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Barriers and Enablers to Artificial Intelligence (AI) Adoption in Administrative Functions in Public Universities in Ghana: A Case Study of the University of Education, Winneba

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Abstract

The adoption of Artificial Intelligence (AI) in higher education holds substantial potential to enhance administrative efficiency, decision-making, and resource management. Yet, in many public universities in developing countries, including Ghana, AI integration remains limited due to a complex interplay of technological, institutional, and socio-cultural barriers. This study investigates the barriers and enablers to AI adoption in administrative functions at the University of Education, Winneba (UEW), employing a convergent mixed methods design. Quantitative data were collected through structured surveys administered to administrative staff (n=70), while qualitative insights were generated through semi-structured interviews with university administrators (n=10) and document analysis. The study is grounded in the Unified Theory of Acceptance and Use of Technology (UTAUT), which provided a framework for interpreting both individual and institutional factors influencing AI adoption. Findings reveal significant barriers such as inadequate digital/technological infrastructure, limited AI literacy, ambiguous policy frameworks, and resistance to change. However, enablers identified include strong perceived usefulness of AI tools, leadership support, and departmental readiness in select units. The mixed methods approach allowed for a nuanced understanding of how institutional culture, perceived performance benefits, and facilitation conditions converge to shape adoption dynamics. The study recommends a phased, capacity-driven AI implementation strategy that prioritizes infrastructure investment, continuous staff training, and ethical AI governance tailored to the local context. These insights contribute to the limited body of literature on AI adoption in higher education administration in the Global South and offer practical implications for institutional leaders and policy-makers.

Keywords: Artificial Intelligence, Higher Education, Technology Adoption, Digital Transformation, Institutional Barriers

Introduction

Global sectors often undergo rapid AI transformations while higher education institutions take time to discover expanded applications of AI technology to strengthen educational instruction and administrative operations. Research into Artificial Intelligence

educational applications rose significantly since 2019 because it became apparent as an effective solution for addressing institutional issues and maximizing operational efficiency (Zawacki-Richter et al., 2019; Holmes et al., 2019). The theoretical nature of AI exists only in the past because it has become a practical tool for real-world applications. The technology is transforming from a theoretical concept to a practical operational tool that powers applications for student assistance, data insight and administrative process automation. Research indicates that artificial intelligence technologies can create extensive advantages in various administrative areas throughout higher education institutions such as incorporation into admissions procedures along with student records keeping, support features and budget planning functions. Research indicates AI helps administrators reduce expenses while also enhancing decisions through predictive analytics together with smart automation according to Bughin et al. (2017) and PwC (2020). AI-powered chatbots improve student engagement through real-time support and AI analytics optimize resource allocation and class schedules (Popenici & Kerr 2017).

Higher education institutions in Ghana are implementing digitalization initiatives as part of the government's push towards a technology-powered economy (Ministry of Communications and Digitalisation, 2022). The ICT in Education Policy Framework together with the "Smart Schools" project highlight the government's dedication to integrating digital technologies across educational institutions (Ministry of Education Ghana, 2015; 2024). The national strategies provide official support which enables public institutions such as University of Education, Winneba to investigate AI implementation for administrative operations. The policy environment supports AI adoption but actual deployment meets significant challenges because of institutional limitations, infrastructure constraints and privacy concerns about AI data systems. Public institutions with constrained resources need a clear understanding of how enabling and inhibiting factors work together to guide their AI adoption in administrative processes.

Problem Statement

While there is broad acceptance of the potential of Artificial Intelligence (AI) for application within the administrative processes of Ghana's public universities, so far, there has been limited implementation. As with most developing nations, Ghana is beset by longstanding barriers to technological adoption, including infrastructural shortages, irregular policies, and fiscal restrictions (Ayalew & Xianzhi, 2020; World Bank, 2021). In spite of AI's potential for improving administrative tasks—encompassing student admissions, record-keeping, and decision-making within institutions—actual adoption is scattered and inadequately reported.

Key barriers against AI integration are a lack of infrastructure, technical skill shortages, and a lack of well-thought-through policy frameworks. All of these are

augmented by ethical issues and poor data governance arrangements, making strong guidelines and effective regulation even more paramount if AI is to be deployed safely in education (Atarah et al., 2023; IIPGH, 2023; Ministry of Communications and Digitalisation, 2022).

At the University of Education, Winneba (UEW), there are still administrative inefficiencies and late delivery of services that affect stakeholder satisfaction. These are based on limited digital preparedness, limited funding, and human resource limitations (Lomoa et al., 2024; Yussif & Mante, 2023). Although AI is a viable avenue for efficiency improvement and better delivery of services, there is a need for a comprehensive grasp of the enablers and inhibitors of adoption (Tomaževič et al., 2024).

Literature on AI use within Ghana's tertiary education is limited. National initiatives for AI adoption are obstructed by poor technical capabilities, vague policy goals, poor awareness among citizens, and a lack of developed data infrastructure (Ministry of Communications and Digitalisation, 2022; UNESCO, 2021). National-level challenges are reflected within tertiary education, adding to the challenge of AI integration. Ghana's distinct socio-economic and cultural landscape also influences AI solution readiness, stakeholders, and scalability which is unique compared to what is being experienced within more advanced economies (Popenici & Kerr, 2017). In the absence of domain knowledge about such contextual determinants, crafting effective and durable AI solutions is a challenge.

Lack of existing studies targeting AI adoption at UEW makes it important for this research to close the existing knowledge gap by looking into the institutional issues hindering or supporting AI implementation within the university's administrative activities.

Research Question

Primary Research Question: What factors stand in the way of and enable the AI technology adoption process for administrative functions at the University of Education, Winneba?

Significance of the Study

This study addresses a critical gap in the global discourse on artificial intelligence (AI) in higher education by shifting attention from widely studied pedagogical uses to the underexplored area of AI adoption in administrative functions within resource-constrained contexts. Focusing on the University of Education, Winneba, it offers empirical insights into the organizational, technological, human barriers and enablers shaping AI integration. These findings provide actionable guidance for institutional leaders, IT professionals, and policymakers aiming to improve administrative efficiency through digital innovation. The

study's relevance extends beyond the university, informing national strategies for AI adoption in Ghana's public universities. By aligning with Ghana's digital transformation agenda and the African Union's educational goals, it supports the development of scalable, equitable, and ethically grounded AI policies that promote sustainable change in higher education across similar socio-economic settings.

Literature Review

The Landscape of AI in Higher Education Globally

The global implementation of Artificial Intelligence (AI) in higher education shows increasing momentum because academic institutions have picked up their research and deployment speed. A bibliometric analysis shows education research dedicated to AI-related publications has steadily increased since 2019 because scholars and institutions recognize AI's transforming capabilities (Akhmadieva et al., 2024; Zawacki-Richter et al., 2019). The analysis by Zawacki-Richter et al. (2019) confirms mounting trends in education which Frontiers in Education (2024) further supports regarding the field's global evolution. The educational landscape has experienced an industry paradigm change because institutions now recognize AI as both a practical solution and strategic tool for persisting educational problems. The deployment of AI technology exists across different functional areas which cover teaching and learning, research and administration at a global scale. Administrative AI implementations demonstrate potential to operate more efficiently while decreasing human errors together with extended administrative expenses (Holmes et al., 2019; OECD 2021). Institutions use AI-powered chatbots and virtual assistants to automate student advising operations alongside enrollment processes and fee payment tracking and help desk services (UNESCO, 2021). The implementation of these tools leads to shorter response durations while simultaneously decreasing staffing workload requirements. The application of AI continues to grow in administrative analytics fields which include enrollment forecasting and resource allocation and academic performance monitoring (Smutny & Schreiberova, 2020). University leadership around the world now uses predictive algorithms to access data which supports goals while handling their resource limitations. Administrative insight through such analysis proves vital for situations like African universities with scarce management personnel that need optimized resource allocation.

The implementation of AI technology in administrative processes meets limited success because multiple obstacles prevent widespread acceptance. Several barriers stand in the way including insufficient digital infrastructure combined with limited technical expertise and privacy data concerns as well as resistance to change and ambiguous national or institutional policy directives (UNESCO, 2021; Effah et al, 2021). Existing barriers affect developing nations such as Ghana since technological transformation in higher

education remains fragmented alongside insufficient funding (African Union, 2024; Ministry of Communications and Digitalisation, 2022). Institutional AI adoption decisions for higher education require a thorough understanding of regional implementation barriers as well as enablers for the University of Education Winneba to consider. AI deployment requires locally customized or contextualized approaches that build upon real-world circumstances to achieve lasting benefits within university management structures.

AI Applications in University Administration: Global Use Cases and Relevance for Ghana

AI applications in university administration attract increasing global interest because they deliver multiple solutions to improve operational efficiency while optimizing institutional planning and enhancing user experience. Within its first few months of use, Georgia State University's AI-powered chatbot "Pounce" processed more than 200,000 student inquiries. When students engaged with the intervention system their summer drop percentage decreased by 21.4% thus improving first-year student retention (Page & Gehlbach, 2017). Through this case we see how AI technology eases administrative tasks thus helping staff members dedicate more time to serve students and handle strategic decisions. Artificial intelligence (AI) is playing an increasingly pivotal role in optimizing core administrative operations within higher education institutions. Universities are now using predictive modelling and data-driven solutions for forcasting student enrollment, which benefits institutional budgeting and infrastructure planning. Universities are now using modern ICT technologies to enhance strategic decision-making, drive transformation in the digital space, and optimizing overall institutional performance (Almusawy, 2025; Sposato, 2025; Katsamakas et al., 2024; OECD, 2021). This technological integration is especially critical in institutions with limited resources where budget management is a priority. For instance, Arizona State University has adopted AI-driven solutions such as the CreateAI Platform and the Decision Theater to ensure that they are informed of strategic choices across admissions and facilities management. These platforms enable these institutions to be more efficient in resource allocations, improve their scheduling processes, and streamline operational workflows. This goes a long way to position ASU as a leader in AI-enabled institutional management (Arizona State University, 2024).

These institutions adopting the use of AI's and modern technological advancements are improving decision-making, digital transformation, and optimizing the overall institutional performance (Almusawy, 2025; Sposato, 2025; Katsamakas et al., 2024; OECD, 2021). This is helpful in institutions which are cash strapped, limited in resources, and must restrict themselves to tight budgetary plans and allocations. AI technologies are helping to transform the basic operations of various universities, making them more efficient in terms of meeting the changing needs of their stakeholders and being

responsive to their concerns. “UniTime” software assists in the preparation and generation of academic schedules through AI which innovatively considers different factors for the generation of these schedules. Some of such factors are the teacher’s availability, student choice and classroom size to reduce to the barest minimum the issues with respect to bureaucracy, expense and timetabling discrepancies in the generation of working timetables (Zawacki-Richter et al., 2019). Open University, UK uses "OU Analyse" to track ‘at risk’ students who are ris of abandoning their programs followed by various intervention recommendations that are prescribed automatically (Kuzilek et al., 2017).

As espoused above, a number of international studies confirm that AI services are used by institutions of different backgrounds. These institutions vary in the complexity of their setups. The examples from the varying backgrounds and contexts show developing countries including Ghana can benefit from these technological solutions. However, the successful implementation most often requires varied contextual enablers including the right kinds of digital infrastructure and data availability with the necessary institutional requirements and professional development measues (UNESCO, 2021; Effah et al, 2021). The valuable insights from global use cases need localized, contextual implementation strategies that resolve the infrastructure-related and policy and human resource challenges faced by institutions like the University of Education, Winneba.

Barriers to Technology Adoption in Higher Education Institutions

The challenges associated with technology adoption are joined by AI-specific obstacles because universities move toward automated systems and intelligent platforms for operational improvement. Broad implementation of AI faces resistance due to its assumed high installation expenses. Developing nations' public universities face such severe monetary constraints that allocating funds for AI solutions becomes challenging when faced with institutional necessities (Akinwalere & Ivanov, 2022). AI technology procurement demands substantial initial outlays and recurring fees combined with ongoing maintenance expense flows, subscription renewals etc which challenge universities with restricted budget capacity. University administrative teams lack sufficient knowledge about AI technology which hampers their ability to effectively use such systems. AI deployment success demands expertise in data science and algorithm design together with systems integration capabilities that public institutions frequently lack (Akinwalere & Ivanov, 2022). The lack of internal AI capacity together with disjointed training strategies forces universities to choose between ineffective AI implementation and excessive reliance on external providers which leads to sustainability issues. AI adoption faces additional hurdles from privacy concerns combined with ethical issues and requirements for transparent algorithms. The extensive use of AI to handle student data for admission decisions and educational support creates major ethical issues which focus on privacy and

surveillance concerns (UNESCO, 2021). Strategic errors or inappropriate uses of AI-generated outputs have the potential to damage the trust relationship between institutions and their students as well as their institutional credibility. AI adoption processes are hindered by general staff misconceptions and insufficient awareness levels about artificial intelligence systems leading to work-related anxieties and doubts about AI integration. The widespread cultural resistance to Artificial Intelligence requires specialized organizational strategies combined with stakeholder participation to eliminate common AI misunderstandings and establish official trust in its implementation (Akinwalere & Ivanov, 2022).

Specific Barriers Related to AI Adoption

As tertiary institutions implement AI-based automation the specific obstacles related to this technology gain prominence while university leaders aim to achieve efficiency improvements. AI implementation faces a main problem because organizations think it will be too expensive. Intensive budget limitations at various public institutions across developing countries force them to allocate resources differently from AI system development and maintenance because other needs take priority (Akinwalere & Ivanov, 2022). Public universities within developing nations are hindered from adopting AI technologies by initial investment costs along with licensing fees together with maintenance costs exceeding their limited budgetary capabilities.

Another hindrance to the adoption of AI is the lack of sufficient university administrators with top notch AI-related abilities. AI deployment in various roles or institutions requires ‘experts’ with a IT related backgrounds or insights which is usually missing from within public institutions (Akinwalere & Ivanov, 2022). Inadequate AI expertise among educational institutions results in the universities either ending up failing to integrate or efficiently use AI technologies meaningfully or they relying too heavily on external support from various stakeholders and organizations which in turn impacts the sustainability of operations.

Other difficulties in adopting AI emanate from concerns about how data privacy issues are handled as well as ethical considerations transparency of the AI algorithms being used. There have been concerns raised about the biased nature of student processing done by some AI tools/systems with respect to admissions and monitoring of student progressions which raise ethical concerns for the academic community (UNESCO, 2021). The improper uses of AI-generated reports or outputs can lead to reputational damage and loss of faith in system security by students and stakeholders. Administrative staff in some instances often show limited understanding or wrong beliefs about AI which in turn leads to resistance to its adoption. Most of these beliefs emanate from the worry about losing employment or doubts about AI's significance. The cultural barriers in this context justifies

establishing specific change management plans and initiatives that promote stakeholder participation for eliminating misconceptions about AI while creating confidence among stakeholders in its implementation (Akinwalere & Ivanov, 2022).

The successful implementation of initiatives and practices that remove these obstacles often demands multiple varied efforts which combining digital infrastructure upgrades with investements in staff training followed with ethical rule enforcement. Ultimately, there is the need for the institution to adopt innovative corporate culture that promotes the use of AI in professional, ethical and efficient ways.

Enablers of Technology Adoption in Higher Education Institutions

Institutions of Higher education need specific enabling factors for the successful adoption of technology by their stakeholders especially admnistrative staff. Various elements exist which help intitutions and organizations to succeffully adopt technology. Venkatesh et al. (2003) indicates Performance Expectancy along with Effort Expectancy serve as critical enabling factors for succesful technology use or adoption. The adoption attitudes of individuals most often rely heavily on their social environment which consists of both peer support, institutional organizational practices and values. The success of technology adoption is driven by facilitating conditions, which consist of the provision of the necessary infrastructure and clear technical support services that guide users. Organizational readiness and alignment i.e. how well AI fits with current operational structures and functions are major AI enablers (Al-Fraihat et al., 2020; James, 2021). However, when organizations are unable to provide specific implementation skills or expertise for AI adoption or any technological advancement, they can benefit from external assistance provided by third party vendors or organisations. In another vein, Peer advocacy along with individual incentives prove to be strong motivators which drive technology adoption (Rogers et al, 2014). Technology integration requires full support of Management and all stakeholders to ensure that multiple interconnnected factors such as individual welfare, organizational system readiness and situational accommodations are catered for.

The Context of Higher Education and Technology Adoption in Ghana

Ghana's Higher Education Institutions operate within a specific technological adoption framework. Higher education institutions within Ghana operate in a scenario that presents simultaneous chances along with technological adoption challenges. The research shows that successful technology adoption requires strategic initiatives which consider Ghana's economic realities and social traditions along with its structural limitations (Loglo, 2024; Wathi, 2023). Research on mobile libraries and e-learning systems shows that implementation barriers persist as a result of inadequate infrastructure, insufficient training

and weak policy frameworks (Esharede, 2023; Agyei & Voogt, 2011). For a project to be successful it needs both management approval alongside dedicated stakeholder collaboration. The government's "Smart Schools" initiative underscores its dedication to digital transformation yet institutional readiness for digital initiatives differs across schools (Ministry of Education Ghana, 2024). A successful implementation process needs precise goal creation and sufficient funding alongside dedicated resource deployment and workforce development and continuous executive backing.

Research Gap

While global research increasingly explores the application of AI in higher education—spanning teaching, learning, and to a lesser extent, administrative processes (Zawacki-Richter et al., 2019; Mangundu, 2023; Opesemowo & Adekomaya, 2024) there remains a notable gap in literature addressing the specific barriers and enablers of AI adoption in the administrative functions of public universities in developing countries. In Ghana, few studies offer detailed insights into how infrastructural, socio-economic, and cultural realities shape such adoption.

This study aims to fill this gap through a case study of the University of Education, Winneba. By examining the unique institutional dynamics influencing AI adoption in administrative processes, this research will generate valuable insights to guide policy and practice—both within UEW and across other Ghanaian and similar developing country institutions.

Conceptual/Theoretical Framework

This study adopts the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2003) as its conceptual framework. UTAUT identifies four core constructs that influence individuals' behavioral intentions and actual use of technology: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. These constructs collectively provide a comprehensive lens for examining technology adoption in organizational contexts.

Performance Expectancy refers to the extent to which individuals believe that using a technology will enhance their job performance. In the context of AI adoption in university administration, this construct relates to whether administrative staff believe AI tools can streamline workflows, reduce repetitive tasks, and improve decision-making accuracy (Dwivedi et al., 2021).

Effort Expectancy captures the perceived ease of use associated with the system. This is especially critical in public universities in Ghana, where limited digital literacy among staff can pose a significant barrier (Loglo, 2024). If AI tools are perceived as overly

complex or burdensome, adoption is likely to be hindered.

Social Influence pertains to the degree to which an individual perceives that important others—such as institutional leaders or colleagues—expect them to use the new technology. In hierarchical institutions such as universities, endorsement and modeling of AI usage by senior management can be a strong enabler (Mangundu, 2023; Opesemowo & Adekomaya, 2024).

Facilitating Conditions refer to the degree to which individuals believe that organizational and technical infrastructure exists to support the use of the system. In Ghana, this is especially pertinent given the infrastructural deficits reported across higher education institutions, including unreliable internet connectivity, lack of technical support, and insufficient funding for digital transformation (Wathi, 2023).

UTAUT is particularly suitable for this study because it integrates components from earlier models such as the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB), while also considering contextual and social elements relevant to public institutions (Venkatesh et al., 2003; Williams et al., 2015). In the specific context of administrative functions at the University of Education, Winneba, these constructs allow for a nuanced exploration of AI adoption that considers both individual attitudes and broader institutional dynamics.

By applying the UTAUT framework, this study will explore:

- How administrative staff perceive AI in terms of enhancing efficiency and effectiveness (**Performance Expectancy**),
- Their confidence and comfort in learning and using AI tools (**Effort Expectancy**),
- The influence of institutional culture and peer norms (**Social Influence**), and
- The adequacy of resources, policies, and training for effective implementation (**Facilitating Conditions**).

Research Design

This study adopted a mixed methods case study design (Creswell, 2013; Yin, 2018), focusing on the University of Education, Winneba (UEW) as a single bounded case. The mixed methods approach enabled the collection of both quantitative data through structured surveys and qualitative insights through semi-structured interviews, allowing for a more comprehensive understanding of the enablers and barriers to AI adoption in administrative functions (Creswell & Plano Clark, 2017). Integration of the two data strands enabled triangulation, enhanced validity, and produced a richer interpretation of findings.

Study Setting

The research was conducted at the University of Education, Winneba, a public tertiary institution in Ghana with multiple campuses. UEW offers diverse academic programs and has an established administrative structure, including the Registrar's Office, Academic Affairs, Human Resources, Operations and Finance. The university currently operates a number of technology services including an Online Student Information System (OSIS), Admission system, Hospital Management System, Halls Management System and is currently in the process of implementing an ERP all geared towards deployment of a smart campus technology infrastructure. All these make it a pertinent setting for investigating potential AI integration in administrative processes.

Participants

Quantitative Phase

A stratified random sampling technique was employed to select a representative sample of at least seventy (70) administrative staff. Stratification was based on departmental units (e.g., Registry, Finance, Human Resource, Academic Affairs, Operations) to ensure a broad cross-section of perspectives. The minimum sample size was informed by the staff population and considerations of statistical power for regression analysis.

Qualitative Phase

Approximately 10 participants were purposively selected for semi-structured interviews. Criteria included:

- Involvement in administrative decision-making
- At least two years of experience at UEW
- Demonstrated interaction with technology in their role
- Willingness to participate in an in-depth interview

This selection ensured a balance between senior and mid-level staff, IT personnel, and units likely to be impacted by AI adoption.

Data Collection Methods

Quantitative Phase

A structured questionnaire was developed based on the Unified Theory of Acceptance and Use of Technology (UTAUT). It assessed constructs such as:

- Performance Expectancy

- Effort Expectancy
- Social Influence
- Facilitating Conditions
- Behavioral Intention to adopt AI

Responses were captured using a 5-point Likert scale. The survey was also to collect demographic data including department, role, and prior technology experience. The instrument was administered electronically through a secure online platform.

Qualitative Phase

Semi-structured interviews were used to explore participants' experiences, perceptions, and expectations regarding AI adoption. The interview guide was aligned with the UTAUT constructs and included open-ended questions to allow for depth and flexibility. Interviews were conducted in person and via secure video conferencing, audio-recorded (with consent), and transcribed verbatim.

Additionally, relevant university policy documents and strategic plans were reviewed to provide contextual understanding and corroborate interview data.

Data Analysis

Quantitative Data

Data from the survey was analyzed using SPSS. Descriptive statistics summarized participant characteristics and construct means. Multiple regression analysis assessed relationships between UTAUT constructs and the intention to adopt AI.

Qualitative Data

Interview transcripts were analyzed thematically using Braun and Clarke's (2006) approach:

- Familiarization
- Generating initial codes
- Searching for themes
- Reviewing themes
- Defining and naming themes
- Producing the report

NVivo software supported in data organization and coding.

Integration

Data integration occured at the interpretation phase using a side-by-side comparison strategy. Quantitative findings were juxtaposed with qualitative insights under corresponding UTAUT constructs and emergent themes. This approach enabled convergence, divergence, and complementarity in understanding the barriers and enablers of AI adoption.

Ethical Considerations

Ethical approval was secured from the University's Research Ethics Committee. Participants received an information sheet outlining the study's objectives, procedures, and their rights. Informed consent was obtained prior to data collection.

Key ethical protocols included:

1. Voluntary participation with the right to withdraw at any stage without consequence
2. Anonymity through de-identification of responses
3. Secure storage of data on encrypted devices for a period not exceeding five years
4. Use of data strictly for research purposes.

Findings (Mixed Methods)

This section presents the integrated findings from both the quantitative and qualitative phases of the study. The results are organized around the key constructs of the Unified Theory of Acceptance and Use of Technology (UTAUT) model-Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions-with complementary insights from thematic analysis of interview data. Together, the findings offer a comprehensive understanding of the factors shaping administrative staff's intentions toward AI adoption at the University of Education, Winneba.

Quantitative Results

Analysis of the survey responses (N = 70) produced the following statistically significant relationships:

1. **Performance Expectancy**

A moderate positive correlation ($r = .45$, $p < .01$) emerged between perceived usefulness of AI and intention to adopt. Staff who believed that AI could enhance their administrative efficiency and effectiveness were more likely to express interest in its adoption.

2. **Effort Expectancy**

A strong negative correlation ($r = -.60$, $p < .001$) was found between the perceived difficulty of using AI systems and the intention to adopt them. The more difficult staff perceived AI to be, the less likely they were to adopt it.

3. **Social Influence**

A moderate positive correlation ($r = .35$, $p < .05$) indicated that staff were more inclined to adopt AI when they felt supported or encouraged by supervisors and colleagues.

4. **Facilitating Conditions**

A strong negative correlation ($r = –.55$, $p < .001$) was observed between the lack of adequate infrastructure, training, and support and the intention to adopt AI. This reinforces the critical role of institutional readiness.

5. **Predictive Model**

Multiple regression analysis identified Effort Expectancy ($\beta = –.40$, $p < .001$) and Facilitating Conditions ($\beta = –.35$, $p < .001$) as the strongest predictors of adoption intention. The model explained a significant portion of the variance ($R^2 = .52$), underscoring the importance of ease of use and available support in determining whether AI is likely to be adopted.

Qualitative Results

Thematic analysis of interviews with 10 administrative staff members provided context and depth to the survey results.

The following key themes emerged:

1. **Limited Awareness of AI Applications**

Many participants admitted they had minimal understanding of what AI could do within their roles. "*Before the survey, AI felt like just one of those new catchy technical jargons. I didn't really understand how it could fit into our everyday tasks*," one staff member reflected.

"*AI always sounded like something for the IT guys. I didn't see what it had to do with minutes writing, approving student forms or scheduling meetings*." – another staff member stated.

"*I honestly thought AI was all about robots or something for foreign High Tech IT companies, not university administration*." – another staff member reflected.

"*I've used Excel macros and some basic database tools, but AI still feels too vague. It's not clear how it's different or how it fits into what we do in terms of admissions or managing student records*." – another staff member commented.

"*I know AI works behind things like spam filters or search engines, but applying it to tasks like processing applications or managing student records? That's still a grey area for me."* – Admin officer with IT training

This gap in knowledge paralleled the moderate scores for performance expectancy in the survey. This lack of awareness of AI and how it fits into their schedules suggests that meaningful engagement with AI will require foundational exposure or basic training and clear communication about its relevance to everyday tasks.

2. Inadequate Infrastructure and Connectivity

Interviewees consistently pointed to technology challenges as barriers to innovation. *"We were already struggling with basic IT issues. Thinking about AI feels like a dream when even printing or connecting to the internet was sometimes a problem,"* said one participant.

"We struggle for internet connectivity, let alone run new software. It's hard to think about AI when we have challenges with some basic IT things." – commented another staff.

"It's not that we don't want to innovate—we just don't have the tools. Even our internet is unreliable." – one respondent who is a department secretary commented.

These concerns mirrored the strong negative correlation found between infrastructure and adoption intentions in the survey.

3. Perceived Financial Burden

Cost was commonly cited as a barrier. *"Whenever new technology comes up, the first concern is always money. AI tools and technology sounds expensive and possibly may even be out of our reach especially in the economic climate,"* an administrator explained.

"How much will this AI thing cost?' AI sounds like it would be really expensive, and with the way things are now, I don't think we can afford it." – one member of staff opined.

"Sometimes we struggle just to procur things like printer ink/toner or paper. So when people start talking about AI, it looks like they may not have calculated the cost implications to us." – Another staff member commented.

"We're always told there's no money. If we don't have enough for more staff or better internet, how can we afford something as big as AI?" – Another staff member stated.

"AI sounds interesting, but we have to be realistic. Even if it saves time later, getting started will cost a lot—and no one has explained where that money will come from." – Another officer stated.

"Even free software needs some amount of money to be spent for training or new equipment etc. It all adds up, and people forget about those extra costs." – another staff member explained.

This perception contributed to low facilitating condition scores in the quantitative data. These comments show that staff are not against trying new things, but they want clear answers about how AI would be paid for, and whether the university can really afford it currently.

4. Training and Capacity Building Needs

There was widespread agreement that technical support and skill-building would be essential.

"If we ever bring in AI, training needs to come first. We can't assume people will just figure it out," remarked one respondent.

"If we ever bring in AI, proper training needs to come first. We can't assume people will just figure it out." – remarked another respondent.

"Some of us are not very strong with computers, so we would need someone to guide us step by step. Otherwise, it will just cause stress." – another staff member commented.

"I'm open to learning new things, but I need time and support. A one-day workshop isn't enough if you really want people to understand. We must have regular and continous training" – opined another respondent.

"I can say for a fact that people won't use AI if they don't feel confident. There has to be a proper plan for training staff—not just handing us software and expecting results." – commented another staff member.

"Even small changes in our system can confuse some colleagues. So with something big like AI, we'll need plenty of help and patience." – commented another staff member.

This theme reinforced the significance of effort expectancy and the need for support systems. These quotes show that many staff are willing to learn, but in doing so would require clear, hands-on training and access to support personnel who can assist them in times of difficulty. Without this intervention for support, staff members said the new technology (AI) could be more frustrating than helpful.

5. Concerns About Data Security and Ethics

Although this topic was not so common in the interviews, several staff raised concerns about how AI might handle private/sensitive information. Since university staff work with student records, personal files, and staff details, there was some worry about how safe this data would be handled in an AI system.

"We manage a lot of confidential student records. My biggest concern was how secure the system would be and who controls the data when AI in introduced?" one staff member noted.

"We manage a lot of confidential student records. My biggest concern or should I say fear is how secure the system would be and who controls the data when AI is introduced." – another staff member commented.

"I'm worried about mistakes. What if the AI sends student details to the wrong person or gets hacked? What happens and what are the legal liabilities here for us and the University" – one staff member stated.

"Right now, I know exactly where our files are and who can see them. If AI is

handling all these files and data, how do we know what it's doing with the data or who is accessing the data?" – another staff member opined.

"My honest fear is that even if it works well, someone trustworthy has to be responsible for how the AI is used in our setup. Otherwise, it could be misused or even abused without anyone noticing." – another officer commented.

"We've been told that data is safe in the cloud, but people still get hacked even in the so called secure cloud. If AI is involved, I'd want to know what security steps are being taken to preserve our data." – one member of staff commented.

While these concerns were not deeply probed in the survey, they suggest the need for ethical considerations in implementation planning. They show that staff want clear rules, transparency, and accountability. As one staff member put it, *"It's not just about using AI—it's about using it the right way."*

To move forward, staff emphasized the importance of:

- Knowing who can access the data,
- Having clear guidelines for data protection,
- And ensuring that someone is responsible for any issues that come up.

6. Conditional Optimism and Role of Leadership

While many staff had doubts and reservations about AI and its use, some saw how it could make their work easier—especially if it helped reduce repetitive tasks. However, they felt strongly that success would depend on clear direction and support from leadership.

"I saw how AI could help reduce repetitive tasks. But for anything to work here, Management has to give its blessings, lead the way and make sure we're supported." – another participant commented.

"If the big Bosses show they believe in it and make it a priority, others will follow. But if they just leave it to us, it won't go far." – another member of staff stated.

"*We've seen projects start and disappear over the years because there was no follow-up from leadership. AI can work, but only if they (management) stick with it and help us we go along the way. With their support we stand a good chance that it will work"* – another participant opined.

"If they (Management) show us how it works, give us time to learn, and check in with us regularly, I think people will come on board. But it can't just be dumped on us. We must also see proper policies put in place for its use" – another staff member commented.

This aligns with survey findings showing social influence as a moderate factor shaping adoption intentions. The staff are not resistant to change—they simply want to feel that the change is well-managed, supported, and led with care. From the interview it was made clear that:

- Leaders must be visible and involved,
- Staff need encouragement and follow-up,

- And any rollout should be done in stages—not rushed.

In short, staff are open to AI—but only if management leads by example and stays committed throughout the process.

Triangulated Findings: Understanding AI Adoption Among University Administrative Staff

1. Limited Awareness of AI Applications

Administrative staff are generally unfamiliar with AI. The data supports this: there's a moderate link between how useful people think AI might be and whether they'll actually use it ($r = .45$, $p < .01$). But in practical terms, most staff see AI as something abstract—more sci-fi or IT department territory than anything relevant to their day-to-day. Comments like, *"AI always sounded like something for the IT guys,"* and, *"I didn't really understand how it could fit into our everyday tasks,"* reinforce that perception. Even those with some IT background found it difficult to differentiate AI from, say, using Excel or a database. This signals a clear need for targeted education—staff need concrete, relatable examples that show AI's relevance to routine tasks such as student records, scheduling, or report generation.

2. Inadequate Infrastructure and IT Challenges

On the infrastructure front, there are significant roadblocks. The survey shows a strong negative link between poor supporting conditions and willingness to adopt AI ($r = –.55$, $p < .001$). Interview responses highlight persistent issues: unreliable internet, outdated computers, and frequent technical glitches. Statements like, *"We struggle for internet connectivity, let alone run new software,"* make it clear that the current environment does not support advanced technology development. There is also a feeling of digital fatigue—staff often express that foundational IT problems need fixing before any AI rollout. Realistically, the university must prioritize basic infrastructure upgrades and stable connectivity to create an environment where AI adoption is feasible.

3. Perceived Financial Burden

Financial constraints remain a significant obstacle here. Although the survey did not explicitly single out cost, it is pretty clear that financial concerns are baked into the broader "facilitating conditions" factor, which is a major predictor of resistance. Staff are doubtful the university has the budget for AI implementation, infrastructure upgrades, or the necessary training—especially with resources already stretched thin. As one person bluntly put it, *"We don't have enough for printer ink, so how can we afford AI?" "Even when software is marketed as "free," there are still hidden costs for training or equipment"*. Unless there's a dedicated budget for both the technology and ongoing support, staff skepticism about the practicality of adopting AI is not likely to fade.

4. Capacity Building and Training Needs

Effort expectancy emerged as the strongest predictor of AI adoption in the quantitative analysis ($\beta = -.40$, $p < .001$; $r = -.60$, $p < .001$), underscoring the importance of perceived ease of use. Staff emphasized that confidence and competence in using AI would not come naturally and must be actively supported. Interviewees consistently called for hands-on, continuous training tailored to different levels of digital fluency. One respondent remarked, *"People won't use AI if they don't feel confident,"* while another noted, *"A one-day workshop isn't enough."* There was also concern that even minor system updates often confused staff—let alone the introduction of AI. These findings make it clear that capacity-building cannot be an afterthought. Long-term success will require structured onboarding, mentorship, and accessible technical support to help staff move from cautious learners to confident users.

5. Data Security and Ethical Concerns

Though not a dominant theme, data protection emerged as a noteworthy concern in several interviews. As stewards of sensitive information—student records, personnel files, and internal documents—many staff expressed anxiety over how AI systems would handle such data. One participant asked, *"Who controls the data when AI is introduced?"* while another questioned, *"What happens if the AI sends private information to the wrong person?"* These concerns point to a lack of clarity about how data security, privacy, and ethical use will be managed. Although the survey did not probe deeply into this theme, the interviews suggest that without clear safeguards, transparency, and accountability measures, staff may resist adoption on ethical grounds. As such, implementation strategies must include robust data governance policies, clear roles for oversight, and communication that reassures staff of compliance with data protection regulations.

6. Conditional Optimism and the Role of Leadership

Despite skepticism, a subset of staff expressed optimism about AI's potential to streamline their workloads—particularly if it helped reduce manual and repetitive tasks. This conditional optimism, however, was linked to strong expectations of leadership support. The survey revealed a moderate correlation between social influence and adoption intention ($r = .35$, $p < .05$), suggesting that visible endorsement from senior leaders can positively shape attitudes. Interviews reinforced this, with comments such as, *"Management has to give its blessing and lead the way,"* and *"If leadership doesn't follow through, it will fade like other projects."* Staff emphasized the importance of a phased, well-managed rollout, supported by clear policies and regular feedback loops. For AI to gain traction, leadership must not only endorse its use but also remain actively engaged throughout the implementation process—modeling commitment, addressing concerns, and ensuring adequate resources are in place.

Table 1: Summary of key themes

Theme	Survey Evidence	Interview Insight	Action Needed
Low AI Awareness	r = .45 (Performance Expectancy)	AI seen as vague and irrelevant	Raise awareness with real-use cases
Weak IT Infrastructure	r = –.55 (Facilitating Conditions)	Frequent tech breakdowns, outdated systems	Upgrade devices, internet, and support services
Budget Concerns	β = –.35 predictor of low adoption	Worry about funding, hidden costs	Provide transparent cost-benefit breakdown
Need for Training	r = –.60, β = –.40 (Effort Expectancy)	Requests for ongoing, patient, hands-on support	Create robust training and support plan
Data and Ethics Concerns	Not covered in-depth in survey	Unclear accountability, fear of misuse	Introduce data protection protocols and ethical reviews
Leadership as a Driver	r = .35 (Social Influence)	Need for visible, sustained leadership	Engage leadership in training, policy, and communication

Integrated Interpretation

The quantitative data highlighted two main drivers of AI adoption intent: ***the perceived ease of use*** and ***the availability of institutional support***. The qualitative insights added nuance by revealing underlying reasons for these perceptions-such as infrastructure limitations, funding constraints, and lack of training. The alignment between the two data sources enhances the credibility of the findings:

1. Quantitative relationships pointed to what influences adoption intentions.
2. Qualitative narratives explained why those factors matter and how they manifest in real-world settings.

Together, the findings suggest that successful AI adoption at UEW will require not only adequate infrastructure and training but also targeted awareness-building and leadership/management involvement.

Discussion

This study investigated the barriers and enablers influencing the adoption of Artificial Intelligence (AI) within administrative processes at the University of Education,

Winneba (UEW), using the Unified Theory of Acceptance and Use of Technology (UTAUT) as a conceptual framework.

The findings of this study present a complex relationship between perceived utility, institutional limitations, socio-cultural influences, and infrastructural readiness. These results not only confirm what is cpatured in existing literature but also bring to the fore unique challenges and opportunities in the higher education sector of a developing country like Ghana. The study further revealed some significant barriers to the adoption of AI tools namely:

Effort Expectancy: Digital Literacy and Training Deficits

The perceived ease or difficulty of using AI tools emerged as a significant barrier to adoption. A number of staff indicated their apprehension about their digital skills. They noted a lack of exposure to even some basic AI interfaces. Existing literature and studies have documented this challenge and iterates that without intuitive systems, comprehensive training and the appropriate digital tools or technologies which are being provide regardless of how important or powerful they are will remain inaccessible (Dwivedi et al., 2021; Loglo, 2024).

In Ghana's public universities, it can be said that administrative roles most often are occupied by staff without the necessary IT expertise or skills. In such instances, the burden of adopting and learning new technologies is quite high. Many of the respondents pointed to the absence of required, necessary training infrastructure and the infrequent nature of professional development as obstacles to skill acquisition especially with respect to AI adoption. This finding aligns with the work of Agyei and Voogt (2011), who argue that sustainable educational technology initiatives must integrate long-term capacity-building. To optimize AI deployment, it is essential that the tools must be intuitive and adapted to users' existing workflows which would make it very easy for them to adopt or use them effectively and efficiently. Furthermore, AI adoption must necessarily be accompanied by institution-wide digital capacity building initiatives, peer-to-peer mentorship structures, and spezialized training for administrative staff based on their specific needs. Without such support, AI may become a source of frustration to staff trying to adopt it rather than a source of empowerment.

Social Influence: Leadership Gaps and Peer Dynamics

The role of social influence in molding the adoption behavior or patterns of participants was clearly affirmed in this study. Participants indicated that the attitudes of institutional leaders, departmental heads, and colleagues significantly affected their willingness to engage with AI tools in their work related activities. As the UTAUT Model

suggests, perceived normative pressure can drive or stall technology adoption (Venkatesh et al., 2003). This is especially true in hierarchical, consensus-driven institutions like UEW.

However, participants pointed to the absence of a clear digital technological vision communicated to them from senior leadership. There was a perception that digital transformation efforts were periodic, far apart, individualized, and lacked coherence.

This deficiency does not augur well for the institutional posturing to drive widespread acceptance of new technologies or tools.

As Mangundu (2023) argues, institutional leaders play a critical and often pivotal role in simplifying technology and setting adoption expectations of stakeholders. It is important to note that peer advocacy also emerged as a latent enabler. Staff members showed greater

openness when early adopters or colleagues demonstrated successful AI usage in work related activities. This demonstrates the value of establishing AI champions within departments who can model best practices and act as go-betweens between technical teams and end-users.

Facilitating Conditions: Infrastructure, Funding, and Institutional Coherence

The most consistent and urgent barrier cited by participants concerned the absence of enabling conditions for AI adoption. Key issues included inadequate internet connectivity, unreliable power supply, outdated hardware, and poor access to technical support. These constraints are not limited to only UEW but are a reflection of the many structural weaknesses that are existent across Ghana's higher education sector (Ministry of Communications and Digitalisation, 2022; Wathi, 2023).

Participants pointed out the absence of a comprehensive technology transformation strategy in the institution that they could relate to. AI initiatives, are often initiated by donors who come in with some project-based programmes which in most cases may lack integration with the existing institutional context or framework. This piecemeal approach does not create a continous flow in the systems but rather provides disjointed systems and creates inconsistent user experiences which goes a long way to reduce confidence in technology and wasting resources. As UNESCO (2021) emphasizes, institutional preparedness - defined by aligned policies, governance practices, and technical infrastructure or architecture—is critical for the long-term viability of AI projects. Financial constraints further complicate this landscape. The initial cost of AI subscripts, tools or systems, coupled with recurrent maintenance costs and licensing fees, remains a disincentive for many public institutions (Akinwalere & Ivanov, 2022). Without the required dedicated funding and cost-benefit frameworks, institutions like UEW will continue to view AI as aspirational rather than actionable. Addressing these challenges

requires a multi-level strategy: national investment in digital/technological infrastructure, institutional clarity on AI policy, and cross-sector collaboration to build interoperable systems. Moreover, universities must move from being reactive and over reliant on donor-driven adoption to strategic planning that links AI to institutional priorities and performance targets.

Beyond UTAUT: Ethical Concerns and Cultural Resistance

Although not explicitly covered by UTAUT, ethical considerations and cultural resistance emerged as significant themes in this study. Participants raised valid concerns about data privacy, algorithmic bias, and potential job displacement.

These apprehensions mirror global discourses on the risks of AI, particularly in contexts where regulatory oversight is weak (UNESCO, 2021). Importantly, fears were often exacerbated by misinformation and a lack of institutional communication. Some staff feared that AI would replace human labor without fully understanding its augmentative potential. This highlights the importance of change management strategies that do not merely introduce technology but build trust, provide reassurances, and create ethical guardrails for implementation (Akinwalere & Ivanov, 2022). A culturally informed strategy is essential. In Ghana, where communal decision-making and job security are deeply valued, AI projects must include robust consultation processes. Staff must be involved not just as users but as co-designers and evaluators of AI systems. Participatory governance will be key to overcoming resistance and ensuring legitimacy.

Implications

Theoretical Implications

This study goes a step further to extend the theoretical understanding of technology adoption by situating the UTAUT framework within administrative functions of a public university in a developing country such as Ghana. The findings show that factors like how easy users or stakeholders think a system is to use (effort expectancy) and the support they receive (facilitating conditions) may have a bigger impact in situations or contexts where technology is limited and people's digital skills vary (Loglo, 2024; Wathi, 2023). These insights suggest a potential need to tweak the UTAUT model to better reflect the realities of low-resource higher education institutions (HEIs) or their likely constraints. Specifically, additional localized variables such as institutional preparedness or readiness, alignment with policy, and concerns on ethical issues may enhance the explanatory power of the model when applied to non-academic/administrative AI use in similar settings.

Policy Implications

For those who make policy decisions in Ghana's higher education sector, the findings bring to the fore the need to urgently develop targeted or focused, context-appropriate policies to promote the responsible adoption or use of AI.

It would be beneficial to give priority to areas such as institutional investment in ICT or digital infrastructure, dedicated funding for AI initiatives, and training programs that build user capacity which are tailored to the specific needs of administrative staff needs (Ministry of Education Ghana, 2015; Ministry of Communications and Digitalisation, 2022). It is imperative that we establish the requisite ethical and data governance frameworks specific to the use of AI applications in education (UNESCO, 2021). We need to drawing on the experiences of global policy standards - such as the EU's AI regulatory framework to give us the basis for contextualizing and customising them for the Ghanaian environment. This could go a long way to help support balanced and secure AI deployment (European Union, 2024).

Practical Implications

The University of Education, Winneba can use these findings to inform a roadmap for AI adoption in administrative units. Initial steps should include awareness creation and introductory training to demystify AI and illustrate its benefits in routine tasks. Investments in digital infrastructure, particularly internet access and cybersecurity, are essential enablers (Sarpong, 2023; Loglo, 2024). Institutional partnerships—with local universities, technology firms, or development agencies—can support cost-effective implementation. To foster acceptance, AI adoption should be framed as a tool to enhance efficiency and complement human roles rather than replace them. Clear internal policies on data use and ethical safeguards will also be essential in gaining staff trust (UNESCO, 2021).

Implications for Future Research

Future studies can expand on this research in several directions. Quantitative investigations across a wider range of Ghanaian HEIs would help validate and generalize the findings. Comparative case studies could illuminate differences in adoption readiness and organizational culture across institutions. Longitudinal studies would provide insights into the evolving impact of AI on administrative operations, staff roles, and service delivery over time. Additionally, applied research could focus on identifying specific, low-cost AI tools most suitable for administrative tasks in developing country contexts.

Recommendations

The University of Education, Winneba (UEW) will achieve successful and lasting integration of Artificial Intelligence (AI) into its administrative work only if it begins with a clear institutional strategy. It is important that the framework explains when and how to deploy AI, outlines who is responsible, describes what is needed and determines clear signs of progress. This will help ensure UEW's strategy is not at odds with national and school-level plans which improves the possibility of government and donor support.

Having a reliable digital system is essential for successful use of AI. For this reason, UEW must give importance to broad internet access across the campus, providing both renewable energy and backup supply for its buildings and relying on expandable computing equipment. Building up such a skilled and equipped internal IT support group with experience in AI will make it easier for the company to solve problems quickly and ensure the sustainability of its systems. All this work will build a digital environment for testing and rolling out AI applications.

Working on human capital is important in filling the digital gaps across societies. For this reason, UEW ought to incorporate continuous professional development into its structure, by offering different AI literacy programs for various administrative positions. Both technical abilities and ethics should be part of these programs which should use a mix of workshops, group activities led by others and online resources. Moreover, encouraging different groups of experts to engage together and share knowledge can shape an innovation culture at the institution and ease fears about AI technology.

Institutional leadership plays a decisive role in driving digital transformation. Senior management at UEW must demonstrate commitment by actively engaging with AI tools and visibly endorsing AI-related initiatives. The identification and empowerment of departmental champions—designated as "AI focal persons"—can facilitate grassroots-level support and enhance staff confidence in the transition process. Moreover, the establishment of inclusive and iterative feedback mechanisms is essential to ensure that staff insights inform institutional decisions and that reforms are perceived as participatory rather than prescriptive.

Since AI networks will more often handle confidential data from the university and students, UEW needs to create strong rules for ethical, transparent and inclusive use. Creating an AI governance committee is necessary to handle policy development, compliance and risk reduction in the organization. The university needs to put in place and enforce protective policies for data, have AI algorithms that can be easily understood and always include the views of those who will use its systems, as this can ensure the university is seen as legitimate and bias-free.

Seeing that there are financial limitations, UEW needs to rely on partnerships with outside groups as well as its own resources. Working with technology firms may result in

AI solutions being available at lower cost and entering partnerships with international development groups and digital inclusion events can support the creation of new technology and training. Participating in regional networks with similar institutions allows for creating tools that fit local needs and learning from everyone involved.

Ensuring AI implementation keeps improving, UEW has to set up reliable procedures for monitoring and evaluation. AI tools are best introduced in sections to determine if they fit and if they work correctly. Time savings, user satisfaction and efficiency in the process ought to be collected and looked at regularly. The use of research in education will encourage change in learning, guide policy and develop the institution's ability to keep up with progress.

Conclusion

In undertaking this study, the dynamics affecting the adoption of Artificial Intelligence (AI) in administrative work at the University of Education, Winneba (UEW) were examined, guided by the Unified Theory of Acceptance and Use of Technology (UTAUT). The study points out that staff and administrators are more aware of how AI can help the institution run smoothly, take routine actions off their plates and make decisions based on facts. Even so, optimism is reduced by several problems such as limited infrastructure, people not being digitally literate enough, stuck in the old ways of doing things and not always being clear on what leadership expects.

UTAUT turns out to be useful in exploring the factors influencing AI adoption behavior, mainly performance expectancy, effort expectancy, social influence and facilitating conditions. Still, the research shows that the model should be widened to consider ethical doubts, job insecurity and the usual restrictions found in developing countries' organizational systems.

All in all, incorporating AI into how university administration is done means changing the core nature of the institution. To realize the promise of AI at UEW, it needs strategic thinking, building capacity, ethical protection and a culture that encourages change based on the local context.

References

African Union. (2024). *Continental Artificial Intelligence Strategy*. https://au.int/en/documents/20240809/continental-artificial-intelligence-strategy

Agyei, D. D., & Voogt, J. M. (2011). Exploring the potential of the Will, Skill, Tool model in Ghana: Predicting prospective and practicing teachers' use of technology. *Computers & Education, 56*(1), 91–100. https://doi.org/10.1016/j.compedu.2010.08.017

Akhmadieva, R., Akhmetshin, E., Morozova, N., Solovyev, D., & Pavlyuk, D. (2024). Research Trends in the Use of Artificial Intelligence in Higher Education. *Frontiers in Education*, *9*, 1438715.

Akinwalere, S., & Ivanov, V. (2022). Artificial Intelligence in Higher Education: Challenges and Opportunities. *Border Crossing*, *12*(1), 1-15.

Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating e-learning systems success: An empirical study. *Computers in Human Behavior, 102*, 67–86. https://doi.org/10.1016/j.chb.2019.08.004

Almusawy, A. M. R. (2025). Exploring the role of effective use of AI in improving strategic performance under the digital transformation of higher education institutions. *Journal of Organizational Effectiveness, 4*(4), 67–84. https://doi.org/10.62754/joe.v4i4.6737

Arizona State University. (2024). *Artificial Intelligence at ASU*. https://ai.asu.edu/

Atarah, M. A., Toateba, J., & Adablanu, S. (2023). Artificial intelligence in education: Trends, opportunities, and pitfalls for institutes of higher education in Ghana. *International Journal of Computer Science and Mobile Computing, 12*(2), 38–69. https://doi.org/10.47760/ijcsmc.2023.v12i02.004

Ayalew, M. M., & Xianzhi, Z. (2020). The effect of financial constraints on innovation in developing countries: Evidence from 11 African countries. *Asian Review of Accounting*, 28(3), 273–308. https://doi.org/10.1108/ARA-02-2019-0036

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101.

Bughin, J., Hazan, E., Ramaswamy, S., Chui, M., Allas, T., Dahlström, P., Henke, N., & Trench, M. (2017). *Artificial intelligence: The next digital frontier?* McKinsey Global Institute. https://www.mckinsey.com/mgi/overview/in-the-news/the-new-spring-of-artificial-intelligence-a-few-early-economics

Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches*. Sage publications.

Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.

Deloitte Insights. (2024). How higher education can realize the potential of generative AI. *Deloitte Insights*. https://www2.deloitte.com/us/en/insights/industry/public-sector/generative-ai-higher-education.html

Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., & Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International journal of information management, 57, 101994. https://doi.org/10.1016/j.ijinfomgt.2019.08.002*

Esharede, O. G. (2023). Computer literacy skills and job performance by librarians in

state universities, Delta State, Nigeria. *International Journal of Academic Research in Education and Review, 11*(5), 128–132. https://www.academicresearchjournals.org/IJARER/Abstract/2023/October/ESHAREDEDE.htm

European Union. (2024). *Artificial intelligence act: agreement reached on landmark rules*.(https://www.europarl.europa.eu/news/en/press-room/20231206IPR15699/artificial-intelligence-act-agreement-reached-on-landmark-rules)

Ghana Statistical Service. (2023). Ghana Statistical Service launches four new data platforms. *Ghana News Agency*. https://gna.org.gh/2023/09/ghana-statistical-service-launches-four-new-data-platforms/

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.

Institute of ICT Professionals Ghana (IIPGH). (2023). Barriers to artificial intelligence adoption in Ghana. https://iipgh.org/barriers-to-artificial-intelligence-adoption-in-ghana/I

James, P. C. (2021). What determines student satisfaction in an e-learning environment? A comprehensive literature review of key success factors. *Higher Education Studies, 11*(3), 1–10. https://doi.org/10.5539/hes.v11n3p1

Katsamakas, E., Pavlov, O. V., & Saklad, R. (2024). Artificial Intelligence and the Transformation of Higher Education Institutions: A Systems Approach. *Sustainability*, *16*(14), 6118. https://doi.org/10.3390/su16146118

Khairullah, S. A., Harris, S., Hadi, H. J., Sandhu, R. A., Ahmad, N., & Alshara, M. A. (2025, February). Implementing artificial intelligence in academic and administrative processes through responsible strategic leadership in the higher education institutions. In *Frontiers in Education* (Vol. 10, p. 1548104). Frontiers Media SA. https://doi.org/10.3389/feduc.2025.1548104

Kuzilek, J., Hlosta, M. & Zdrahal, Z. Open University Learning Analytics dataset. *Sci Data* **4**, 170171 (2017). https://doi.org/10.1038/sdata.2017.171

Loglo, F. S. (2024). Towards digital transformation of selected Ghanaian public universities: Leadership enablers, challenges, and opportunities. Open Praxis, 16(3), 374–395. https://search.informit.org/doi/10.3316/informit.T202410010001250063571337l

Lomoa, D. A., Abonyi, U. K., & Ahwireng, D. (2024). Headteachers' support and challenges toward ICT integration into teaching and learning in Ghanaian basic schools. *Leadership and Policy in Schools*. https://doi.org/10.1080/15700763.2024.2317300

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed:*

An argument for AI in education. Pearson Education. https://www.pearson.com/content/dam/corporate/global/pearson-dot-com/files/innovation/Intelligence-Unleashed-Publication.pdf

Mangundu, J. (2023). Information Technology decision makers' readiness for artificial intelligence governance in institutions of higher education in South Africa. *African Journal of Information Systems*, *17*(1), 1.

Matere, A. (2024). Effectiveness of Artificial Intelligence Tools in Teaching and Learning in Higher Education Institutions in Kenya. *Journal of the Kenya National Commission for UNESCO*, *5*(1). https://doi.org/10.62049/jkncu.v5i1.177

Ministry of Communications and Digitalisation. (2022). Ghana's national artificial intelligence strategy (2023–2033). Digital Watch Observatory. https://dig.watch/resource/ghanas-national-artificial-intelligence-strategy-2023-2033

Ministry of Communications and Digitalisation. (2024). *Ghana Digital Economy Policy and Strategy Document*.(https://nita.gov.gh/theevooc/2024/12/Ghana-Digital-Economy-Policy-Strategy-Document.pdf)

Ministry of Education Ghana. (2015). *ICT in Education Policy Framework*. https://www.unesco.org/en/articles/unesco-supports-ghana-development-its-national-ict-competency-framework-teachers

Ministry of Education Ghana. (2024). *Hon. Minister in charge of Education Joined The President to Inaugurate Ghana Smart Schools Project*. https://moe.gov.gh/hon-minister-in-charge-of-joined-the-president-to-inaugurate-ghana-smart-schools-project/

Neupane, B., & Sibal, P. (2021). *Artificial intelligence needs assessment survey in Africa*. UNESCO Publishing.

Nsoh, A. M., Joseph, T., & Adablanu, S. (2023). Artificial intelligence in education: Trends, opportunities and pitfalls for institutes of higher education in Ghana. *International Journal of Computer Science and Mobile Computing*, *12*(2), 38-69.https://doi.org/10.47760/ijcsmc.2023.v12i02.004

Opesemowo, O. S., & Adekomaya, O. A. (2024). Harnessing Artificial Intelligence for Advancing Sustainable Development Goals in South Africa's Higher Education System: A Qualitative Study. *International Journal of Learning, Teaching and Educational Research*, *23*(1), 1-18. https://doi.org/10.26803/ijlter.23.3.4

Organisation for Economic Co-operation and Development (OECD). (2021). Overcoming exclusion in digital economies. In *Development Co-operation Report 2021: Shaping a Just Digital Transformation* (pp. 165–181). OECD Publishing. https://doi.org/10.1787/ce08832f-en

Page, L. C., & Gehlbach, H. (2017). How an artificially intelligent virtual assistant helps

students navigate the road to college. *Aera Open*. https://doi.org/10.1177/2332858418790784

Patel, S., & Ragolane, M. (2024). The implementation of artificial intelligence in South African higher education institutions: Opportunities and challenges. *Technium Education and Humanities*, *9*, 51-65.

Popenici, S. A. D., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning, 12*(1), 1–13. https://doi.org/10.1186/s41039-017-0062-8

PwC. (2020). *AI predictions 2020*. PricewaterhouseCoopers. https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf

Rogers, E. M., Singhal, A., & Quinlan, M. M. (2014). Diffusion of innovations. In *An integrated approach to communication theory and research* (pp. 432-448). Routledge.

Sarpong, R. (2023). Digitalisation of Education in Ghana: An Overview. *Teacher Education Journal of Bangladesh*, *2*(1), 97-106.

Senyo, P. K., Effah, J., & Osabutey, E. L. (2021). Digital platformisation as public sector transformation strategy: A case of Ghana's paperless port. *Technological Forecasting and Social Change*, *162*, 120387. https://doi.org/10.1016/j.techfore.2020.120387

Smutny, P., & Schreiberova, P. (2020). Chatbots for learning: A review of educational chatbots for the Facebook Messenger. *Computers & Education, 151*, 103862. https://doi.org/10.1016/j.compedu.2020.103862

Sposato, M. Artificial intelligence in educational leadership: a comprehensive taxonomy and future directions. *Int J Educ Technol High Educ* **22**, 20 (2025). https://doi.org/10.1186/s41239-025-00517-1

Tomaževič, N., Murko, E., & Aristovnik, A. (2024). Organisational enablers of artificial intelligence adoption in public institutions: A systematic literature review. *Central European Public Administration Review, 22*(1), 109–138. https://doi.org/10.17573/cepar.2024.1.05cepar.fu.uni-lj.si

UNESCO. (2021). *Artificial intelligence and education: Guidance for policy-makers*. https://unesdoc.unesco.org/ark:/48223/pf0000376709

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425-478.

Wathi. (2023). *Digitalisation of Education in Ghana: An Overview*. https://www.wathi.org/situation-education-ghana-2024/digitalisation-of-education-in-ghana-an-overview-november-2023/

Williams, M.D., Rana, N.P. and Dwivedi, Y.K. (2015), "The unified theory of acceptance and use of technology (UTAUT): a literature review", *Journal of Enterprise*

Information Management, Vol. 28 No. 3, pp. 443-488. https://doi.org/10.1108/JEIM-09-2014-0088

World Bank. (2021). *Digital Economy for Africa Initiative (DE4A)*. https://www.worldbank.org/en/programs/all-africa-digital-transformation

Yin, R. K. (2018). *Case study research and applications*. Sage publications.

Yussif, A.-M., & Mante, S. B. (2023). Factors inhibiting quality higher education delivery: Empirical evidence from the University for Development Studies (UDS), Tamale, Ghana. *European Journal of Development Studies, 3*(2), 1–20. https://www.ej-develop.org/index.php/ejdevelop/article/view/290

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – Where are the educators? *International Journal of Educational Technology in Higher Education, 16*(1), 39. https://doi.org/10.1186/s41239-019-0171-0