PERCEIVED IMPACT OF ARTIFICIAL INTELLIGENCE ON MANAGEMENT OF BENUE STATE UNIVERSITY MAKURDI

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Abstract

This paper examines the paper perceived impact of artificial intelligence on management of Benue State University Makurdi. The study was guided by three research questions and three hypotheses. This study adopted a cross-sectional survey research design. The population for the study comprised 2780 nonacademic staff in Benue State University Makurdi. The instrument used for data collection is a self-develop structured questionnaire titled: Perceived Impact of Artificial Intelligence on Management of University Makurdi Questionnaire (PIAIYMQ). Data were analyzed using descriptive statistics of mean scores and standard deviation to answer the research questions. The Chi-Square Statistics was used to test the hypotheses at 0.05 level of significance. The findings revealed that AI has a significant perceived impact on admission process in Benue State University Makurdi. The second finding revealed that AI has a significant perceived impact on decision making process in Benue State University Makurdi. The third finding revealed that AI has a significant perceived impact on resource management Benue State University Makurdi it was recommended among others that the university should develop a comprehensive implementation strategy for integrating AI into university processes, ensuring buy-in from stakeholders and addressing potential challenges such as data privacy and ethical considerations. The university should invest in training programs to build AI literacy among staff and faculty, empowering them to effectively leverage AI tools for decision-making, resource management, and admissions processes.

Keywords: *Perceived impact, Artificial Intelligence, Admission process, Decision making process, Resource management and University*

Introduction

The management of universities in Nigeria has long been a matter of concern, particularly due to issues such as administrative inefficiencies, lack of transparency, resource misallocation, and outdated management practices. These challenges often hinder the effective functioning of educational institutions, thereby impacting the quality of education provided. For instance, universities struggle with poor data management, slow administrative processes, and inadequate monitoring and evaluation mechanisms. These problems necessitate a strategic overhaul to enhance the overall management and operational efficiency of these institutions (Olayinka, 2021).

Effective management is critical in achieving the educational objectives of universities. It encompasses planning, organizing, directing, and controlling resources to achieve educational goals efficiently. Good management practices ensure that universities can provide high-quality education, maintain financial stability, foster a conducive learning environment, and respond effectively to changes and challenges in the educational landscape (Bush, 2018). Effective management practices are

instrumental in driving the performance and reputation of universities, thereby contributing to their success in producing competent graduates and advancing research. Artificial Intelligence (AI) represents a revolutionary development that can significantly enhance the management of universities. AI technologies, including machine learning, natural language processing, and data analytics, offer robust tools for improving decision-making, optimizing resource allocation, and automating administrative processes. By integrating AI into university management, institutions can overcome many traditional challenges, streamline operations, and create more efficient and responsive educational environments (Baker & Smith, 2019). However, AI in educational management also raises several ethical, legal, and social issues. For example, the use of AI in education can lead to potential biases and discrimination, raise privacy concerns, and impact the labor market. Therefore, it is crucial to evaluate the application of AI in educational management carefully.

Management involves coordinating and overseeing the activities of an organization to achieve its objectives. It includes various functions such as planning, organizing, staffing, leading, and controlling. Effective management is essential for ensuring that an organization operates smoothly and efficiently, maximizing the use of resources while achieving its goals (Robbins & Coulter, 2020). In the context of universities, management refers to the processes and activities involved in running the institution. This includes academic management, financial management, human resource management, and student services management. University management aims to ensure that educational standards are maintained, resources are appropriately allocated, and the institution can adapt to changing educational needs and external pressures (Shattock, 2013).

On the other hand, Artificial Intelligence (AI) is a branch of computer science focused on creating systems capable of performing tasks that typically require human intelligence. These tasks include learning, reasoning, problem-solving, understanding natural language, and perception. AI technologies can process large volumes of data, identify patterns, and make decisions with minimal human intervention (Russell & Norvig, 2020).

AI can automate routine administrative tasks such as admissions processing, and resource management. This automation can reduce the workload on staff, minimize errors, and ensure timely completion of administrative processes (Luckin, 2018). Admission refers to the process through which students are selected and enrolled into a university. This process is a critical function of university management, involving various stages such as application submission, document verification, eligibility assessment, and final selection. Traditionally, this process can be time-consuming, labor-intensive, and prone to errors, which can impact the efficiency and effectiveness of university operations. AI can significantly streamline the admissions process by automating routine tasks such as data entry, document verification, and preliminary eligibility checks. For instance, AI algorithms can quickly sort and evaluate applications based on predefined criteria, flagging potential issues for human review and ensuring that only eligible candidates proceed to the next stage (Holmes et al., 2019). This automation not only reduces the administrative burden on staff but also enhances the accuracy and speed of the admissions process, leading to a more efficient and effective management system within universities (Luckin, 2018).

AI can analyze vast amounts of data to provide insights that inform decision-making. Decision-making is the process of selecting the best course of action from available alternatives, a crucial aspect of management that determines the effectiveness and success of an organization. In the context of university management, decision-making is essential for strategic planning, resource allocation, academic programming, and addressing student needs. AI can profoundly enhance decision-making by providing data-driven insights and predictive analytics. AI systems can analyze vast amounts of data from various sources, identify patterns, and predict future trends, enabling university administrators to make informed decisions quickly and accurately. For instance, AI can forecast student enrollment patterns, optimize staffing and resource allocation, and identify students at risk of dropping out, allowing for timely interventions (Baker & Smith, 2019). By leveraging AI, universities can make more

precise, evidence-based decisions that improve operational efficiency and educational outcomes (Russell & Norvig, 2020).

Resources in universities encompass a wide range of assets, including financial resources, human resources (faculty and staff), physical infrastructure (buildings and equipment), and technological resources. Effective resource management is vital in university management to ensure the optimal allocation and utilization of these resources to support academic and administrative functions. AI can significantly enhance resource management by providing advanced data analytics and predictive modeling. AI systems can analyze usage patterns, forecast future resource needs, and optimize resource allocation in real-time. For example, AI can predict peak usage times for facilities, optimize class scheduling to make the best use of classrooms, and even forecast budgetary requirements based on historical spending patterns (Holmes et al., 2019). By leveraging AI, universities can ensure that resources are used efficiently, reduce waste, and improve overall operational efficiency, thereby enhancing the quality of education and administrative services (Luckin, 2018).

Incorporating AI in the management of Benue State University, Makurdi, can address several specific challenges. The university can benefit from enhanced administrative efficiency through AI-driven automation of routine tasks. This would free up staff to focus on more strategic activities, improving overall productivity. Additionally, data-driven decision-making powered by AI can help the university optimize resource allocation, enhance academic planning, and improve student retention and success rates (Adamu, 2020). Moreover, AI can support personalized learning initiatives at Benue State University, providing tailored educational experiences that cater to the diverse needs of its student population. AI tools can also offer continuous student support, improving the overall student experience and satisfaction. The perceived impact of AI on the management of Benue State University, Makurdi, is substantial. By addressing current management challenges and leveraging the capabilities of AI, the university can enhance its operational efficiency, improve decision-making, and provide better support to its students and staff. This study aims to explore these impacts in detail, providing insights into how AI can be effectively integrated into the university's management practices.

Statement of the Problem

In an ideal situation, university management should be characterized by high efficiency, transparency, and responsiveness, ensuring that administrative processes are streamlined, resources are optimally allocated, and decision-making is data-driven. This level of management excellence enables universities to provide high-quality education, enhance student and staff satisfaction, and adapt swiftly to changing educational demands and external pressures.

Currently, Benue State University, Makurdi, faces significant challenges in its management practices. These challenges include inefficient administrative processes, inadequate resource management, and decision-making that often lacks a strong data-driven foundation. Such issues lead to delays, increased operational costs, and suboptimal utilization of resources, ultimately affecting the quality of education and the overall performance of the institution.

The gap between the ideal management scenario and the current situation at Benue State University, Makurdi, represents a significant problem. Inefficient management practices hinder the university's ability to deliver high-quality education and support its stakeholders effectively. This inefficiency is compounded by the lack of modern technological tools that can enhance management processes, leading to persistent issues that affect both academic and administrative functions. Previous studies have highlighted the potential of Artificial Intelligence (AI) to transform university management by automating routine tasks, improving resource allocation, and enabling data-driven decision-making (Holmes et al., 2019; Luckin, 2018). Various universities worldwide have started integrating AI into their management systems, reporting improvements in administrative efficiency, resource management, and student support services (Baker & Smith, 2019).

Despite the demonstrated benefits of AI in university management, there is limited research and application of AI in the context of Nigerian universities, particularly at Benue State University, Makurdi. Most of the existing literature focuses on developed countries, with minimal attention given to the unique challenges and opportunities present in developing regions. This lack of localized research creates a gap in understanding how AI can be effectively implemented and utilized in Nigerian universities. This study aims to fill this gap by exploring the perceived impact of AI on the management of Benue State University, Makurdi. It will investigate how AI can address the specific management challenges faced by the university and enhance its operational efficiency. By providing empirical data and practical insights, this research will contribute to the broader discourse on AI in education management and offer a roadmap for other Nigerian universities considering AI integration.

Purpose of the Study

The aim of this study is to examine the perceived impact of artificial intelligence on management of Benue State University Makurdi. Specifically, the study seeks to:

1. Examine the perceived impact of AI on admission process in Benue State University Makurdi.
2. Find out the perceived impact of AI on decision making process in Benue State University Makurdi
3. Ascertain the perceived impact of AI on resource management Benue State University Makurdi.

Research Questions

The following questions are raised to guide the study:

1. What is the perceived impact of AI on admission process in Benue State University Makurdi?
2. What is the perceived impact of AI on decision making process in Benue State University Makurdi?
3. What is the perceived impact of AI on resource management Benue State University Makurdi?

Hypotheses

The following hypotheses are formulated and tested at 0.05 level of significance:

1. AI has no significant perceived impact on admission process in Benue State University Makurdi.
2. AI has no significant perceived impact on decision making process in Benue State University Makurdi
3. AI has no significant perceived impact on resource management Benue State University Makurdi.

Methodology

The setting for this study is Benue State. Which is located in the North-Central geo-political region of the country. The state was created in 1976. This study adopted a cross-sectional survey research design. According Shields (2013), cross-sectional survey deals with data collection for the purpose of describing, interpreting, evaluating and analyzing the existing conditions of variables and prevailing situations.

The population for this study comprised 2780 nonacademic staff in Benue State University Makurdi (Benue State University, Makurdi Records and Statistics, 2023). The study sampled 351 non-academic staff of Benue State University, Makurdi. Purposive sampling technique will be employed to select only management staff of the university.

Thei instrument used for data collection is a self-develop structured questionnaire titled: Perceived Impact of Artificial Intelligence on Management of University Makurdi Questionnaire (PIAIYMQ). The instrument is design in line with the study variables on a four point Likert scale with the response mode of Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1 respectively. Data were analyzed using descriptive statistics of mean scores and standard

deviation to answer the research questions. The arithmetic mean was used to determine the mean score on each item so as to accept or reject its influence based on the cutoff point of 2.50. The Chi-Square Statistics was used to test the hypotheses at 0.05 level of significance.

RESULT

Research Question 1: What is the perceived impact of AI on admission process in Benue State University Makurdi?

Table 1: Mean and Standard Deviation on the Perceived Impact of AI on Admission Process in Benue State University Makurdi

S/N	Item description	N	SA	A	D	*SD*	$\bar{x}$	*SD*	Decision
1	AI can streamline the application submission process.	351	104	117	69	61	2.75	1.06	Agree
2	AI enhances the accuracy of document verification during admissions.	351	114	123	62	52	2.85	1.04	Agree
3	AI reduces the time required to process admissions.	351	120	130	56	45	2.93	1.01	Agree
4	AI improves the overall efficiency of the admissions process.	351	117	126	59	49	2.89	1.03	Agree
5	AI can identify and flag potential issues in applications more effectively.	351	124	121	61	45	2.92	1.02	Agree
	Cluster Mean and Standard Deviation						**2.87**	**1.03**	**Agree**

Table 1 shows the mean and standard deviation of items 1-5 as follows: 2.75, 2.85, 2.93, 2.89 and 2.92 with a corresponding standard deviation of 1.06, 1.04, 1.01, 1.03 and 1.02 respectively. The table also has a cluster mean of 2.87 and a standard deviation of 1.03 above the cut-off mean point of 2.50. This result implies that respondents agreed that AI can streamline the application submission process, it enhances the accuracy of document verification during admissions, AI reduces the time required to process admissions, it improves the overall efficiency of the admissions process and that AI can identify and flag potential issues in applications more effectively. This result implies that AI have positive perceived impact on admission process in Benue State University Makurdi

Research Question 2: What is the perceived impact of AI on decision making process in Benue State University Makurdi?

Table 2: Mean and Standard Deviation on the Perceived Impact of AI on Decision Making Process in Benue State University Makurdi

S/N	Item description	N	SA	A	D	*SD*	$\bar{x}$	*SD*	Decision
6	AI provides valuable insights for making strategic decisions.	351	151	120	41	39	3.09	.99	Agree
7	AI helps in predicting future trends affecting university management.	351	141	119	57	34	3.05	.98	Agree
8	AI supports data-driven decision-making processes.	351	120	125	53	53	2.89	1.04	Agree
9	AI reduces uncertainties in decision-making.	351	119	129	58	45	2.92	1.01	Agree
10	AI enhances the accuracy of administrative decisions.	351	114	120	66	51	2.85	1.04	Agree

Cluster Mean and Standard Deviation	**2.96**	**1.01**	**Agree**

Table 2 shows the mean and standard deviation of items 1-5 as follows: 3.09, 3.05, 2.89, 2.92 and 2.85 with a corresponding standard deviation of .99, .98, 1.04, 1.01 and 1.04 respectively. The table also has a cluster mean of 2.96 and a standard deviation of 1.01 above the cut-off mean point of 2.50. This result implies that respondents agreed that AI provides valuable insights for making strategic decisions, it helps in predicting future trends affecting university management, it supports data-driven decision-making processes, it reduces uncertainties in decision-making and that AI enhances the accuracy of administrative decisions. This result implies that AI have positive perceived impact on decision making process in Benue State University Makurdi.

Research Question 3: What is the perceived impact of AI on resource management Benue State University Makurdi?

Table 3: Mean and Standard Deviation on the Perceived Impact of AI on Resource Management in Benue State University Makurdi

S/N	Item description	N	SA	A	D	*SD*	$\bar{x}$	*SD*	Decision
11	AI optimizes the allocation of financial resources.	351	131	120	56	44	2.96	1.02	Agree
12	AI improves the utilization of physical infrastructure (e.g., classrooms).	351	130	103	66	52	2.89	1.07	Agree
13	AI enhances the management of human resources (staff and faculty).	351	121	110	67	53	2.85	1.06	Agree
14	AI helps in forecasting and planning resource needs accurately.	351	117	124	61	49	2.88	1.03	Agree
15	AI reduces waste and ensures efficient use of university resources.	351	101	123	72	49	2.77	1.03	Agree
	Cluster Mean and Standard Deviation						**2.87**	**1.04**	**Agree**

Table 3 shows the mean and standard deviation of items 11-15 as follows: 2.96, 2.89, 2.85, 2.88 and 2.77 with a corresponding standard deviation of 1.02, 1.07, 1.06, 1.03 and 1.03 respectively. The table also has a cluster mean of 2.87 and a standard deviation of 1.04 above the cut-off mean point of 2.50. This result implies that respondents agreed that AI optimizes the allocation of financial resources, it improves the utilization of physical infrastructure (e.g., classrooms), AI enhances the management of human resources (staff and faculty). AI helps in forecasting and planning resource needs accurately. And that it reduces waste and ensur\
es efficient use of university resources. This result implies that AI have positive perceived impact on resource management Benue State University Makurdi.

Testing of Hypotheses

Hypotheses 1: AI has no significant perceived impact on admission process in Benue State University Makurdi.

Table 4: Chi-Square test on the Perceived Impact of AI on Admission Process in Benue State University Makurdi

Responses	Observed frequency	Expected frequency	df	x^2	*P*	Remark
Strongly Disagree	45	87.8				
Disagree	56	87.8				
Agree	130	87.8	3	64.510	.000	Significant
Strongly Agree	120	87.8				
Total	351					

Table 4 shows the x^2 (df, 3) = 64.510, p = 0.000 < 0.05. Since the p value is less than an alpha level of 0.05 the null hypothesis which states that AI has no significant perceived impact on admission process in Benue State University Makurdi was rejected. This implies that AI has a significant perceived impact on admission process in Benue State University Makurdi.

Hypotheses 2: AI has no significant perceived impact on decision making process in Benue State University Makurdi

Table 5: Chi-Square test on the Perceived Impact of AI on Decision Making Process in Benue State University Makurdi

Responses	Observed frequency	Expected frequency	df	x^2	*P*	Remark
Strongly Disagree	45	87.8				
Disagree	58	87.8				
Agree	129	87.8	3	61.433	.000	Significant
Strongly Agree	119	87.8				
Total	351					

Table 5 shows the x^2 (df, 3) = 61.433, p = 0.000 < 0.05. Since the p value is less than an alpha level of 0.05 the null hypothesis which states that AI has no significant perceived impact on decision making process in Benue State University Makurdi was rejected. This implies that AI has a significant perceived impact on decision making process in Benue State University Makurdi.

Hypotheses 3: AI has no significant perceived impact on resource management Benue State University Makurdi.

Table 6: Chi-Square test on the Perceived Impact of AI on Resource Management in Benue State University Makurdi

Responses	Observed frequency	Expected frequency	df	x^2	*P*	Remark
Strongly Disagree	53	87.8				
Disagree	67	87.8				
Agree	110	87.8	3	36.909	.000	Significant
Strongly Agree	121	87.8				
Total	351					

Table 6 shows the x^2 (df, 3) = 36.909, p = 0.000 < 0.05. Since the p value is less than an alpha level of 0.05 the null hypothesis which states that AI has no significant perceived impact on resource management Benue State University Makurdi was rejected. This implies that AI has a significant perceived impact on resource management Benue State University Makurdi.

Discussion of Findings

The first finding revealed that AI has a significant perceived impact on admission process in Benue State University Makurdi. This finding means that with AI one can streamline the application, enhances the accuracy of document, reduces the time required, improves the overall efficiency and identify and flag potential issues in the admission process of universities. This finding agrees Li and Hsieh (2020) whose findings underscored AI's potential to enhance efficiency and effectiveness in managing large volumes of applications. Similarly, Bonaccorsi and Rossi (2018) highlighted AI's ability to optimize administrative processes in universities, including admissions, by mitigating biases, improving candidate assessment accuracy, and enabling data-driven decision-making.

The second finding revealed that AI has a significant perceived impact on decision making process in Benue State University Makurdi. This finding entails that AI can provides valuable insights, helps in predicting future trends, supports data-driven, reduces uncertainties and enhances the accuracy of administrative decisions. This finding tallied with Chan and Lee (2019) whose study highlighted that AI technologies enable universities to analyze vast amounts of data efficiently, predict future trends, and support data-driven decision-making across various administrative functions.

The third finding revealed that AI has a significant perceived impact on resource management Benue State University Makurdi. This finding depicts that AI can optimizes the allocation of resources, improves the utilization, enhances the management of human resources, helps in forecasting and planning and reduces waste and ensures efficient use of university resources. This finding is consistent with Tran and Dharmalingam (2020) whose research highlighted that AI technologies play a crucial role in optimizing resource allocation by analyzing vast datasets related to student enrollment patterns, course demand, and faculty availability. By leveraging AI-driven analytics, universities can enhance the efficiency of resource utilization, improve forecasting and planning processes, and ultimately reduce operational costs.

Conclusion

The findings suggest that AI technology holds substantial potential to revolutionize various facets of Benue State University Makurdi's operations. Firstly, in the admission process, AI can streamline applications, improve document accuracy, reduce processing time, and enhance overall efficiency while identifying potential issues. Secondly, in decision-making, AI offers valuable insights, predicts trends, supports data-driven decisions, reduces uncertainties, and improves decision accuracy. Lastly, in resource management, AI optimizes resource allocation, enhances utilization and human resource management, aids in forecasting and planning, and minimizes waste, ensuring efficient resource use across the university.

Recommendations

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

1. The university should develop a comprehensive implementation strategy for integrating AI into university processes, ensuring buy-in from stakeholders and addressing potential challenges such as data privacy and ethical considerations.
2. The university should invest in training programs to build AI literacy among staff and faculty, empowering them to effectively leverage AI tools for decision-making, resource management, and admissions processes.

3. The university should establish mechanisms for continuous evaluation and feedback loops to monitor the impact of AI implementations on university operations, allowing for iterative improvements and adaptation to evolving needs and technologies.

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