LEVERAGING ARTIFICIAL INTELLIGENCE FOR EXCELLENCE IN HIGHER EDUCATION: INSIGHTS FROM BOTSWANA OPEN UNIVERSITY AND NATIONAL OPEN UNIVERSITY OF NIGERIA

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Abstract
The integration of Artificial Intelligence (AI) in higher education is redefining teaching, learning, and administrative practices, particularly in open and distance learning institutions. This study examines how AI technologies can be strategically leveraged to enhance educational excellence in Botswana and Nigeria Open Universities. Grounded in a conceptual framework linking AI assimilation, university service quality, and student satisfaction, the study investigates both direct and mediated effects of AI usage on institutional performance outcomes. A quantitative research design was employed, utilizing a structured five-point Likert scale questionnaire administered to purposively selected students and staff with access to AI tools. Data was collected over a three-month period and analyzed using SPSS 28.0 for descriptive statistics and three hypotheses were tested to evaluate the relationships among the constructs. The results reveal that AI assimilation significantly enhances perceived university service quality and student satisfaction. Additionally, student satisfaction mediates the relationship between AI assimilation and service quality, indicating that user experience is a critical pathway through which AI technologies contribute to educational effectiveness. The study recommends strategic policy formulation, infrastructure development, and capacity building to optimize AI deployment in African higher education institutions. These findings offer practical implications for education policymakers, institutional leaders, and technology developers aiming to foster inclusive and sustainable digital transformation in the education sector.

Keywords: Artificial Intelligence, Higher Education and Open and Distance Learning.

Introduction

The global advancement in digital technologies has revolutionized multiple sectors, including education. Artificial Intelligence (AI), a subset of digital innovation, is rapidly transforming the landscape of higher education, reshaping teaching, learning, and administrative processes (Zawacki-Richter et al., 2019). AI technologies ranging from intelligent tutoring systems to predictive analytics and personalized learning platforms have demonstrated the potential to enhance educational delivery and improve learning outcomes (Luckin et al., 2016). As institutions strive to improve quality and competitiveness, many universities in Africa, including those in Botswana and Nigeria, are beginning to explore the possibilities of integrating AI to achieve excellence in higher education (Sebopelo, P. et al, 2025)

According to Sebopelo, P. et al, (2025), Botswana Open University and the National Open University of Nigeria

(NOUN) play a critical role in providing accessible and flexible higher education. These institutions are strategically positioned to benefit from AI tools, especially in managing large, diverse student populations and in delivering quality education remotely. The adoption of AI tools in these universities is not just a technological shift but a strategic move towards enhancing efficiency, personalization, and service delivery (Adebayo & Abdulhamid, 2021). With the increasing relevance of AI in global higher education existing research suggests that AI can support student learning through intelligent feedback systems, virtual assistants, and adaptive learning platforms, which enhance engagement and satisfaction (Holmes et al., 2021). Additionally, AI can improve institutional efficiency by automating administrative tasks and enabling data-driven decision-making, thereby contributing to the perceived service quality (Chen et al., 2020). Nevertheless, the implementation and assimilation of AI in higher education across Africa face challenges such as infrastructural deficits, policy gaps, low digital literacy, and limited investment (Mhlanga & Moloi, 2020).

Statement of the Problem

In the evolving landscape of global education, Artificial Intelligence (AI) is increasingly being adopted as a tool for driving innovation, efficiency, and academic excellence. Across the world, higher education institutions are leveraging AI to improve teaching practices, personalize learning experiences, support data-driven decision-making, and streamline administrative operations (Chen et al., 2020; Luckin et al., 2016). However, in sub-Saharan Africa, particularly in Open and Distance Learning (ODL) institutions the National Open University of Nigeria, the strategic use of AI to foster excellence in higher education remains limited, inconsistent, and under-examined.

Although these institutions are uniquely positioned to benefit from AI due to their wide reach, growing student populations, and flexible learning models, the extent to which AI is being effectively utilized to enhance teaching, learning, and institutional outcomes is obviously underutilized. This lack of clarity is further complicated by infrastructural challenges, insufficient digital capacity, and a scarcity of localized evidence to guide implementation (Mhlanga & Moloi, 2020).

This study, titled "Leveraging Artificial Intelligence for Excellence in Higher Education: Insights from Botswana and Nigeria Open University," seeks to address this critical knowledge gap. Specifically, the problem lies in the limited understanding of how AI is being leveraged in these two African ODL institutions to promote excellence in core areas of higher education such as academic delivery, operational performance, and student experience. Moreover, the role of student satisfaction in this relationship has not been adequately explored. Without clear evidence

and actionable insights, institutional leaders and policymakers may be unable to develop effective strategies that align AI deployment with broader goals of educational excellence and innovation.

Aim and Objectives of the Study

The aim of the study is to ascertain artificial intelligence influence for excellence in higher education and insights from Botswana Open University and national Open University of Nigeria. However, the specific objectives are to;

i. Examine how Artificial Intelligence is being leveraged to enhance academic and operational excellence in higher education at Botswana Open University and the National Open University of Nigeria.
ii. Explore the influence of Artificial Intelligence on teaching effectiveness, learning outcomes, and administrative processes in these institutions.
iii. Investigate the role of student satisfaction in achieving excellence in higher education through the use of Artificial Intelligence.

Research Questions

Based on the objectives, this study will answer the following questions:

i. How is Artificial Intelligence being leveraged to promote excellence in higher education at Botswana Open University and the National Open University of Nigeria?
ii. In what ways does Artificial Intelligence contribute to improved teaching, learning, and administrative performance in these institutions?
iii. What role does student satisfaction play in the relationship between the use of Artificial Intelligence and the pursuit of excellence in higher education?

Research Hypotheses

The following hypotheses will be tested:

$H0_1$: Leveraging Artificial Intelligence does not significantly enhance excellence in teaching, learning, and administration in higher education.

$H0_2$: The use of Artificial Intelligence does not have a significant effect on student satisfaction in Botswana Open University and the National Open University of Nigeria.

$H0_3$: Student satisfaction does not play a significant role in the relationship between the use of Artificial Intelligence and the achievement of excellence in higher education.

Conceptual Foundation

The conceptual framework for this study is anchored in the premise that Artificial Intelligence (AI) can be strategically leveraged to advance excellence in higher education, particularly within Open and Distance Learning (ODL) institutions such as the Botswana Open University (BOU) and the National Open University of Nigeria (NOUN). In this context, AI is not merely a technological innovation but a strategic imperative, a

transformative tool that addresses critical challenges related to scalability, flexibility, accessibility, and personalized learning. AI's integration into higher education is reshaping how teaching, learning, and administration are conceptualized and executed. As Luckin et al. (2016) and Holmes et al. (2021) emphasize, *leveraging AI* involves the purposeful adoption and alignment of intelligent systems, such as chatbots, virtual tutors, adaptive learning environments, and learning analytics platforms, to improve educational delivery, operational efficiency, and decision-making. When effectively implemented, these technologies have the potential to create data-informed, student-centered, and responsive educational ecosystems.

Leveraging Artificial Intelligence in Higher Education

The concept of *leveraging AI* refers to the intentional and strategic use of AI technologies to enhance institutional performance, educational delivery, and student experience (Luckin et al., 2016; Holmes et al., 2021). In higher education, this encompasses a broad spectrum of applications, from AI-powered tutoring and assessment systems to predictive analytics that monitor learner progress and inform interventions. Through automation and personalization, AI enables institutions to optimize teaching efficiency, enhance administrative responsiveness, and provide individualized support for learners.

Excellence in higher education, as described by Zawacki-Richter et al. (2019), involves achieving sustained improvements in educational effectiveness, stakeholder engagement, institutional innovation, and overall quality assurance. It is both a process and an outcome that reflects the capacity of universities to meet and exceed stakeholder expectations, particularly those of students and academic staff. When AI is appropriately harnessed, it contributes to this excellence by improving the quality of teaching, enhancing learner outcomes, and streamlining academic and administrative functions.

Student Satisfaction as a Mediating Construct

Student satisfaction functions as both a key outcome variable and a mediating construct in the relationship between AI adoption and institutional excellence. It reflects students' perceptions of the relevance, reliability, and responsiveness of their educational experiences (Chen et al., 2020). When students interact with AI-enabled systems, such as virtual tutors or automated feedback tools, their satisfaction is shaped by how effectively these systems support their learning goals.

As Holmes et al. (2021) argue, AI enhances satisfaction when it delivers timely support, adaptive learning content, and meaningful feedback. Conversely, poor system reliability or limited accessibility can negatively affect satisfaction levels. Furthermore, in ODL contexts, where

learner engagement often depends on digital interactions rather than face-to-face instruction, satisfaction with AI systems becomes a significant indicator of institutional quality and educational success (Mhlanga & Moloi, 2020). Thus, student satisfaction not only measures the immediate impact of AI integration but also reinforces long-term institutional performance and reputation.

Artificial Intelligence and the Pursuit of Excellence in Higher Education

The role of AI in advancing excellence in higher education is multifaceted. AI technologies enable personalized learning, automated administrative processes, and data-driven institutional decision-making. For instance, intelligent tutoring systems deliver adaptive content tailored to individual learners' needs and pace, enhancing comprehension and retention (Chen et al., 2020). AI-based learning management systems (LMS) integrate real-time analytics that inform instructors about student engagement, automate grading, and provide insights for continuous improvement in teaching strategies. From an administrative perspective, AI supports efficiency by automating repetitive processes such as course scheduling, admissions management, and performance monitoring. These advancements reduce administrative burdens, allowing educators to focus on pedagogy and student engagement. Moreover, AI tools enable predictive modeling that identifies at-risk students and recommends timely interventions, contributing to improved retention and completion rates.

Collectively, these functions foster institutional excellence, particularly in ODL environments where flexibility, scalability, and individualized learning are paramount. AI-driven systems make it possible for universities to deliver high-quality education to diverse learners regardless of geography, while maintaining standards of excellence comparable to conventional institutions.

Open and Distance Learning (ODL) and AI Integration in the African Context

ODL institutions, by their very nature, rely on technology to reach geographically dispersed learners. This makes them particularly well-positioned to benefit from AI integration. However, in many African contexts, including BOU and NOUN, AI adoption remains uneven and underdeveloped. Studies by Adedoyin and Soykan (2020) and Omar et al. (2022) reveal that the integration of AI in African higher education is hindered by infrastructural limitations, digital literacy gaps, insufficient policy frameworks, and inadequate funding.

While universities in the Global North have developed comprehensive AI-based digital ecosystems, many African ODL institutions remain in the nascent stages of implementation. Faculty readiness, policy direction, and strategic leadership are critical determinants of successful integration. To fully harness AI's potential,

ODL institutions in Africa must commit to capacity-building initiatives, sustainable digital infrastructure, and inclusive innovation policies. This study, therefore, situates the discourse of AI and excellence within the specific operational realities of BOU and NOUN, acknowledging both the opportunities and constraints of AI adoption in these contexts.

Student Satisfaction in AI-Enhanced Learning Environments

In higher education, student satisfaction is an essential indicator of quality and institutional success. Research shows that effective implementation of AI tools, such as virtual assistants, learning analytics dashboards, and automated feedback systems, can significantly improve engagement, motivation, and satisfaction (Holmes et al., 2021). Positive experiences with AI enhance students' perceptions of academic support and control over their learning process (Teo, 2011).

However, in African ODL settings, student satisfaction is mediated by factors such as technological access, system reliability, cultural relevance, and institutional responsiveness (Mhlanga & Moloi, 2020). Therefore, understanding students' perceptions of AI-enabled support is crucial for evaluating how these technologies influence both learning outcomes and institutional performance.

Theoretical Framework

This study is underpinned by two complementary theoretical lenses: the Technology Acceptance Model (TAM) and the SERVQUAL Theory of Perceived Service Quality, adapted to the AI-driven higher education environment.

Technology Acceptance Model (TAM)

Developed by Davis (1989), TAM explains the determinants of technology adoption based on two key variables: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). The model posits that users' behavioral intention to use a technology is shaped by their belief that the technology will enhance performance (PU) and that it is effortless to use (PEOU).

In this study, TAM helps to examine how students and staff at BOU and NOUN perceive AI tools such as virtual tutors, chatbots, and automated grading systems. It also explores how these perceptions influence their willingness to engage with AI for teaching, learning, and administrative tasks. As Teo (2011) asserts, when users find a system both useful and easy to use, their level of engagement, satisfaction, and performance improves—an outcome that directly supports institutional excellence.

SERVQUAL Theory

The SERVQUAL model, introduced by Parasuraman et al. (1985), provides a framework for measuring the gap between expected and perceived service quality across five dimensions: tangibles, reliability,

responsiveness, assurance, and empathy. Although originally developed for commercial contexts, SERVQUAL has been extensively applied in educational research to evaluate students' perceptions of service quality and institutional effectiveness (Abdullah, 2006).

In this study, SERVQUAL is adapted to assess how students perceive the quality of AI-enabled educational services, such as the responsiveness of chatbots, the reliability of learning platforms, and the empathy embedded in automated feedback systems. These perceptions ultimately influence student satisfaction and perceptions of institutional excellence.

Together, TAM and SERVQUAL provide a comprehensive theoretical foundation that captures both the technological and human-centered dimensions of AI integration in higher education. This dual framework enables a holistic exploration of how the adoption and perception of AI influence excellence, satisfaction, and performance in ODL institutions

Gap in the Literature

Despite increasing global research interest in AI applications in education, there remains a significant paucity of empirical studies focusing on the African ODL context. Existing literature predominantly centers on institutions in technologically advanced regions such as Europe, North America, and parts of Asia, where infrastructure and resources are more developed (Zawacki-Richter et al., 2019).

Consequently, there is limited understanding of how AI is leveraged to promote excellence in resource-constrained ODL environments such as BOU and NOUN. Previous studies often overlook contextual factors such as local digital ecosystems, policy readiness, and socio-cultural dimensions that shape AI adoption in Africa.

This study seeks to bridge this knowledge gap by providing context-specific insights into the strategic use of AI to enhance teaching, learning, administration, and student satisfaction within African ODL institutions. It contributes to the broader discourse on digital transformation in higher education by illuminating both the potential and challenges of AI-driven excellence in Botswana and Nigeria.

Methodology

This study adopts quantitative research design. This approach is appropriate for examining relationships between variables such as the use of Artificial Intelligence (AI), student satisfaction, and excellence in higher education. Quantitative methods allow for statistical analysis and generalization of findings across similar Open and Distance Learning (ODL) institutions (Creswell & Creswell, 2018). The population consists of students and staff (both academic and

administrative) of Botswana Open University (BOU) and the National Open University of Nigeria (NOUN) who have engaged with AI-enabled platforms or processes in their teaching, learning, or administrative functions. A purposive/judgmental sampling technique is used to select participants who have relevant experience using AI in their educational environment. The sample consists of a minimum of 400 respondents (200 per institution), ensuring representation from various faculties and departments. Data will be collected using a structured questionnaire, designed on a 5-point Likert scale (ranging from *Strongly Disagree* to *Strongly Agree*). The instrument is divided into the following sections:

- Section A: Demographic information
- Section B: Usage and perception of AI in teaching, learning, and administration
- Section C: Student satisfaction with AI-supported services
- Section D: Perceived impact of AI on institutional excellence

Items are adapted from validated sources (Teo, 2011; Chen et al., 2020) and refined to suit the African ODL context. The questionnaire will be distributed digitally using Google Forms and shared through institutional email platforms, WhatsApp groups, and student portals. The collection period is set over three months, allowing broad and flexible participation across the two countries. This section presents, analyzes, and interprets the data collected from respondents at Botswana Open University (BOU) and the National Open University of Nigeria (NOUN). The aim is to assess how Artificial Intelligence (AI) is being leveraged for excellence in higher education and to examine the role of student satisfaction in this relationship. The data is analyzed using both descriptive and inferential statistical techniques.

Data Analysis and Result

Response Rate

A total of 400 questionnaires were distributed across the two institutions. Out of these, 382 were returned, and 375 were deemed valid for analysis, representing an effective response rate of **98%.**

University	**Questionnaires Distributed**	**Returned**	**Valid Responses**	**Response Rate (%)**
BOU	200	189	184	97%
NOUN	200	193	191	98%
Total	400	382	375	98%

Source: Field Survey, (2025)

Demographic Characteristics of Respondents

Variable	**Category**	**Frequency (n = 400)**	**Percentage (%)**
Gender	Male	210	56.0%
	Female	165	44.0%
Age Category	18–25	160	42.7%
	26–35	145	38.7%
	36 and above	70	18.6%
Affiliation	Student	255	68%
	Staff	120	32.0%

Source: Field Survey, (2025)

Interpretation: According to the findings, 210 (56%) of the 375 respondents were men and 165 (44%) were women. With a slightly higher percentage of male respondents, this suggests that both genders were well represented in the study. According to the results, 42.7% of the respondents were between the ages of 18 and 30, 38.7% were between the ages of 31 and 45, and 18.6% were older than 46. This suggests that young adults, who are probably more accustomed to digital technologies like artificial intelligence, make up the majority of participants. According to the table, 68% of respondents were students and 32% were employees. This suggests that students made up the majority of participants, which is consistent with Open and Distance Learning (ODL) institutions' learner-centered approach.

Descriptive Statistics

Perception of AI Usage in Teaching, Learning, and Administration

Statement Item	$\underline{x}$	σ	**Remark**
AI tools make learning more interactive and personalized	**4.21**	**0.84**	**Agree**
AI enhances the efficiency of administrative services	**4.08**	**0.91**	**Agree**
Faculty are equipped to use AI tools effectively	**4.15**	**0.86**	**Agree**
AI integration is aligned with institutional goals	**4.02**	**0.88**	**Agree**

Interpretation: The grand mean of 4.07 and standard deviation of 0.89 reflect a high degree of agreement with the items and moderate consistency among responses, indicating that respondents generally have a positive perception of AI usage in teaching, learning, and administration.

Student Satisfaction

Statement Item	$\underline{x}$	σ	**Remark**
I am satisfied with the AI-supported learning platforms	**4.12**	**0.91**	**Agree**
AI feedback mechanisms help improve my academic performance	**4.05**	**0.87**	**Agree**
I feel more engaged due to AI-supported services	**3.96**	**0.93**	**Agree**

Interpretation: With a grand mean score of 4.07 and a standard deviation of 0.89, the results indicate that respondents were generally very satisfied with the use of AI in their educational process.

Perceived Educational Excellence

Statement Item	$\underline{x}$	σ	**Remark**
My institution delivers high-quality education through AI tools	**4.14**	**0.88**	**Agree**
AI contributes to the timely delivery of academic and support services	**4.10**	**0.85**	**Agree**
The use of AI improves institutional effectiveness	**3.98**	**0.92**	**Agree**

Interpretation: With a grand mean of 4.08 and a standard deviation of 0.89, the findings show that respondents have a favourable opinion of educational excellence as impacted by AI. This shows that participants generally agree that AI has improved academic performance, sustainability, innovation, and institutional quality in higher education.

Inferential Analysis

Artificial Intelligence and Excellence in Teaching

$H0_1$: Leveraging Artificial Intelligence does not significantly enhance excellence in teaching, learning, and administration in higher education.

Correlations of Artificial Intelligence and Excellence in Teaching

		Artificial Intelligence	Excellence in Teaching
Artificial Intelligence	Pearson Correlation	1	.757**
	Sig. (2-tailed)		.000
	N	375	375
Excellence in Teaching	Pearson Correlation	.757**	1
	Sig. (2-tailed)	.000	
	N	375	375

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

Source: SPSS Output, 2025

The use of artificial intelligence and academic excellence in higher education institutions are strongly positively and statistically significantly correlated, according to the Pearson correlation coefficient ($r = 0.757$, $p < 0.05$). This implies that greater use of AI in teaching, learning, and administrative tasks greatly enhances academic quality, innovation, and institutional performance. The observed relationship was not the result of chance, as confirmed by the significance level ($p = 0.000$) being less than 0.05.

Artificial Intelligence and Student Satisfaction

$H0_2$: The use of Artificial Intelligence does not have a significant effect on student satisfaction in Botswana Open University and the National Open University of Nigeria.

Correlations Artificial Intelligence and Student Satisfaction

		Artificial Intelligence	Student Satisfaction
Artificial Intelligence	Pearson Correlation	1	.741**
	Sig. (2-tailed)		.000
	N	375	375
Student Satisfaction	Pearson Correlation	.741**	1
	Sig. (2-tailed)	.000	
	N	375	375

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

Source: SPSS Output, 2025

The use of artificial intelligence and student satisfaction are strongly positively and statistically significantly correlated, according to the Pearson correlation coefficient ($r = 0.741$, $p < 0.05$). This suggests that students' satisfaction with educational services rises in tandem with the degree of AI integration in teaching, learning, and administrative tasks. The statistical significance and non-randomness of this relationship are confirmed by the significant p-value of 0.000.

$H0_3$: Student satisfaction does not play a significant role in the relationship between the use of Artificial Intelligence and the achievement of excellence in higher education

Table 4.18: Correlations Of Student Satisfaction As A Moderator Of Artificial Intelligence and Excellence In Learning

Control Variables			Artificial Intelligence	Excellence in Learning	Student satisfaction
-none-[a]	Artificial Intelligence	Correlation	1.000	.819	.625
		Significance (2-tailed)	.	.000	.000
		Df	0	375	375
	Excellence in Learning	Correlation	.819	1.000	.563
		Significance (2-tailed)	.000	.	.000
		Df	375	0	375
	Student satisfaction	Correlation	.625	.563	1.000
		Significance (2-tailed)	.000	.000	.
		Df	375	375	0
Student satisfaction	Artificial Intelligence	Correlation	1.000	.723	
		Significance (2-tailed)	.	.000	
		Df	0	375	
	Excellence in Learning	Correlation	.723	1.000	
		Significance (2-tailed)	.000	.	
		Df	375	0	

a. Cells contain zero-order (Pearson) correlations.

Source: SPSS Output, 2025

Strong positive relationships between the three variables are revealed by the correlation results. In particular, there is a strong correlation between the use of AI and both educational excellence ($r = 0.625$, $p < 0.05$) and student satisfaction ($r = 0.563$, $p < 0.05$). Additionally, there is a strong and significant correlation between student

satisfaction and educational excellence ($r = 0.723$, $p < 0.05$), suggesting that student satisfaction plays a significant role in achieving excellence in higher education.

Discussion of Findings

The findings were discussed in relation to the study's three hypotheses and the existing literature.

Hypothesis One ($H_{0\ 1}$): Leveraging Artificial Intelligence does not significantly enhance excellence in teaching, learning, and administration in higher education.

The null hypothesis ($H_{0\ 1}$) was rejected because of the study's findings, which showed that artificial intelligence greatly improves educational quality in higher education. AI enhances academic innovation, administrative efficiency, and instructional delivery, according to respondents from Botswana Open University and the National Open University of Nigeria. A grand mean of 4.08 for perceived educational excellence was found in the descriptive analysis, indicating that AI integration improves learning outcomes and institutional performance. These findings are consistent with research by Zawacki-Richter et al. (2019), Luckin et al. (2016) and Gupta, et al (2023) who highlighted how AI enhances quality through intelligent tutoring systems, adaptive learning, and predictive analytics. Likewise, Chen et al. (2020) observed that administrative procedures powered by AI boost operational effectiveness and aid in scholarly decision-making. Therefore, the study supports evidence from around the world that, when used strategically, AI can be a catalyst for excellence in higher education.

Hypothesis Two ($H_{0\ 2}$): The use of Artificial Intelligence does not significantly affect student satisfaction.

The analysis also showed that using AI significantly improves student satisfaction, which is why $H_{0\ 2}$ was rejected. According to the grand mean of 4.07 for student satisfaction, students believe AI tools can enhance communication, accessibility, and engagement. Students agreed that learning environments with AI support provide more individualized experiences, effective feedback mechanisms, and simpler access to scholarly materials.
These results align with the findings of Adebayo and Abdulhamid (2021) and Holmes et al. (2021), who found that AI-driven systems improve learner satisfaction and engagement in technology-supported education. This implies that a significant portion of students' overall satisfaction levels can be attributed to AI's capacity to deliver responsive support services and personalized learning. As a result, incorporating AI into Open and Distance Learning (ODL) institutions not only raises educational standards but also improves students' opinions of how well the institution provides services.

Hypothesis Three ($H_{0\ 3}$): Student satisfaction does not play a significant role in the relationship between AI use and excellence in higher education.

The study disproved the null hypothesis ($H_{0\ 3}$) by showing that student satisfaction significantly mediates the relationship between AI use and educational excellence. This suggests that increased student satisfaction accounts for a portion of AI's beneficial effects on academic excellence. Students are more likely to be motivated, involved, and achieve better learning outcomes when they are happy with the AI-enabled systems and procedures. These factors all work together to improve the academic excellence of the institution. This research backs up the claims made by Mhlanga and Moloi (2020), who stressed that to achieve sustainable academic excellence, student-centered approaches must be given priority in digital transformation in African higher education. The outcome is also consistent with models of service quality that propose that the relationship between perceived quality outcomes and institutional innovation is mediated by satisfaction.

Conclusion

The study concludes that AI is a transformative force in the higher education sector. In the contexts of Botswana and Nigeria Open Universities, AI has contributed to greater accessibility, improved pedagogical practices, and efficient administration. However, the level of adoption varies due to disparities in digital infrastructure, staff training, and policy frameworks.

While Botswana appears to have more consistent digital education policies, Nigeria exhibits greater variability in institutional readiness. Nonetheless, both nations demonstrate a shared recognition of AI's potential in reshaping educational delivery. The study thus reinforces the view that successful AI integration depends not only on technological availability but also on institutional commitment, regulatory support, and stakeholder engagement. Artificial Intelligence holds immense promise for the future of higher education in Africa. With the right blend of policy support, infrastructure, and stakeholder readiness, AI can bridge educational gaps and foster academic excellence. The experiences of Botswana and Nigeria Open Universities provide critical learning models for other institutions across the continent.

Recommendations

i. To strengthen the role of AI in achieving academic and operational excellence, Botswana Open University and the National Open University of Nigeria should develop and implement a comprehensive AI integration strategy.

ii. To maximize the educational and administrative benefits of AI, both universities should invest in capacity-building programs that equip faculty and administrative staff

with the skills to use AI-driven platforms effectively.

iii. Workshops and certification programs should be designed to cover tools like AI-assisted grading systems, predictive analytics, virtual classrooms, and chatbots for student services.

iv. Both institutions should systematically collect, analyze, and act on student feedback regarding their experiences with AI tools and platforms.

Contribution to Knowledge

This study contributes to the growing body of literature on digital transformation in education by providing empirical evidence on AI's role in enhancing higher education in sub-Saharan Africa. It underscores the need for inclusive and sustainable AI strategies that prioritize human-centered learning while maximizing technological potential.

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