Journal of Innovation in Educational Assessment
Vol. 8 No. 1 (2026)
DOI: https://doi.org/10.66545/1f633d24
ISSN: 2705-3830 (Print)
ISSN: 2705-3857 (Online)
Received: 22nd December 2025
Accepted: 24th April 2026
journal.iaiiea.org

INFLUENCE OF ARTIFICIAL INTELLIGENCE INTEGRATION ON WORKFORCE READINESS AMONG UNDERGRADUATE STUDENTS OF BENUE STATE UNIVERSITY, NIGERIA

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Abstract

Technology has changed how we think about skills and competencies. How does artificial intelligence change the way we think about the workforce readiness of the students at Benue State University? This study examines how the integration of AI into education systems impacts digital literacy, problem-solving, and critical thinking. A descriptive survey research approach was used for the study. The total population for the study was all the full-time undergraduates of Benue State University, and for the study, a sample of 394 students was selected through simple random sampling, using Taro Yamane's formula. The survey method was chosen to obtain the data, and a structured questionnaire, measuring the five-point Likert Scale, was used. The Content Validity Index recorded 0.83, and the instrument had a reliability coefficient of 0.89, determined using Cronbach's alpha. The data was analysed using descriptive and simple linear regression statistics. The study found that the integration of artificial intelligence changed digital literacy, problem-solving, and critical thinking. The study showed that the integration of AI in the university teaching-learning process improves workforce readiness and the skills demanded in the technology-driven economy.

Keywords: Artificial intelligence integration, workforce readiness, digital literacy, problem-solving skills, critical thinking, higher education

To cite this article:

Adikwu, J. I., Boniface, O., & Abdullahi, B. O. A. (2026). Influence of Artificial Intelligence Integration On Workforce Readiness Among Undergraduate Students of Benue State University, Nigeria. *Journal of Innovation in Educational Assessment*, *8*(1), 11-26. https://doi.org/10.66545/1f633d24

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Introduction

The evolution of artificial intelligence has changed the way people work and has impacted the type of work people do (World Economic Forum, 2020). We're able to rethink what workforce readiness looks like, meaning people will have to modify their way of thinking to adjust to the type of work people will do and the decline of occupation that we will face (Autor, 2015). Starting fresh will invigorate people with self-confidence. In order to do this, we must start with our educational systems. These systems must give students the relevant skills to prepare them for a digital economy. These skills will allow students to have a greater range of employment options and the ability to stay relevant. Integrations and policy reform will help gain control of the technology that is disrupting the economy. This technology is set to contribute a projected 15.7 trillion dollars to the global economy by 2030 (PwC, 2017). A portion of the economy is based on the increase of work productivity that will come from the economy. An integral part of our economy is based on new and innovative ways of completing work. To do this, we must incorporate the new technology, innovative thinking, and new work strategies to help prepare students for the new economy. When we do this, students will have a greater range of employment options and the ability to stay relevant. Integrations and policy reform will help gain control of the technology that is disrupting the economy. These technology disruptions will have recurring effects on the way we work and the new roles we will face.

Core competencies such as digital literacy, problem-solving, and critical thinking are, from the perspective of the OECD (2018), pivotal to workforce readiness in the digital age. With regard to the integration of AI in virtually all professional activities, digital literacy, or the understanding of how to find, evaluate, and create information, is more critical than ever (Bawden, 2015). The use of AI in ethical problem-solving is also a consideration. With regard to ethical problem-solving, AI provides the information, but it is the human who performs the analysis (UNESCO, 2021). As stated in Fullan and Quinn (2016), AI is limited to and cannot go beyond simple reasoning but is critical to thinking. The integration of these skills is indispensable. For digital literacy to function, it is critical thinking that controls the use of AI in an environment that is surrounded by ethical issues and biases. Deficiencies in these areas have, in scholarly literature, been regarded as a factor that is of particular relevance to the increasing risk of unemployment, especially in less developed countries. The risk of unemployment, especially in developing countries, is an undeniable factor that must be addressed through educational initiatives.

The potential of AI to enhance personalised learning and foster new skills is remarkable (Holmes et al., 2019). AI tools, including chatbots and intelligent tutoring systems, provide personalised, targeted feedback and simulate real-world situations that can engage students and enhance problem-solving skills (Zavacki-Richter et al. 2019). For example, in higher

education and adaptive systems, interrogate user data to add, remove, or modify blocks of content, removing and adding content to modify and adjust to improve an individual user's digital literacy and critical evaluating skills (Chen et al., 2020). It is understood that learning environments of this nature foster learning independence and learning resilience. The research is clear that learning resilience and learning independence help students succeed in their academic pursuits but are equally critical to success in their careers, especially in environments that are technology-focused (Cope et al. 2020). AI is here to stay, and this educational paradigm shift teaches us to offer a range of appropriate learning activities aimed at all profiles of learners, using AI to support and enhance the role of the teacher to offer easily managed and targeted differentiated instruction. It is clear that AI is changing the role of a teacher, but the paradigm shift in education due to the use of AI can enhance learner independence and teacher reliance on the use of AI to change the resource to an activity that is flexible and differentiated to fit the needs of an educational attainment based on content. The successful use of AI in the learning process will help learners adapt to the use of AI. The global patterns, infrastructure-related challenges, and the unyielding youth unemployment rate of over 40% (National Bureau of Statistics Nigeria, 2023) mean Nigerian higher educational institutions face unique obstacles. In the context of the 4th Industrial Revolution, limited AI (Okebukola, 2021) implementation has led to the Nigerian university system, particularly Benue State University, being compelled to transform its academic offerings. Benue State University has a rural-focused student service area and is a relevant participant to understand how AI assimilation, especially in the rural context, would impact economics, science, and humanities skill deficiencies. This approach addresses important scholarly questions about the development of context-focused AI solutions for educational attainment. In turn, this provides an evidence-based approach to implement educational transformations in Sub-Saharan Africa. There is a global appreciation for the growing significance of AI in education. However, there is a stark and persistent misalignment of university curricula and the rapidly evolving skill set requirements of the digital labour market, leaving graduates underprepared for employment opportunities that demand the use of artificial intelligence. It has been established that the introduction of AI technology in educational programmes is insufficient, as many Nigerian universities continue to produce graduates who lack the necessary fundamental digital competencies, critical thinking, and the ability to work autonomously. This is particularly problematic in Nigeria, where youth unemployment is expected to reach 53% by 2025, and the imbalance of AI technology in the public university system is prevalent. The integration of AI and its influence on workforce readiness competencies for Nigerian undergraduates is still not well understood. It is known that AI has the potential to enhance learning and, more optimistically, the overall learning process. However, the most contextual evidence that justifies its integration in the learning processes

ISSN: 2705-3830 (Print)
ISSN: 2705-3857 (Online)

of the African educational ecosystem remains still. Specific to Benue State University, the integration of AI has been shown to not, at least in a large enough or documented capacity, enhance the critical and/or the problem-solving faculties of which there appears to be a collating basis of opinion. With the absence of empirical evidence, the most contextual educational AI learning strategies for the most under-resourced areas will remain unmet. This evidence and knowledge gap will continue the cycle of underemployment.

Objectives of the Study

1. 1. To examine the influence of artificial intelligence integration on digital literacy among undergraduate students of Benue State University.
2. To determine the influence of artificial intelligence integration on problem-solving skills among undergraduate students of Benue State University.
3. To assess the influence of artificial intelligence integration on critical thinking skills among undergraduate students of Benue State University.

Research Hypotheses

H01: Artificial intelligence integration has no significant influence on digital literacy among undergraduate students of Benue State University.

H02: Artificial intelligence integration has no significant influence on problem-solving skills among undergraduate students of Benue State University.

H03: Artificial intelligence integration has no significant influence on critical thinking skills among undergraduate students of Benue State University.

Incorporating Artificial Intelligence in Education

Artificial intelligence (AI) in education has changed many features of the modern educational approaches. Intelligent educational systems have been designed as a result of advances in machine learning, natural language processing, and data analytics. Educational systems with AI are capable of digitally supporting the teaching, learning, and management of educational systems. AI technology is embraced by educational institutions to better facilitate personalised learning for students, tackle repetitive and easily automated tasks of teaching, and provide feedback in real time (Zawacki-Richter et al., 2019). The increase in use of AI tools in higher education is a step towards meeting the demand of the digital economy by improving the learning outcomes and competencies of students.

AI technologies that have been integrated in education systems include adaptive learning platforms and intelligent tutoring systems. Intelligent tutoring systems are educational platforms that provide a learning experience as a result of the use of AI to provide personalised educational experiences to individual learners by factoring in various student learning demands, prior performance, and even the student's level of active engagement during the

educational activity. The adaptive learning systems (Holmes et al., 2019) are able to collect and analyse data to provide instructional content in a way that he or she is able to tailor in order to circumvent various individual learning gaps and even assimilate to the learning preferences of the learner. Such technologies provide the student with the ability to control the pace at which they are able to obtain the educational concept/skill that is being taught and to receive the appropriate assistance to help them solidify the educational concept and/or skill. The use of AI-enabled tools for grading and providing feedback is another major trend to consider. Automated assessment tools that use machine learning and natural language processing AI techniques to grade and assess written answers as well as other assignments and exams allow teachers to assess students and respond to written feedback in a timely manner and to better supervise improving students' academic achievement (Luckin et al., 2016). Artificial Intelligence (AI) also detects improvement strategies for students' academic achievement by studying and measuring data learning analytics.

AI also goes beyond evaluating and mentoring students – it is also entering collaborative learning and construction and problem-solving environments. AI Learning Environments (ALE) make it easier to learn by allowing students to use simulation and virtual assistant and decision-making support systems (Roll & Wylie, 2016). AI learning environments (ALE) allow students to actively learn and utilise their knowledge in real-world situations.

Researchers indicate that a reasonable assumption with respect to the expected effect of the integration of AI technologies in education is the evolution of the teaching of higher-order cognitive skills. Zawacki-Richter et al. (2019) state that with regard to the teaching of higher-order cognitive skills such as analysis, critical thinking and problem-solving, the use of AI can increase the level of knowledge and understanding of students. As higher education institutions incorporate AI-based teaching tools, knowledge concerning their capacity to foster the teaching of skills that are directly linked to the requirements of the workforce is essential. Therefore, the advancement of AI technologies in the educational context is a significant educational method in equipping students with the skills necessary to work in an environment where digital skills are essential.

Workforce Readiness in the 21st-Century Digital Economy

The rapid development of digital technologies and their pervasive influence on every aspect of life and work have drawn the attention of many policymakers and researchers. The term 'workforce readiness' describes the skills, knowledge and attitudes an individual possesses in order to successfully transition from school to work (Caballero et al., 2019). When referring to the digital economy, workforce readiness means much more than the required basic IT skills. It refers to a variety of skills, including cognitive and socio-emotional and digital skills that are essential for thriving in an ever-changing world of work. The nature of work and the skills

ISSN: 2705-3830 (Print)
ISSN: 2705-3857 (Online)

needed by workers have changed with the evolution of artificial intelligence, automation, and digital technologies. The World Economic Forum (2020) reports that technological disruption will impact millions of jobs, and workers will need to have skills associated with digital technology and develop skills in analysis and problem-solving. The OECD (2023) also reports that future workers will need to be digitally literate and be able to be flexible in their thinking and be able to learn continuously in order to compete in fast-changing labour markets.

Modern workplaces need employees who can work in partnership with intelligent systems and make decisions that are data-driven. Workforce readiness includes the ability to work with digital technology and also needs to include human elements and be centred around skills like creativity, critical thinking, and problem-solving (Schwab, 2017). These skills are considered '21st-century skills' and are needed to work in economies with driven technology.

Caballero et al. (2019) strongly suggest the importance of integrating emerging technologies and experiential learning in the development of curricula and implementations of learning environments to foster future employability skills. Constructing a learning environment that facilitates the awakening and development of students' employability skills entails using a variety of learning technologies and instructional methods. For instance, the use of an AI learning ecosystem can help build learning environments that can be effective in nurturing students' skills and preparing them for the integrated digital workplace.

While the importance of workforce readiness, as a skill, has grown, many formational institutions still grapple with issues to prepare students for the world of work. Ending this problem gap will involve the use of technology as the core of instructional design. The use of AI in training students in the field of digital literacy will help refine and develop skills that will be essential in future practices of the workplace.

Digital Literacy as a Workforce Competency

Digital literacy is the ability to find, evaluate, and use digital information and is a skill that has become essential (Ng, 2015). Workforce digital literacy is the skill that empowers individuals to work in a digital environment. It empowers individuals to collaborate in a digital environment. Today's workforce is reliant on technology to function. For that reason, it is essential for individuals to work with advanced technology, particularly artificial intelligence.

The role of digital literacy has become increasingly prominent due to the extensive digitalisation of work environments, which has given employers in every field a reason to require it. Employees need to evaluate and process data, as well as use technology to solve problems and make decisions (van Laar et al., 2017). The need for active engagement at work is even greater, as companies use more sophisticated technologies, such as analytics and automation that is driven by artificial intelligence.

The educational system is one of the many areas that has the potential to shape digital literacy. Learning and teaching with technology, as a part of the educational system, has the

potential to increase student engagement with the digital world (Ng, 2015). By optimising the use of digital tools, the information system, and engaged technology, learners are able to create the competencies needed for a system that is constantly changing.

The digital world and the educational system have a mutually beneficial relationship that has been researched extensively. The presence of technology in an educational setting results in an increase in digital literacy and confidence in technology for the user (van Laar et al., 2017). The use of artificial intelligence in educational environments is an example of technology in the classroom that pushes the bounds of the digital world. The focus of such an environment is on data and technology and supports learners by providing tools that will enhance their confidence. It also provides a setting for the development and refinement of digital skills that are needed in the current workforce.

Analyzing Emerging Challenges in Technology-Focused Problem Solving

The core of every job in today's world of work is creating innovative solutions to problems. Problem-solving is describing the issues, generating alternative solutions, and choosing the most appropriate courses of action (Jonassen, 2015). Creativity and any of the many digital technologies are central to productive work in problem-solving. Technology-driven problem solutions include reasoning and, in most cases, some digital collaborations.

With digital technologies and, most recently, artificial intelligence (AI) being pervasive in the world of work, there is a significant increase in the demand for people working in the emerging world of work to possess solid analytical and problem-solving skills (World Economic Forum, 2020). For employees to derive meaningful solutions from any given problems, they have to analyse the technological outputs, recognise problems in the systems and within themselves, and develop solid, innovative solutions. Because of this, problem-solving is seen as the most critical skill in the global job market.

According to researchers in education, there is a place to develop problem-solving skills in technology-enhanced learning (Jonassen, 2015). Problem-solving, in the most basic form, is learning through digital learning environments, learning through simulations and learning through AI. These environments help the learner define the problems and develop a variety of solutions, and greater learning through digital learning environments and simulations aids them in learning through iterative problem-solving.

Integrating AI into educational technology provides personalised learning paths. Adaptive guidance feedback can be used to enhance problem-solving development, as it tracks students' problem-solving activities and offers feedback in specific areas to enhance their analytical and 189

decision-making skills (Holmes et al., 2019). Therefore, AI inclusion in academics can help problem-solving skills development, ensuring students' work readiness.

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Building Critical Thinking Skills in Learning Environments Enhanced by AI

With critical thinking constituting a key skill in knowledge-intensive economies, processing and interpreting data and deriving sound conclusions from myriad layers of complexity is essential. Critical thinking is the quality of being able to analyse a claim, evaluate the evidence, and apply sound reasoning to reach a conclusion (Facione, 2015). To be clear, in workplaces that are automated by AI, the level of critical thinking skills required is high to assess the reasoning of the algorithms and detect and address biases in automated workflows.

The rapid advancement of technology has refined workplaces and the data and information that employees must handle. Consequently, employees need to have exceptional analytical skills, as is documented by the OECD (2023) report. Critical thinking enables the analytical mind to cut through the noise created by alternative views and apply knowledge to the problem at hand. Research indicates that learning environments that integrate AI technology potentially enable students to practise their higher-order thinking skills by allowing students to work through sophisticated content and interactive activities. Learning systems that utilise AI technology include simulations, data analytics, and environments for collaborative problem-solving. These systems ask students to analyse data and develop and defend claims with evidence (Holmes et al., 2019).

In addition, technologies based on AI have the potential to develop learners' higher-order thinking skills by offering unique, individualised feedback and assistance with the process of reasoning at the various levels of a student's reasoning. AI systems recognize patterns in students' responses and their learning behaviour, and therefore can be used to encourage students to think about the reasons for their response and consider other viewpoints. Such a dialogue can improve cognitive engagement and promote higher-order thinking that is necessary for students to be workforce ready.

The development of empirical studies is an evolving area of research; however, there is a growing body of literature that examines AI-based educational technology and the development of workforce readiness skills (e.g., digital literacy, problem-solving, and critical thinking). The studies demonstrate that the cognitive and technological skills of students are influenced by the AI-based educational technology in the learning environment.

Zawacki-Richter et al. (2019) achieved an example of a systematic review on the use of artificial intelligence within the context of higher education via several different scholarly databases. They found that an example of an AI technology, such as an intelligent tutoring system or an adaptive learning system, assists in creating a more personalised experience and can improve student engagement. They believed that learning environments that are supported by AI can aid in the development of higher-order thinking skills such as analysis and problem-solving.

In the same way, Holmes et al. (2019) looked into the effect that AI learning tools have on student learning as it pertains to higher education. Using a mixed-method approach to research in a number of different universities, the authors concluded that AI learning systems increased student performance in the areas of analytical thought and problem-solving by providing adaptive feedback and personalised learning paths. These results showed that in order to foster the development of higher-order skills necessary for the contemporary workforce, greater cognitive engagement via AI tools will be required.

Other studies have examined AI-enabled learning environments and their correlational effect on building digital literacy. As an example, Kandlhofer et al. (2016) studied educational programs on AI literacy, noting that students' comprehension and use of digital frameworks and their interaction with operational intelligent technologies improved after being introduced to AI. Likewise, Long and Magerko (2020) identified and proposed several AI literacy frameworks and stressed the integration of AI fundamentals into educational programmes to equip students for future employment in technology-centric environments.

The development of critical thinking skills is also taught through AI-enabled educational systems. Roll and Wylie (2016) studied intelligent tutor systems (ITS) and found that the systems are able to support students' self-regulated reasoning through the provision of constructive directional assistance and feedback during learning activities. This demonstrates the ability of AI technologies to support students' information analysis and solution evaluation.

The following research shows that the incorporation of AI technology in teaching can lead to the positive growth of workforce readiness skills. Most research documents the effect of AI on a singular workforce readiness skill or a specific AI technology in education. The effect of AI on multiple workforce readiness skills has yet to be documented. The studies that have been done on AI in education have done so on technology in education that has a focus on personalised education, intelligent tutoring, and automated grading (Zawacki-Richter et al., 2019; Holmes et al., 2019). Other studies have done work on the education systems and workforce readiness skills of digital literacy, critical thinking, and problem-solving (Van Laar et al., 2017; World Economic Forum, 2020).

Very few studies have been done on AI in education and how it contributes to multiple workforce readiness skills. The impact of AI on digital literacy, problem-solving and critical thinking in university students is largely absent from the research. There is also a lack of research that is focused on developing countries, and even more so on the continent of Africa.

This gap underlines the importance of empirical studies of the impact of AI integration within higher education systems on the workforce readiness competencies of students. Researching these variables in the case of undergraduate students will shed light on the impact of AI technologies on the readiness of graduates in relation to the digital economy.

ISSN: 2705-3830 (Print)
ISSN: 2705-3857 (Online)

Method

A descriptive survey research design was employed to assess the impact of artificial intelligence integration on the workforce readiness of undergraduate students of Benue State University, Makurdi, Nigeria. The population of the study encompasses all full-time undergraduate students of Benue State University, which, according to the Benue State University Academic Planning Unit (2025), is estimated at 28,192 students. The sample size was calculated using Taro Yamane's (1967) formula at a 5% margin of error, which was a sample size of 394 undergraduate students. The respondents were selected using a simple random sampling technique. A questionnaire, comprising metrics on artificial intelligence integration, digital literacy, problem-solving and critical thinking skills, was developed using a 5-point Likert scale. The instrument was reviewed by experts and was awarded a Content Validity Index of 0.83. Reliability testing on the instrument using Cronbach's alpha yielded a coefficient of 0.89, an indication of high internal consistency. The study employed mean and standard deviation to answer the research objectives and simple linear regression analysis to test the hypotheses. All the analyses were performed using SPSS version 26.

Results

Descriptive Statistics

Descriptive statistics were computed to summarise the respondents' perceptions of artificial intelligence integration and workforce readiness competencies. The results are presented in Table 1.

Table 1

Descriptive Statistics of Study Variables

Variable	N	Mean	Std. Deviation
Artificial Intelligence Integration	394	3.81	0.72
Digital Literacy	394	3.74	0.66
Problem-Solving Skills	394	3.69	0.70
Critical Thinking Skills	394	3.71	0.68

The results show that respondents generally agreed that artificial intelligence tools were integrated into their learning environment (M = 3.81, SD = 0.72). Similarly, the mean scores for digital literacy (M = 3.74), problem-solving skills (M = 3.69), and critical thinking skills (M = 3.71) indicate moderate to high levels of workforce readiness competencies among the students.

Hypothesis Testing

Hypothesis 1

H01: Artificial intelligence integration has no significant influence on digital literacy among undergraduate students of Benue State University.

Table 2

Regression Analysis of AI Integration and Digital Literacy

Model statistics:

Variable	B	Std.Error	Betta	t	Sig
Constant	1.247	.182	—	6.85	.000
AI Integration	.564	.047	.512	12.01	.000

$R^2 = 0.262$ $F(1,383) = 144.37$ $p < .05$

Since **$p < 0.05$,** artificial intelligence integration significantly influenced digital literacy. Therefore, H01 was rejected.

Hypothesis 2

H02: Artificial intelligence integration has no significant influence on problem-solving skills.

Table 3

Regression Analysis of AI Integration and Problem-Solving Skills

Variable	B	Std.Error	Betta	T	Sig
Constant	1.531	.176	—	8.69	.000
AI Integration	.498	.047	.476	10.59	.000

Model statistics:

$R^2 = 0.227$

$F(1,392) = 112.24$

$p < .05$ 195

The results indicate that AI integration significantly influenced problem-solving skills. Therefore, H02 was rejected.

Hypothesis 3

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H03: Artificial intelligence integration has no significant influence on critical thinking skills.

Table 4

Regression Analysis of AI Integration and Critical Thinking Skills

Variable	B	Std.Error	Betta	T	Sig
Constant	1.413	.169	—	8.36	.000
AI Integration	.521	.045	.498	11.45	.000

Model statistics: $R^2 = 0.248$

$F(1,392) = 131.02$

$p < .05$

The results show that artificial intelligence integration significantly influenced critical thinking skills among the respondents. Thus, H03 was rejected.

Discussion

This study's findings indicate that integrating artificial intelligence has a profound impact on the digital literacy of undergraduate students of Benue State University. AI integration was shown to predict digital literacy positively. This means students who interacted with AI-assisted learning tools tend to have better digital literacy compared to students who have not. This finding supports earlier studies that stated having exposure to digital tools and AI learning environments improves students' ability to understand and work with technology. In this regard, Kandlhofer et al. (2016) stated that teaching students AI literacy is a step towards better understanding of digital technology and efficient engagement with smart systems. In the same vein, van Laar et al. (2017) stated that when teaching environments incorporate digital tools, students' understanding of the importance of digital skills in modern workplaces is enhanced. Therefore, the finding supports the view that the incorporation of AI tools in the teaching and learning process in higher learning institutions is crucial in equipping students with the necessary skills to thrive in a technology-driven world.

Integrating artificial intelligence with learning activities positively impacts the problem-solving ability of undergraduate students, according to the study. The regression analysis determined that learning environments supported by AI positively impact the analytical and problem-solving skills of the study participants. This echoes the finding of Holmes et al. (2019), where AI learning systems foster cognitive engagement and help students analyse and address multifaceted issues through adaptive learning feedback. Like this, Jonassen (2015) claimed that smart digital learning environments foster inquiry learning and guide students to

develop systematic strategies to resolve issues. AI-driven educational technologies create the conditions where students may work and experiment with different methods in a safe learning environment to develop and deepen their problem-solving skills through adaptive instruction, interactive learning activities, and simulations. As a result, it furthers the argument that AI technologies in education help develop analytical skills relevant to the modern workplace.

Additionally, study outcomes indicated that the incorporation of artificial intelligence fostered the enhancement of undergraduates' critical thinking skills. Learners in AI-assisted educational settings advanced in their capability to scrutinise, consider, and decide. This empirical evidence reinforces previous research that identified the importance of adaptive educational technologies in the cultivation of advanced cognitive skills. For instance, Roll and Wylie (2016) revealed that learner model-based intelligent tutoring systems, which are a type of educational technology, enable learners to reason structurally and thereby foster the development of critical thinking skills. Moreover, Holmes and others (2019) posited that AI educational technologies stimulate deep thinking by allowing learners to work with and solve complex data and analytical problems. Hence, the current study indicates that AI educational technologies may help university students develop critical thinking skills necessary to manage information and technology in the workplace.

This research adds to the growing body of work arguing for the integration of technology in the education of students to enhance their employability skills, especially in the domain of artificial intelligence. The study shows positive correlations between the integration of artificial intelligence in classroom settings and improvements in students' digital literacy, problem-solving, and critical thinking—all vital skills for the workforce in the digital economy. The results conform to the prevailing belief that emerging technologies are vital to the educational process and the upskilling of educators to meet the demands of the labour market (OECD, 2023; World Economic Forum, 2020). Therefore, it can be said that AI technologies have the potential to improve the teaching and learning processes at universities in the context of growing concerns about the employability and work readiness of graduates.

Conclusion

This research focused on the role of artificial intelligence in preparing students of Benue State University, Nigeria, for the world of work. More specifically, the study aimed to determine the impact of AI on three critical areas of workforce competency development—digital literacy, problem-solving, and critical thinking. The research results confirm the positive impact of artificial intelligence on students' capacity in these areas.

Data indicates the integration of AI in learning environments helps build digital literacy skills needed for the modern workplace. The ability to learn digitally is higher in the presence of AI digital systems. Incorporating the AI system in learning also helps improve reasoning

ISSN: 2705-3830 (Print)
ISSN: 2705-3857 (Online)

and problem-solving abilities. Learning technologies that are AI-activated such as adaptive learning and intelligent tutoring systems provide a learning setting that helps learners work on higher-order tasks and develop effective skills for problem-solving.

The findings also show the integration of AI increases the significant higher-order thinking ability of the undergraduate participants. Students learning in AI environments are better in the various skills that include the evaluation of issues and interpretation of data as well as making sound decisions. This is a testament to the fact that AI technologies improve the cognitive processes that are needed for today's workforce participation.

Limitations of The Study

Despite the contributions of this study, several limitations should be acknowledged. First, the study focused only on undergraduate students of Benue State University, which may limit the generalisability of the findings to other universities or educational contexts. Second, the study relied on self-reported data collected through questionnaires, which may introduce response bias. Third, the study examined only selected workforce readiness competencies—digital literacy, problem-solving, and critical thinking—while other competencies such as creativity, collaboration, and adaptability were not 199

considered. Future studies may therefore expand the scope of investigation by including multiple universities, larger sample sizes, and additional workforce readiness competencies.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

1. Integration of AI Technologies in University Learning Environments: Universities should integrate AI-supported learning tools such as intelligent tutoring systems, adaptive learning platforms, and AI-driven educational technologies to enhance students' learning experiences and workforce readiness competencies.
2. Development of Digital Literacy Programs: Higher education institutions should incorporate structured digital literacy training into their curricula to ensure that students develop the technological competencies required for participation in AI-driven workplaces.
3. Promotion of Problem-Solving and Critical Thinking through AI-Based Learning: Educators should design learning activities that utilise AI technologies to support inquiry-based learning, simulations, and interactive problem-solving tasks that enhance students' analytical reasoning skills.
4. Further Research on AI Integration in Higher Education: Future studies should investigate the impact of AI integration across multiple universities and explore additional workforce competencies such as creativity, collaboration, and adaptability.

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