

CHAPTER 1

INTRODUCTION

1.1 Background

In recent years, advancements in AI have paved the way for innovative applications in education, transforming how students learn, teachers instruct, and institutions operate. In the context of African universities, which often grapple with resource constraints and unique educational needs, the adoption of AI technologies holds great potential. Rapid technological growth and global connectivity have led to significant changes in society, the economy, and the environment. These changes are collectively known as megatrends. As the 21st century progresses, these megatrends are expected to continue (Haluza, 2023). The field of artificial intelligence has made significant progress in recent years, leading to the development of cutting-edge technologies such as Open AI's ChatGPT. ChatGPT language modeling is an innovative technology that has the potential to bring about a step change in the field of education. As the implementation of ChatGPT in educational environments becomes more common, it must be done according to principles of responsibility and ethics. To date, ChatGPT is the most advanced chatbot ever created. Unlike previous chatbots, it can generate exceptional text in just a few seconds and has generated many noisy and doomsday predictions regarding student assessment in higher education as well as many other issues (Rudolph, 2023) ChatGPT is an advanced language model that is a modification of OpenAI's Generative Pretrained Transformer (GPT) language model. Its goal is to create text that is indistinguishable from human-written content. It can organize conversations with users simplism has paved the way for innovative applications in education, fundamentally transforming how students learn (Lim, 2023), how teachers instruct, and how educational institutions operate. In the context of African universities, which often grapple with resource constraints and possess unique educational needs, the adoption of AI technologies holds great potential. However,

there exists a significant research gap in comprehensively understanding the specific challenges and opportunities associated with integrating AI into African university systems. This gap hinders the development of tailored strategies and policies, including addressing disparities in access to AI resources and infrastructure (Mollura, 2020), which are crucial for harnessing the full benefits of AI in African higher education."

1. AI has transformed education globally, impacting students, teachers, and institutions.
2. African universities face resource constraints and have unique educational needs.
3. AI adoption in these universities holds the potential to address these challenges.
4. A significant research gap exists in understanding the specific challenges and opportunities for AI integration.
5. Developing tailored strategies and policies is hindered by this research gap.
6. Addressing disparities in access to AI resources and infrastructure is crucial in this context.

The ethical and responsible use of ChatGPT in educational settings is a complex and multifaceted issue, requiring a nuanced and interdisciplinary approach. Recent research has highlighted the urgent need for responsible and ethical use of AI in education. Various studies in this field have focused on important aspects including privacy, bias mitigation, and whether AI can bridge or exacerbate the digital divide (Mhlanga, 2023). Additionally, the researchers emphasized the importance of considering the role of AI in shaping the future of education and the need for multidisciplinary approaches to ensure ethical application and responsibility in educational contexts (Mhlanga, Open AI in education, the responsible and ethical use of ChatGPT towards lifelong learning. Education, 2023).

Building on this existing research base, the current investigation seeks to further investigate the ethical and responsible adoption of ChatGPT in educational settings (Tili, 2023), with a particular focus on its potential to create Favorable

conditions for lifelong learning. In this section, we will explore the different ways ChatGPT can be integrated into educational contexts and address the opportunities and challenges inherent in its use.

It is important to research how AI is used African University higher for several reasons. Africa is facing several challenges in higher education relating to limited resources, infrastructure, and access to quality education (Loveluck, 2012). The use of AI and tools, such as personalization, automation, virtual teacher-aids, and smart campus planning, can serve as an opportunity to overcome challenges (Akinwalere & Ivanov, 2022). The aspect of how AI can be used in Higher Education in Africa is currently not studied. Thus, with the growing popularity of AI and with its promise to revolutionize education, studying it and contextualizing the use of AI in Africa context is important since, currently, no literature exists regarding this topic.

The main objective of this thesis is to provide a comprehensive assessment of the responsible and ethical use of ChatGPT in the context of African universities (Mhlanga, Open AI in education, the responsible and ethical use of ChatGPT towards lifelong learning. Education, 2023). It aims not only to contribute to a deeper understanding of this important issue but also to promote further research and debate on these important issues. In doing so, we hope to promote the informed and responsible use of AI in African higher education, thereby promoting equitable and effective learning opportunities for all People.

1.2 Research Problem and Rationale

The integration of ChatGPT and similar AI-based chatbots in African universities raises questions about their acceptance, effectiveness, and implications for education in the region (Wardat, 2023). This study aims to answer these questions by examining the multifaceted impact of ChatGPT on higher education institutions across Africa. in African universities and the various concerns and considerations that arise from understanding the importance of questionnaires for students to know how these

technologies are received, the effectiveness of their role in improving education, and the wider impacts they may have on the educational landscape in Africa. The integration of ChatGPT and similar AI-powered chatbots in African universities is a significant development in the field of education (Tlili, 2023). However, this integration brings forth several pressing questions and challenges:

1. **Acceptance:** To what extent are students, educators, and other stakeholders in African universities willing to accept and embrace the use of AI chatbots like ChatGPT in their educational processes? Are there cultural, institutional, or practical factors that influence their acceptance or resistance?

Example: Students and educators in African universities may have diverse attitudes towards AI chatbots, which can impact their effectiveness and utilization in educational contexts.

2. **Effectiveness:** How effective are AI chatbots like ChatGPT in improving educational outcomes within African universities? Do they enhance student learning, engagement, and academic performance, particularly in resource-constrained environments?

Example: Assessing the impact of ChatGPT on student grades, retention rates, and overall educational experiences can provide insights into their effectiveness.

3. **Implications for Education:** What broader implications do the integration of AI chatbots have on the education landscape in Africa? How might their use shape teaching methodologies, resource allocation, and access to quality education, and what challenges or opportunities do these changes present?

Example: The adoption of AI chatbots may influence the allocation of resources toward technology infrastructure and training for educators, potentially impacting the quality and equity of education.

The rationale for conducting this research lies in the following key factors:

1. **Educational Innovation:** The integration of AI chatbots in education represents an innovative approach to addressing educational challenges, especially in resource-constrained contexts. Understanding their acceptance, effectiveness, and implications is crucial for optimizing their use.
2. **Unique Context:** African universities face distinct challenges, including resource limitations and diverse cultural and educational needs. This research acknowledges the need for context-specific insights to inform responsible AI integration.
3. **Ethical and Equitable Use:** Ensuring the responsible and ethical use of AI technologies in African higher education is paramount. Research in this area can guide policymakers, institutions, and educators in making informed decisions.
4. **Global Relevance:** The questions raised by the integration of AI chatbots in African universities are relevant globally, as AI technologies continue to shape the future of education. Insights gained from this research can inform educational practices worldwide.

1.3 Research Questions

From the title that the author has conveyed, the author tries to identify the following problems:

1. Does performance expectancy has direct and significant impact on behavioral intention?
2. Does effort expectancy has direct and significant impact on behavioral intention?

3. Does Social Influence has direct and significant impact on behavioral intention?
4. Does facilitating conditions has direct and significant impact on behavioral intention?
5. Does facilitating condition has direct and significant impact on use behavior?
6. Does behavioral Intention has direct and significant impact on behavioral intention?
7. Does performance expectancy has direct and significant impact on behavioral intention?
8. Does habit has direct and significant impact on use behavior?
9. Does personal innovativeness has direct and significant impact on use behavior?

1.4 Research Objectives

1. To analyze the affect performance expectancy has direct and significant impact on behavioral intention.
2. To analyze the affect effort expectancy has direct and significant impact on behavioral intention.
3. To analyze the affect Social Influence has direct and significant impact on behavioral intention.
4. To analyze the affect facilitating conditions has direct and significant impact on behavioral intention.
5. To analyze the affect facilitating condition has direct and significant impact on use behavior.
6. To analyze the affect behavioral Intention has direct and significant impact on behavioral intention.
7. To analyze the affect performance expectancy has direct and significant impact on behavioral intention.
8. To analyze the affect habit has direct and significant impact on use behavior
9. To analyze the affect personal innovativeness has direct and significant impact on use behavior,

1.5 Research Benefits

The research on the acceptance and use of AI in African universities The UTAUT (Unified Theory of Acceptance and Use of Technology) framework is a widely used model to understand and assess the adoption and usage of technology. It helps in identifying both theoretical and practical benefits of implementing a technology theoretical and practical benefits of implementing AI in education, particularly in the context of African universities, it's important to acknowledge the unique challenges and opportunities that exist in this region. Here's how the UTAUT framework can be related specifically to African universities:

Theoretical Benefits (UTAUT Constructs):

1. **Performance Expectancy (Academic Achievement):** African universities, often facing resource constraints, can benefit from AI's potential to enhance academic achievements. Personalized learning through AI can help students overcome learning challenges and improve their performance, addressing educational inequalities.
2. **Effort Expectancy (Efficiency in Resource Management):** Given limited resources, the efficiency gains offered by AI are crucial for African universities. These institutions can expect reduced administrative burdens and improved teaching quality with AI tools, making the most of their available resources.
3. **Social Influence (Peer and Institutional Influence):** Positive feedback and endorsements from peers and educators can play a significant role in promoting AI adoption. African universities can benefit from faculty and student champions who advocate for the integration of AI into teaching and learning.
4. **Facilitating Conditions (Infrastructure and Support):** African universities often face challenges related to technological infrastructure. The theoretical

benefit here is that with the right support, including training and infrastructure development, AI adoption can be facilitated, overcoming these obstacles.

Practical Benefits (Real-world Impact in African Universities):

1. **Enhanced Learning Outcomes (Improved Graduation Rates):** In African universities, where graduation rates can be a concern, AI-powered personalized learning and tutoring systems can lead to practical benefits by increasing student retention and improving graduation rates.
2. **Efficiency Gains (Resource Optimization):** Given limited resources and large student populations, African universities can benefit practically from AI's efficiency gains. Automated administrative tasks and optimized resource allocation can lead to cost savings and better resource management.
3. **Inclusion and Accessibility (Accessible Education):** AI can have a practical impact on inclusion and accessibility, especially in regions with diverse linguistic and socioeconomic backgrounds. AI-driven assistive technologies can ensure that all students, including those with disabilities or from marginalized communities, have equal access to quality education.
4. **Data-Driven Decision-Making (Strategic Planning):** Practical benefits include using AI to inform strategic planning. African universities can make data-driven decisions to allocate resources effectively, identify areas for improvement, and tailor programs to meet the needs of their diverse student body.
5. **Teacher Professional Development (Continuous Learning):** In regions where professional development opportunities may be limited, AI can offer practical benefits by providing educators with access to online resources and training, helping them stay updated and enhance their teaching skills.

6. **Mitigating Educational Disparities (Equity in Education):** African universities can use AI to bridge educational disparities by providing online courses, resources, and tutoring that reach remote or underserved areas, thus promoting equitable access to higher education.