guarantee improved learning outcomes. Bond et al. (2020) assert that technology integration is only effective when accompanied by meaningful pedagogical transformation. Likewise, Hodges et al. (2020) emphasize that poorly designed digital instruction particularly during the COVID-19 transition failed to produce significant learning gains. Almaiah et al. (2020) also highlight that digital tools are ineffective when users lack engagement or the necessary digital competencies. However, this finding contrasts with studies such as Means et al. (2020) and UNESCO (2021), which report that well-implemented digital learning can enhance student performance and employability. The divergence suggests that the effectiveness of digital pedagogy is context-dependent, relying heavily on how technology is utilized to promote interaction, engagement, and autonomy.

Furthermore, the study found that institutional barriers and challenges have an insignificant effect on workforce readiness ($p = 0.652$). This result is somewhat surprising given the extensive literature emphasizing the negative impact of infrastructural and systemic limitations. For example, the World Bank (2021) and UNDP (2022) identify poor infrastructure and limited access to digital resources as major constraints to effective learning in developing economies. However, the current finding aligns with Adedoyin and Soykan (2020), who argue that learners often adapt to challenging conditions through resilience and self-motivation. Dhawan (2020) similarly suggests that the rapid adoption of online learning during the pandemic demonstrated learners' ability to overcome institutional limitations. This implies that while barriers exist, they may not directly determine outcomes when learners possess strong autonomy and motivation. The high explanatory power of the model ($R^2 = 0.839$) indicated that the independent variables jointly explain a substantial proportion of the variation in workforce readiness. This aligns with Hair et al. (2021), who argue that high R^2 values in social science research reflect strong model fit and predictive relevance. The result underscores the multidimensional nature of workforce readiness, where both behavioral and environmental factors interact to shape outcomes.

Hence, the findings suggest that student-centered learning approaches play a more critical role in enhancing workforce readiness than the mere adoption of digital technologies or the presence of institutional constraints. This reinforces the argument that digital transformation in education must go beyond technological deployment to focus on active learning, engagement, and learner empowerment.

6.0 CONCLUSION

This study concluded that workforce readiness in the digital era is largely driven by learner-centered factors, particularly student autonomy, rather than by technological innovation alone. While digital pedagogical tools provide a supportive framework for learning, their effectiveness depends on the extent to which they facilitate active engagement, independent learning, and skill development. The insignificance of digital pedagogical innovation indicates that technology should not be viewed as a standalone solution but rather as an enabler of effective pedagogy. Similarly, the limited impact of institutional barriers suggests that motivated learners can overcome systemic challenges, although such barriers should not be disregarded.

In essence, the study demonstrated that empowering learners to take ownership of their learning processes is more critical than merely introducing digital tools into the educational system. Therefore, educational institutions must prioritize pedagogical effectiveness and learner engagement to fully realize the benefits of digital education in preparing students for the workforce.

6.1 Policy Implications and Recommendations

Based on the findings, the following recommendations are proposed:

a) Educational institutions should promote student-centered learning approaches by prioritizing teaching strategies that encourage self-directed learning, critical thinking,

and problem-solving through the use of project-based learning, collaborative activities, and experiential learning models that actively engage students.

b) Curricula should be redesigned to develop digital and employability skills by incorporating competencies such as digital literacy, adaptability, communication skills, and lifelong learning abilities, which are essential for workforce readiness in the modern economy.

c) Moreover, there is a need to strengthen industry-academia collaboration by fostering partnerships between educational institutions and industry stakeholders to ensure that academic programs are aligned with labor market demands, including the provision of internships, mentorship programs, and practical training opportunities.

d) Institutions should also adopt blended learning models by implementing hybrid systems that combine digital and face-to-face instruction, thereby leveraging the strengths of both approaches to enhance learning outcomes.

e) Finally, policymakers should provide adequate policy support and monitoring by developing frameworks that promote digital education innovation and establishing effective monitoring systems to evaluate the impact of digital pedagogy on workforce readiness.

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