

**Artificial Intelligence Support Systems Use and Academic Staff Job Performance:
Theoretical Review**

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Abstract

This study critically examined the relationship between Artificial Intelligence Support Systems Use (AISSU) and Academic Staff Job Performance (ASJP) within the context of education. It combined perspectives from Nigeria, Africa and around the world, emphasizing the opportunities and challenges of the growing integration of AI into research, teaching and administrative procedures. The paper established a conceptual basis for understanding how academic staff interact with AI-driven tools by drawing on four theoretical frameworks: the Socio-Technical Systems Theory (STST), the Technology Acceptance Model (TAM), Diffusion of Innovation (DOI) and the Unified Theory of Acceptance and Use of Technology (UTAUT). The review shows that AISSU can improve efficiency, productivity and innovation when properly implemented and institutionally supported, thereby lowering workload, increasing teaching efficacy and developing research capabilities. However, adoption is still significantly shaped by obstacles like limited AI literacy, infrastructural gaps and innovation reluctance. The theoretical synthesis emphasizes that integrating AI tools into dynamic knowledge networks that support academic practice, maintaining institutional readiness and striking a balance between human and technical subsystems are all necessary for successful use of Artificial Intelligence Support Systems (AISS). This conceptual overview offers a multidimensional framework for researchers and policymakers looking to use AI to enhance academic staff performance within the university system.

Keywords: Artificial Intelligence, Support Systems, Academic Staff, Job Performance, Theoretical Review

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Introduction

The accelerated integration of Artificial Intelligence (AI) into higher education has had a profound impact on the processes of teaching, learning, and research worldwide. Automated grading systems, intelligent instructional applications, plagiarism detection software, and personalized learning platforms have evolved from futuristic concepts to become practical realities that influence academic practice (Holmes et al., 2019). In Nigeria, as in much of the Global South,

universities are under increasing pressure to incorporate these innovations in a manner that both preserves the humanistic values that education upholds and enhances efficiency. Universities, as the apex institutions for knowledge creation and dissemination, are confronted with a delicate paradox. On one hand, there is a pressing necessity to adopt AI as a catalyst for educational transformation. Conversely, widespread adoption is hindered by urgent ethical, infrastructural, and pedagogical obstacles. The increasing reliance on AI-powered platforms, including Grammarly, Turnitin, ChatGPT, Quillbot, Mendeley, and Zotero, demonstrates the extent to which academic staff and students already rely on digital support systems, sometimes knowingly and sometimes unknowingly, as part of the broader AI ecosystem (Ifelebuegu et al, 2023).

Various recent studies have projected that by 2025, 70% of higher education institutions worldwide will implement AI tools. Interestingly, this is no longer a future consideration because currently, 84% of these institutions have implemented AI for personalized learning, while 47% are actively utilizing AI for administrative and academic purposes (GradeHive, 2024). Anara (2025) reports that 90% of universities use AI to automate administrative tasks like enrollment, scheduling, or plagiarism detection, while 54% of institutions use AI to support curriculum design. These statistics emphasize the integration of AI not only as an educational support but also as a critical factor in the advancement of academic productivity, pedagogical innovation, and institutional efficiency.

In contrast to developed contexts, where AI adoption is supported by robust infrastructure, Nigerian universities frequently encounter challenges regarding funding, policy frameworks, and digital literacy. We are falling behind in a 21st-century knowledge economy that is increasingly defined by AI competence due to a lack of deliberate efforts (World Bank, 2024). This lag raises critical concerns about the extent of AI adoption, the level of awareness among stakeholders, and the support systems that either facilitate or impede effective use. In the 21st-century knowledge economy, where digital literacy and AI competence are becoming indispensable for academic competitiveness, such interrogation is pertinent (UNESCO, 2024). In fact, it is essential to comprehend these dynamics to assess the impact of AI support systems on the overall job performance of academic staff, as well as the quality of teaching and research. Avurakoghene and Oredein (2023) underscored the necessity for educational leadership to strategically align emerging technologies with staff development to achieve sustainable growth in Nigerian universities in the era of AI. They noted that the integration of AI support systems into academic processes improves research efficacy, administrative effectiveness, and instruction delivery. In the same vein, Okebukola (2022) asserts that AI-driven systems enhance lecturer productivity by simplifying assessment, curriculum delivery, and data-driven decision-making.

Artificial Intelligence

The development of machines and systems that are capable of conducting tasks that typically necessitate human intelligence is the primary focus of artificial intelligence (AI), a broad field within computer science. AI, as defined by Russell and Norvig (2021), is the investigation and development of intelligent agents that perceive their surroundings and implement strategies that optimize their likelihood of accomplishing particular objectives (perception and action).

Intelligent tutoring systems were the first AI to emerge in 1987, and in years after this, AI was still perceived to facilitate the progression of students' sessions within the educational context and to provide real-time feedback on students' comprehension. In 2020, AI was defined as computer systems that can engage in human-like processes, including adaptation, learning, synthesis, self-

correction, and the use of various data required for complex processing tasks (Aguado-García et al. 2025). In recent years, novel methodologies have emerged, such as Generative Pre-trained Transformers (GPT), in conjunction with the definition of generative AI. GPT is a generative AI model that employs deep learning techniques to produce natural language text (Chan, 2023).

Though at infancy, the adoption of AI in education is rapidly gaining momentum in Nigeria. AI is employed by EdTech innovations such as uLesson, Edves, AltSchool Africa, and Schoola Curri AI to deliver adaptive curricula, generate lesson notes, and provide analytics to monitor learner performance (Guardian, 2024; Onosode Foundation, 2023). AI has the potential to significantly enhance the job performance of academic staff in Nigerian universities by facilitating more efficient teaching, research, and administrative processes, despite limitations.

Artificial Intelligence Support Systems (AISS)

Artificial Intelligence Support Systems (AISS) are a sophisticated incorporation of AI technologies into organizational functions, problem-solving, and decision-making. AISS are systems that are specifically designed to apply AI tools and algorithms to support individuals and institutions in making informed, efficient, and accurate decisions, while Artificial Intelligence generally refers to the ability of machines to simulate human cognitive processes such as reasoning, learning, and problem-solving (Russell & Norvig, 2021).

AISS have undergone a global transformation from the early Decision Support Systems (DSS) of the 1970s and 1980s to sophisticated AI-driven platforms that can analyze large datasets, predicting outcomes, and provide real-time recommendations (Power, 2008). AISS are implemented in academia in the form of adaptive learning platforms, intelligent tutoring systems, automated evaluation systems, plagiarism detection tools, and research support software. Through the reduction of repetitive tasks, the improvement of accuracy, and the allocation of additional time for critical teaching, mentoring, and research functions, these applications increase the productivity of academic staff.

The integration of AISS is still in the developmental phases in the African context, and Nigeria in particular. AI-enhanced research tools, such as Scopus and Google Scholar's AI-driven metrics, intelligent library systems, and plagiarism detectors (Turnitin), have been increasingly adopted in higher education institutions, according to recent studies. However, infrastructural limitations, digital divides, and low levels of AI literacy among academic staff impede the full-scale adoption of AI (Theodoria, 2024).

Artificial Intelligence Support Systems Utilization (AISSU)

The actual deployment and application of AI-based tools by academic staff to attain specific objectives is referred to as Artificial Intelligence Support Systems Use (AISSU). Theodoria (2024) emphasizes that the use of AISS is only fully realized when they are actively incorporated into daily workflows, whether for the purpose of lesson planning, administrative record-keeping, or research productivity. For instance, the manifestation of AISSU in academia is exemplified by plagiarism detection tools such as Turnitin and Grammarly, automated grading systems, and AI-powered referencing tools like Mendeley or EndNote. AI-driven research assistants like Scopus' AI metrics and Google Scholar's smart citation analytics, as well as adaptive learning management systems like Moodle integrated with AI, illustrate this phenomenon. The adoption of AISS in Nigeria is not solely about technology; it also refers to the improvement of academic staff's job

performance by reducing burden stress, increasing efficiency, and facilitating a greater emphasis on innovative teaching and impactful research (Ejeh & Igbokwe, 2022).

Examples of AISS Tools Employed in Education

1. **Plagiarism Detection and Writing Support Systems:** These systems promote academic integrity and improve the quality of written words, e.g., Grammarly and Turnitin
2. **Research and Citation Management Tools:** These tools aid academic staff in the management of references, and access to research trends, e.g., Scopus AI Metrics, Google Scholar Citations, Mendeley, and EndNote.
3. **Learning Management Systems (AI-enhanced):** These systems monitor learner progress and aid personalized instruction, e.g., Canvas AI tools and Moodle with AI extensions.
4. **Intelligent Tutoring Systems (ITS):** This system imitates human tutors, to provide instruction or feedback to learners without requiring intervention from a human teacher.
5. **Automated Grading and Assessment Systems:** These platforms use AI and machine learning to evaluate, score students' assessments and offer constructive feedback without the need for manual grading by human educators.
6. **Virtual Assistants and Chatbots:** These offer administrative services, fast information access and even student advising assistance from nearly anywhere in the world e.g., ChatGPT, institutional chatbots
7. **Speech-to-Text and Translation Tools:** Beneficial for the delivery of lectures, transcription, and inclusivity in multilingual classrooms.

In conclusion, Artificial Intelligence Support Systems Use (AISSU) demonstrates the integration of structured support systems with the cognitive capabilities of AI to improve the performance of academic staff.

Academic Staff Job Performance (ASJP)

Academic staff job performance is a vital topic in higher education discourse, as it indicates the efficacy with which lecturers, researchers, and administrators fulfill their institutional responsibilities. According to Ogunode et al. (2023), performance in a university setting cannot be reduced to just classroom teaching but also includes the ability to create research that has a big influence, fosters the spread of knowledge, and offers academic leadership. This broad view sees job performance as a complex idea that directly affects both student outcomes and the reputation of the institution.

According to Zou et al. (2025), modern colleges are focusing more on skills such as adaptability to new technologies, being able to respond to changes in education throughout the world and being able to integrate ICT as signs of good work performance. The COVID-19 pandemic has greatly changed this view, making it necessary for teachers to be flexible while using online instruction, digital research tools, and virtual collaborations. Job performance is also linked to the motivational, environmental, and organizational contexts in which university staff work. In a similar spirit, Onyebuchi et al. (2024) emphasize the growing impact of institutional support systems, especially ICT infrastructure and AI-based tools, on how academic personnel fulfill their duties. The integration of Artificial Intelligence Support Systems (AISS) has resulted in the emergence of performance indicators, such as the application of AI-assisted research tools. These tools have raised the bar for performance but have also made things harder for people who do not know anything about computers. Because of this, universities are making their faculty more responsible for global competitiveness by encouraging the use of digital tools, working with people from other

countries, and measuring the impact of research. Academic staff job performance is therefore not a static construct; it changes and grows over time.

Artificial Intelligence Support Systems Use (AISSU) and Academic Staff Job Performance (ASJP)

Artificial Intelligence Support Systems Use (AISSU) has emerged as a transformative instrument that has the potential to transform the performance landscape of academic staff (Dede & Nwafor, 2025). Onyebuchi et al. (2025) underscore the increasing influence of AI support tools on performance expectations from academic staff. As a result, universities are increasingly requiring their staff to move with the global trends and relevancies by promoting digital adoption, international collaborations and measurable research impact. Since it has been established that academic staff job performance is a dynamic and evolving concept, traditional models of staff performance assessment are insufficient to address contemporary challenges.

Aguado-García (2025) posits that AISS enables academic staff to “concentrate more on value-adding tasks such as mentoring, critical inquiry, innovative research, faculty engagement, feedback timeliness and overall student satisfaction” which are all indicators of job performance in higher education. AI fosters personal development among academic staff, which in turn influences their job performance. Nwafor and Ezeugo (2025) confirm this approach in their AI-powered assessments of public universities in Rivers State. Suleiman et al (2024) have recently posited that “digital learning ecosystems supported by AI considerably contribute to the development of academic staff, thereby enhancing the overall competitiveness of institutions”. In the same vein, many academics now rely on AI tools to support their academic work. These tools make writing, paraphrasing and continuous learning easy for them, thereby resulting in the enhancement of academic productivity at large. Institutions that strategically integrate AISS into their operational and instructional systems are more likely to observe increased levels of productivity and innovation among their staff. Therefore, we can safely say that AISS serves as a companion that enhances performance in the 21st-century education, and not a replacement for academic staff.

Theoretical Framework

Below are some of the theories that serve as the foundation for this study. These theories examine how AI support systems can improve academic staff job performance from a technological and pedagogical perspective. They include;

Socio-Technical Systems Theory (STST)

The Socio-Technical Systems Theory was first proposed by Trist and Bamforth in the 1950s, and it highlights how social and technical subsystems in organizational settings are interdependent. This theory argues that the outcome of any organization is because of the joint optimization of social subsystem (human labor) e.g. skills, norms, incentives; and technical subsystem e.g tools and data. According to this theory, institutions need a careful balance of both systems. In the context of the 21st century, scholars have expanded the theory to include AI-driven learning environments where human-machine collaboration, automation ethics and digital competence play major roles (Davis, 2019).

Socio-Technical Systems Theory (STST), AI Support Systems Use (AISSU) and Academic Staff Job Performance (ASJP)

According to Socio-Technical Systems Theory, the use of AISS influences the extent of academic staff performance because these tools often change the organization of daily activities. STST maintains that rather than replacing academic staff performance, technology should be developed to enhance it. For example, in research, AI can quickly help to scan and organize literature which helps to save time. However, the results must still be verified to avoid errors. In supervision of instruction, AI writing tools ensure credibility and originality by helping supervisors point out gaps in students' theses or highlight referencing mistakes. For this to work well, these supervisors need clear guidelines on authorship and proper training to understand how to use the tool.

For external examining, automated grading summaries and performance reports can provide summaries of students' performance and analyze patterns across scripts, making it easier for examiners to handle large volumes of work. If there are no human checks in place, the system may produce unfair results, leading to inefficiency in the job performance of the staff. In the same vein, for accreditation purposes, AI dashboards can automatically bring together information such as staff publications, teaching records and students' results. If the system is well integrated and there are clear rules for verifying and validating the data, then the accreditation process becomes faster and more reliable. However, without this socio-technical balance, the same tools can create more work and affect the job performance level of academic staff (Davis, 2019). Essentially, STST provides a framework to understand that AISSU can only enhance ASJP when it balances the interaction between technical and human systems.

Technology Acceptance Model (TAM)

One of the most important theories for describing how users adopt technology is the Technology Acceptance Model (TAM), which was first created by Davis in 1989. According to the model, two fundamental elements; Perceived Utility (PU) which means how much someone believes a tool will help them do their job better; and Perceived Ease of Use (PEOU), which means how simple the tool is to learn and apply. These two determine an individual's intention to use a technology, which in turn influences their actual usage behavior. TAM essentially assists in elucidating the reasons behind academic staff members' acceptance or rejection of technological advancements introduced to universities. If staff find AI tools both useful and easy, they are more likely to use them in their daily work.

Technology Acceptance Model (TAM), AISSU and ASJP

The Extended TAM for Generative AI in Education (2025), a contemporary version of TAM, adds constructs such as institutional AI training, ethical guidelines and AI-integrated curriculum strategies to facilitate the responsible adoption of AI (Robinson, 2025). These new variables are especially important for academic staff who are encouraged to continually adapt to fast-changing digital tools. Academic staff must believe that AI-driven tools are practical and simple to incorporate into their current workflows in order for them to embrace and utilize them successfully. Academic staff members' Perceived Usefulness (PU) rises if they think AI technologies will improve teaching quality, save time, support research productivity and increase administrative efficiency. Similarly, the Perceived Ease of Use (PEOU) lowers adoption barriers when these tools are designed with user-friendly interfaces and require little technical knowledge. Academic staffs naturally ask two questions: Does this tool actually improve my teaching, research or administrative tasks? (PU) and is this tool straightforward, or will it take too much time and energy to learn? (PEOU). Adoption is not just a personal decision but also depends on peer influence, university policies and trust in the system. In Nigeria, Ibrahim (2018) found that academics were more likely to use AI tools like ChatGPT when they clearly saw the benefits and ease of use. For

instance, AI tools can quickly provide staff with the latest and most relevant sources for their research work, providing that the tool is simple to use and reliable. This helps to save time and as well improve the quality of staff performance. Also, AI systems allow examiners to identify issues faster and reduce fatigue, provided that data e.g teaching records, staff publications and students' records are correct and easy to present. These examples show that job performance depends directly on how useful and easy-to-use staff perceive AI tools to be (Ibrahim, 2018).

Diffusion of Innovation (DOI) Theory

Everett Rogers (1962) developed the Diffusion of Innovation (DOI) theory, which describes how novel concepts, methods or technological advancements gradually spread within a social structure. The adoption of an innovation, according to DOI, is a process that is influenced by several factors including perceived benefit, compatibility with current systems, ease of use, trialability and observable results. According to this theory, adopters are divided into several groups based on their speed and willingness to accept change: innovators, early adopters, early majority, late majority, and laggards. The five primary phases of the adoption process as described by the theory are knowledge, persuasion, decision-making, implementation and confirmation. According to DOI, innovation needs to be socially acceptable, contextually relevant and technically sound in order to succeed.

Diffusion of Innovation (DOI), AISSU and ASJP

AI Support Systems fit neatly into DOI framework. DOI modern adaptation combines DOI with the Technology-Organization-Environment (TOE) framework, which explains technology adoption decisions within a specific organizational context by considering the interplay of technological, organizational and environmental factors (Prakash, 2025). In the academic setting, adoption does not just happen all at once. A few lecturers or departments may first try AI-powered tools in teaching, grading, plagiarism detection and research. If their experiences are positive and visible, more colleagues begin to use them. These are referred to as the early adopters and early majority. The late majority adopt AISS only when they are being compelled to. Lastly, laggards may oppose or maintain their skepticism because of a lack of digital literacy or resistance to change. However, overtime, the tools may become part of everyday practice but this requires that staff clearly see the benefits, find the tools easy to use and trust that the system aligns with academic values (Tsoenyo et al., 2012).

DOI with the TOE framework suggests that sustainable AISSU does not only depend on the staff's willingness but also on the influence of the institution and environmental support. In supervision, examination or accreditation, early adopters of the necessary AI tools, after observing the results gotten from its usage, can encourage wider adoption of those tools across the university at large. In each case, performance gains spread as more staff adopt the innovation, showing the ripple effect that DOI describes (Ntemana et al., 2018). In many African universities, DOI's insights are especially relevant. This is because adoption is often slowed by infrastructural challenges like poor internet, limited digital literacy and little or no support. However, when early adopters showcase success, other staffs are encouraged to try the tools themselves.

Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh et al. (2003), is one of the most widely used models for explaining why people accept or reject

technology. The theory highlights four main determinants of UTAUT; they are performance expectancy (belief that the tool will improve job performance), effort expectancy (ease of use), social influence (the impact of colleagues or leadership on adoption) and facilitating conditions (the technical and organizational support available). UTAUT incorporates ideas from previous models, including TAM and DOI.

Unified Theory of Acceptance and Use of Technology (UTAUT), AISSU & ASJP

When applied to AISS, UTAUT helps us to understand that many forces affect adoption. Academic staff are more likely to adopt AI tools if they find it enjoyable to use, becomes a habit, genuinely improve their teaching or research (performance expectancy) or if these systems are easy to use and do not require extensive training (effort expectancy). At the same time, when respected colleagues, department heads or even university policies encourage adoption (social influence), then staffs are more inclined to try these tools (Adigun, 2024). Finally, reliable internet, user support and training workshops (facilitating conditions) make adoption sustainable. With these, UTAUT clearly explains how the utilization of AISS like AI-powered research discovery engines, AI-generated grading reports, AI dashboards and other AI tools that are relevant to an academic staff; can boost their academic job performance.

Conclusion

Looking across all the theories, one common message is clear: AI Support Systems can only improve academic staff job performance when both the human side and the technology side are well-aligned. The Socio-Technical Systems Theory (STST) reminds us that technology alone cannot bring results; there must be policies, training and institutional support that fit with the tools. The Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) both stress that staff adoption depends largely on whether they see the tools as useful, easy to use, and supported by colleagues and leadership. Finally, the Diffusion of Innovation (DOI) framework highlights how adoption spreads over time, showing that early adopters and institutional champions play a critical role in convincing others.

In short, the theories collectively argue that the pathway from AISSU to ASJP depends on context, perception and support. When Nigerian and African universities invest in both the tools and the people who use them, AI then becomes a strategic partner in the transformation of the function of academic staff in the knowledge economy, the personalization of education, and the enhancement of productivity.

Way Forward

Based on these insights, some of the ways to treat AI adoption as an ongoing institutional process, not a one-time decision include; investing in digital literacy and capacity building so that staff at all levels can comfortably use AI tools; strengthening infrastructure such as internet access, data governance and technical support to remove barriers; building confidence and trust in AI by showcasing small but visible successes in teaching, research and accreditation tasks; encouraging peer and leadership support, since staff are more likely to adopt tools that are endorsed and modeled by colleagues and heads of departments. This way, academic staff will not only see AI as useful but also feel empowered to use it effectively. In the long run, such balanced efforts will position AI Support Systems as a sustainable enhancer of job performance in higher education.

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