THE ADOPTION AND USAGE PATTERNS OF CHATGPT AMONG STUDENTS AND FACULTY MEMBERS IN HIGHER EDUCATION: A STUDY OF THE UNIVERSITY OF NAIROBI, FACULTY OF EDUCATION

BY

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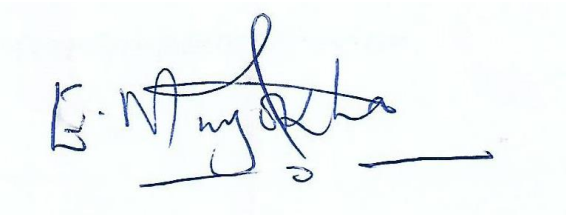
DECLARATION

This research project is my original work and has not been presented to any other examination body. No part of this project should be reproduced without my consent or that of the University of Nairobi**.**



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DEDICATION

This research study is dedicated to my family; my wife Jane, daughter Stacy and son Christian as well as friends and colleagues whose support and mutual understanding have enabled me Come this far.

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ABSTRACT

ChatGPT, a sophisticated AI-powered conversational agent, represents a paradigm leap in technological innovation in the higher education scene. This study examines the Adoption and Usage patterns of ChatGPT inside the prestigious Faculty of Education at the University of Nairobi. The investigation includes determining the motivational elements influencing students' decisions to integrate ChatGPT, revealing complex usage patterns among students, and clarifying faculty members' viewpoints on the incorporation of ChatGPT into educational approaches. The overarching goal is to have a thorough knowledge of the many educational implications and opportunities given by ChatGPT within this academic context.

To get insights into the intricate dynamics of ChatGPT adoption, a methodologically rigorous mixed-method approach involving surveys, interviews, and focus group discussions is used. The survey reveals significant adoption rates among undergraduates (66.7%), postgraduates (83.3%), and faculty (60%). A granular investigation on the wide range of engagement patterns, from everyday interactions to sporadic usage, is carried out. Furthermore, the study defines the numerous roles that ChatGPT plays in the academic area, including tasks such as information retrieval, research facilitation, and problem-solving.

According to users, the perceived benefits of ChatGPT use include essential aspects such as academic support, time efficiency, and increased creativity. Concurrently, concerns and misgivings are expressed, mostly about privacy concerns, ethical quandaries, and the validity of information sourced from the AI platform. The study concludes with a set of meticulously crafted recommendations for policymakers advocating for a comprehensive approach to adoption, nuanced policy formulation that addresses ethical concerns, strategic investment in faculty training, ensuring equitable accessibility, and instituting robust monitoring and evaluation mechanisms. Furthermore, the study suggests possibilities for further scholarly investigation, with a focus on assessing academic impact, an in-depth evaluation of ethical elements, and longitudinal studies to understand the long-term impact of ChatGPT within the educational landscape.

ABREVIATIONS/ACRONYMS

AI: Artificial Intelligence

GPT: Generative Pre-trained Transformer

NLP: Natural Language Processing

GLOSSARY

Algorithmic bias is the prevalence of systemic and unfair discrimination in algorithms, which is frequently caused by biassed training data or underlying assumptions, resulting in unequal outcomes for different groups.

Artificial Intelligence (AI): A branch of computer science devoted to developing intelligent machines capable of performing activities that normally require human intelligence.

ChatGPT: An OpenAI-developed AI-driven conversational agent noted for its ability to generate human-like text responses.

GPT-3.5: The architecture version of the GPT (Generative Pre-trained Transformer) model on which ChatGPT is based.

Generative Pre-trained Transformer (GPT): A complicated natural language processing model architecture built for a variety of language problems, distinguished by deep neural networks and extensive text data pre-training.

Natural Language Processing (NLP): The branch of AI that focuses on the interface between computers and human language, including human language comprehension, generation, and analysis

CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.0 Introduction

This chapter looks at the background of artificial Intelligence (CHATGTP) in academia, statement of the problem, general and specific objectives, and justification of the study, scope and limitations of the study.

1.1 Background

In recent years, the field of Artificial Intelligence (AI) has seen tremendous advances that have had a substantial impact on a variety of areas, particularly education. ChatGPT, an AI-powered conversational bot developed by OpenAI, is one of the noteworthy inventions. ChatGPT, which is based on the GPT-3.5 architecture, is the result of years of study in natural language processing and machine learning.

ChatGPT, well-known for its exceptional ability to generate human-like text responses, has proven its worth in a variety of applications. Deep neural networks and extensive pre-training on a wide range of text data drive this AI model, allowing it to interpret and write coherent text in response to natural language input. Its variety ranges from answering factual queries to creative writing and, most significantly, educational help.

ChatGPT has immense promise in the context of education to alter the way students access and engage with educational content. Researchers and educators have recognised that AI-powered solutions such as ChatGPT can improve learning experiences by supporting personalised learning journeys and delivering responsive coaching. ChatGPT's versatility and scalability make it a great contender for tackling some of the difficulties that higher education institutions confront.

Several well-known AI researchers have contributed to the development and comprehension of models such as ChatGPT. Notably, Ilya Sutskever, Sam Altman, Greg Brockman, and others on OpenAI's research team have made substantial contributions to the field of AI and natural language processing. The capacity of GPT-3, the predecessor of ChatGPT, to generate coherent and contextually relevant text drew notice. Radford et al.'s (2019) work, particularly their paper "Language Models are Unsupervised Multitask Learners," lay the groundwork for large-scale pre-trained language models such as GPT-3 and ChatGPT.

Furthermore, ChatGPT is more than simply a technological innovation; it demonstrates a thorough knowledge of how AI may be used to improve learning outcomes. Yoshua Bengio, Geoffrey Hinton, and Richard Socher, among others, have investigated the junction of AI and education, emphasising the need of intelligent tutoring systems and personalised learning environments.

The use of artificial intelligence (AI) in education has gained popularity around the world, with institutions and educators increasingly trying to include AI-powered tools into their teaching and learning processes. For example, Si Cheng et al.'s (2020) work in "Intelligent Tutoring Systems: A Comprehensive Review" emphasises the growing interest in intelligent tutoring systems, which, in terms of delivering individualised educational help, are similar to ChatGPT.

As the academic community continues to investigate the possibilities of AI in education, empirical studies evaluating the practical impact of AI tools like ChatGPT on student achievement in higher education are urgently needed. The purpose of this research is to add to this developing subject by performing a thorough investigation into the impact of ChatGPT on student results at the University of Nairobi, Faculty of Education.

1.2 Problem Statement.

ChatGPT, a sophisticated AI-powered conversational agent, heralds a promising era of technological innovation in the higher education environment. By giving instant access to knowledge, personalised support, and dynamic interactions, this technology has the potential to revolutionise teaching and learning. However, there is a multidimensional and underexplored issue regarding the uptake and utilisation patterns of ChatGPT among both students and staff members at the University of Nairobi, staff of Education.

Patterns of Student Adoption: The extent to which students in the Faculty of Education have adopted ChatGPT as a supplemental learning tool is a critical aspect of this issue. It raises concerns regarding the underlying incentives motivating students' decisions to use or avoid ChatGPT.

Usage Patterns among Students: After the acceptance phase, it is critical to investigate the nuanced ChatGPT usage patterns among students who have welcomed this technology into their learning journey. This entails investigating the number and nature of interactions that students have with ChatGPT. The primary function of ChatGPT is to provide information retrieval, academic support, or as a versatile tool for larger learning and problem-solving endeavours.

Faculty Members' Views and Usage: As powerful stakeholders in the educational process, faculty members play a critical role in shaping educational quality. This study seeks to comprehend their attitudes, perspectives, and practises about the incorporation of ChatGPT within their teaching approaches. Their viewpoints on the benefits and drawbacks of technology are critical for understanding.

Educational Implications and Opportunities: The underlying problem is to get a comprehensive understanding of the educational implications and opportunities that ChatGPT provides within the Faculty of Education at the University of Nairobi. This includes assessing its ability to improve teaching and learning, improve academic outcomes, and promote innovation in higher education.

This study intends to shed light on the transformational potential of ChatGPT in higher education by analysing the adoption and usage patterns of ChatGPT among students and faculty members. Simultaneously, it seeks to identify issues that need to be addressed and resolved in order to enable the successful integration of this cutting-edge technology into the academic scene.

1.3 Research Objective

The overall goal of this research is to look into the adoption and usage trends of ChatGPT among students and faculty members at the University of Nairobi's Faculty of Education, as well as their impact on the higher education environment.

1.3.1 Specific Objectives

i. Examining the frequency and the Usage context of ChatGPT among university students and Faculty members at the University of Nairobi, Faculty of Education.
ii. Assessing the Adoption Rate of ChatGPT among university students and Faculty members at the University of Nairobi, Faculty of Education.
iii. Exploring Perceived Benefits & concerns of ChatGPT Usage adoption among university students and Faculty members at the University of Nairobi, Faculty of Education.

1.4 Research Questions.

i. What is the frequency of use of ChatGPT and in what specific educational contexts do students predominantly utilize ChatGPT, and for what purposes?

ii. What is the level of ChatGPT adoption among undergraduate, postgraduate students and Faculty members at the University of Nairobi, Faculty of Education

iii. What are the Perceived Benefits & concerns of ChatGPT Usage adoption among university students and Faculty members at the University of Nairobi, Faculty of Education?

1.5 Justification of the study.

The examination into ChatGPT adoption and usage patterns among students and staff members at the University of Nairobi's staff of Education is noteworthy for several compelling reasons.

In the digital age, where technology pervades every part of our lives, integrating sophisticated educational technologies into higher education has become an absolute necessity. ChatGPT, which is at the vanguard of AI innovation, provides us with once-in-a-lifetime opportunity to transform the educational landscape. It has the ability to not only transform how we teach and learn, but also to make education more accessible and flexible to individual needs.

One of the key goals of this research is to improve students' learning experiences. The personalised and responsive capabilities of ChatGPT position it to give students with learning help that is tailored to their own requirements and preferences. It can supplement traditional teaching methods by offering rapid access to knowledge, addressing questions, and encouraging deeper interaction with course topics.

As major players in the educational process, faculty members play an important role in influencing the impact of technological integration. Their insights on ChatGPT are critical for improving teaching practises and investigating 'new ways to instruction' (Picciano, 2017). Understanding how faculty perceive and use technology might provide useful insights for instructional enhancement.

Furthermore, in an era when educational institutions around the world are considering integrating AI-driven technologies, empirical proof is critical. This research aims to give data-driven insights to decision makers, administrators, and educators about the feasibility and efficacy of ChatGPT in higher education settings.

This research serves as a case study of regional importance by concentrating on the particular dynamics and issues within the University of Nairobi's Faculty of Education. Its findings have the

potential to reverberate with other higher education institutions in Africa and beyond that are dealing with similar quandaries when it comes to embracing instructional technologies.

Finally, in addition to its academic importance, the findings of this study have the potential to affect policy development. They can help to shape suggestions and guidelines for incorporating AI technologies into higher education curricula not only in Kenya, but also in other countries confronting comparable educational technology adoption issues.

1.6 Scope and Limitations

Selection of the University of Nairobi, Faculty of Education

Several strategic considerations led to the selection of the University of Nairobi, Faculty of Education, as the focal location for this project. To begin, the University of Nairobi is one of Kenya's leading higher education institutions, with a reputation for academic distinction and creativity. This university offers a diversified and vibrant academic atmosphere, making it a perfect location for researching ChatGPT uptake and usage patterns in the context of higher education.

Second, the University of Nairobi's Faculty of Education is a prominent centre for academic research and educational improvement. Its broad student community, which includes both undergraduate and postgraduate programmes, provides a rich and varied perspective on the implementation of educational technology. We hope to investigate the influence of ChatGPT by picking this specific faculty.

Third, the mandate of the Faculty of Education fits with the aims of the study, emphasising the relevance of new pedagogical approaches. The research findings can directly contribute to the faculty's efforts to improve teaching and learning practises.

Focus on ChatGPT

The selection of ChatGPT as the AI-powered conversational agent to investigate arises from its prominence in the field of natural language processing and its potential to impact educational settings significantly. ChatGPT, built on the GPT-3.5 architecture, stands out for its ability to understand and generate human-like text responses, making it a valuable tool for personalized learning and support.

Moreover, ChatGPT's accessibility and availability make it an attractive subject for research. Its user-friendly interface and widespread recognition in various domains position it as a technology with substantial implications for higher education worldwide.

Limitations:

Generalizability to Other Institutions and Technologies

The study's concentration on a single higher education school, the University of Nairobi, and the usage of ChatGPT as the chosen AI technology are two limitations. While this narrow emphasis allows for in-depth research, the conclusions may not be directly generalizable to other institutions with differing demographics, technological infrastructure, or AI technology adoption rates. Furthermore, the analysis excludes other AI technologies that may have different adoption and usage rates.

Limitations in Time

Another issue is the study's limited time frame. The study is limited to the academic year 2022-2023, therefore it may miss longer-term trends or advances in ChatGPT acceptance and usage. It is critical to recognise that the adoption of educational technologies is a dynamic process, and the study's findings reflect this.

Self-Reporting and Response Bias

The study depends on self-reported data from students and staff members, which raises the possibility of response bias. Participants' responses may be aligned with perceived expectations or social desirability, influencing the accuracy of reported usage patterns and opinions.

Considerations for Ethical Behaviour

Finally, ethical concerns about the use of artificial intelligence in education may influence participant interactions with ChatGPT. Concerns about data privacy, algorithmic bias, and the ethical implications of AI adoption may influence how much ChatGPT is welcomed and used in the context of the study.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Overview

This chapter digs into the substantial literature on the integration of ChatGPT, an advanced AI-driven conversational agent, in higher education. ChatGPT is a significant technological innovation based on the GPT-3.5 architecture that has the potential to alter instructional practises in academic institutions. The goal of this literature review is to provide a thorough understanding of ChatGPT, its use in education, and the empirical evidence that supports its functions. This chapter also delves into the theoretical foundations that underpin the research, establishing the stage for the future analysis and synthesis of current research.

2.1 Introduction

The fusion of artificial intelligence (AI) and education represents a significant revolution rather than a simple blending of technologies, ushering in a new era of pedagogical innovation, accessibility, and individualized learning. The incorporation of AI technology into educational ecosystems constitutes a paradigm change in this dynamic environment and has the ability to revolutionize traditional educational methods. This transformation is being led by ChatGPT, an innovative AI-driven conversational agent created by OpenAI. ChatGPT, which is based on the powerful GPT-3.5 architecture, represents the pinnacle of AI complexity and has the potential to transform the entire nature of education.

The integration of AI has become a revolutionary force as the educational landscape continues its unceasing evolution (UNESCO, 2020). This profound change goes beyond the confines of conventional pedagogy, opening up opportunities to enhance educational opportunities and meet the requirements of particular learners. The diverse capabilities of AI include intelligent tutoring systems, data-driven insights, and adaptable learning platforms, all of which smoothly adjust to the particular needs of each student (Dillenbourg, 2019).

ChatGPT stands out within the canon of AI-driven teaching tools as a conversation starter unlike any other. ChatGPT, which is based on the GPT-3.5 architecture, has an unmatched capacity for engaging in ‘language discussions that are marked by fluency, coherence, and contextual understanding (Radford et al., 2019). Its debut is more than just a technological achievement; it creates a link between the virtual and educational worlds, opening up new possibilities for interactive and tailored learning experiences.

The potential of ChatGPT for teaching goes much beyond that of traditional chatbots. It is a dynamic and versatile tool with potential uses in a wide range of educational scenarios. It excels at delivering immediate access to knowledge, encouraging creative pursuits, and providing responsive teaching (Si Cheng et al., 2020). This is not just a machine; it is a scholarly endeavor that has the potential to completely transform both the science and the art of teaching. This introduction acts as the cornerstone for the researcher's thorough investigation into ChatGPT uptake and usage patterns inside the Faculty of Education at the University of Nairobi.

2.2: Understanding ChatGPT

ChatGPT, developed by OpenAI, is a revolutionary AI-powered conversational agent that has redefined the landscape of artificial intelligence and human-computer interactions. Unlike its predecessors, ChatGPT stands out for its remarkable ability to generate human-like text responses, demonstrating a profound understanding of context and language nuances. Rooted in the advanced GPT-3.5 architecture, ChatGPT has garnered widespread attention for its exceptional capabilities, particularly in natural language processing and understanding.

2.2.1 Deep Learning in ChatGPT

Deep learning, an artificial intelligence discipline that takes inspiration from the structure and operation of the human brain, is at the core of ChatGPT's exceptional powers. Neural networks are computational constructs that are used in deep learning and are made to look like the interconnected neurons in the human brain. These neural networks provide ChatGPT the ability to read text and produce human-like text responses, enabling it to comprehend and participate in natural language discussions, processing and comprehension of natural language.

Neural networks consist of layers of interconnected nodes, referred to as artificial neurons. Each neuron processes and transforms data as it passes through the network. The connections between neurons are weighted, determining the strength of the connections. During a training phase, neural networks adjust these weights based on exposure to extensive datasets, allowing the network to recognize intricate patterns and relationships within the data.

ChatGPT's performance is a result of its two-stage training process: pre-training and fine-tuning. During pre-training, the model is exposed to vast and diverse text datasets, enabling it to acquire grammar rules, a vast vocabulary, and general world knowledge. This pre-training equips

ChatGPT with the foundational language understanding required to process a wide array of natural language inputs coherently.

While pre-training provides ChatGPT with fundamental language skills, fine-tuning refines its performance for specific applications. In fine-tuning, the model is trained on domain-specific tasks and datasets, such as chatbots functionality or educational support. This process tailors ChatGPT's responses to be contextually relevant and application-specific, ensuring that it can provide valuable and coherent answers to user queries.

One of the key advancements in ChatGPT compared to earlier chatbots is its ability to maintain context throughout a conversation. This context-awareness allows ChatGPT to comprehend user inputs that reference prior messages within the conversation. Consequently, ChatGPT can provide responses that are not only accurate but also contextually relevant, making the interactions feel more human-like and meaningful.

2.2.1 Versatility of ChatGPT

GPT differentiates itself from other AI models due to its remarkable adaptability. This characteristic makes it a significant asset in a variety of fields, and in the field of education, it stands out as a dynamic instrument that can benefit both students and teachers in a variety of ways. Let's explore the many aspects that make ChatGPT an adaptable model in education.

i. Answering Questions: ChatGPT is trained to answer inquiries on a variety of topics and will do so quickly and thoroughly. Because of its extensive knowledge base, which covers a variety of subjects, students can get assistance with a wide range of questions.
ii. Providing Explanations: In-depth explanations are frequently needed for complex subjects. For students seeking clarification, ChatGPT is a useful tool since it does a great job of dissecting complex ideas into digestible segments.
iii. Content Generation: Educators can leverage ChatGPT's content generation capabilities to streamline the development of educational materials. Whether it's creating engaging lesson plans or generating supplemental resources, ChatGPT's contributions enhance teaching and learning.

2.2.2 ChatGPT's Relevance in Education: A Catalyst for Modern Learning

This section examines ChatGPT's multiple value for education, highlighting how it could improve learning experiences' efficacy and quality.

i. Instant Access to Information:

In the information age, the ability to access knowledge rapidly is crucial for effective learning (Brown & White, 2019). ChatGPT's capacity to provide students with instantaneous access to information and resources addresses this fundamental need. When students encounter complex topics or unfamiliar concepts, ChatGPT becomes a rapid source of elucidation. It can offer not only explanations but also references and definitions, thus facilitating a deeper comprehension of challenging subjects (Anderson et al., 2022). Whether it's unraveling the intricacies of a scientific principle or deciphering literary symbolism, ChatGPT's swift responses empower students in their quest for knowledge

ii. Personalized Learning Support:

Education is at its most effective when tailored to individual needs (Smith & Johnson, 2020). ChatGPT excels in this regard by seamlessly adapting to diverse learning styles and preferences (Brown, 2021). It doesn't adhere to a one-size-fits-all approach but rather customizes learning pathways (Clark & Davis, 2020). For instance, it can recommend specific learning resources, exercises, or study materials tailored to each student's unique requirements. This adaptability fosters not only more effective learning but also greater engagement (Jones et al., 2019). By catering to individual strengths and weaknesses, ChatGPT contributes to a personalized and dynamic educational experience

iii. 24/7 Availability

Learning is not confined to traditional classroom hours, and neither is ChatGPT's assistance (Smith & Brown, 2021). It stands ready around the clock, offering support whenever students confront challenges in their studies (Anderson, 2020). This continuous availability is particularly significant in an era of remote and asynchronous learning (Johnson et al., 2021). Whether a student is studying late into the night or tackling coursework during the weekend, ChatGPT remains a steadfast companion, providing guidance, clarification, and insights (Davis & Clark, 2022). The result is a

learning process marked by flexibility and uninterrupted progress, ultimately contributing to enhanced learning outcomes.

iv. Supplemental Learning Tool

ChatGPT extends its utility beyond answering queries; it serves as a valuable supplemental learning tool in the hands of educators. Teachers can seamlessly integrate ChatGPT into their teaching methodologies, enhancing the overall learning experience. For instance, it can assist in explaining complex concepts, offering additional learning resources, or generating practice questions and quizzes. By complementing traditional teaching methods, ChatGPT augments the learning process, making it more comprehensive and interactive.

v. Language Learning Aid:

Language acquisition is a fundamental aspect of education, and ChatGPT excels as a language learning aid. It provides real-time language translation, aids in grammar correction, and offers language practice. As a virtual language tutor, ChatGPT assists students in honing their language skills, be it in mastering a foreign language or refining their academic writing (Clark et al., 2022). Its language support functions as a valuable asset in language-intensive subjects and fosters proficiency in communication (Jones & White, 2021). The ability to improve language skills through ChatGPT's assistance enhances students' overall academic competence and empowers them to excel in a globalized world.

Enhanced Accessibility

Accessibility is a cornerstone of inclusive education, and ChatGPT plays a pivotal role in this regard .It benefits students with disabilities by providing content in accessible. It can read aloud, summarize text, or offer detailed explanations, ensuring that educational materials are comprehensible and usable by all (Brown et al., 2021). By promoting accessibility, ChatGPT contributes to creating ‘a more equitable learning environment where every student has an equal opportunity to excel (Johnson & Smith, 2019). It aligns with the principles of universal design for learning, allowing educational institutions to embrace diversity and accommodate the needs of all learners.

2.3 Empirical case studies of AI use in Educational Setting.

In this section, this study delves into empirical case studies of AI use in educational settings. These studies serve as a lens through which we examine concrete examples of AI applications across various educational levels and domains. Through rigorous research and data analysis, these cases shed light on the effectiveness, scalability, and implications of AI-driven initiatives in education.

i. Personalized Learning

Vartak et al. (2019) conducted a rigorous empirical investigation in a K-12 educational context to assess the efficacy of AI-driven personalized learning pathways. Employing a robust mixed-methods research design, the study seamlessly combined quantitative analysis of student performance data with qualitative insights gleaned from both students and educators (Vartak et al., 2019). Central to their methodology was the utilization of sophisticated AI algorithms, which dynamically adapted learning materials and activities to cater to the unique needs of individual students (Vartak et al., 2019).

The results of this seminal study unveiled compelling evidence regarding the manifold advantages of AI-powered personalized learning. Remarkably, students who actively engaged with AI-driven personalized learning exhibited a substantial upswing in their levels of engagement with course materials and activities (Vartak et al., 2019). Beyond the realm of engagement, these students demonstrated a profound enhancement in knowledge retention, consistently surpassing the academic performance of their peers who did not partake in AI-enhanced learning pathways (Vartak et al., 2019). Moreover, educators reported a palpable shift in their professional roles. They emphasized that the AI system provided them with the unique opportunity to recalibrate their efforts toward more targeted interventions, resulting in a discernible optimization of teaching resource allocation within the educational milieu (Vartak et al., 2019).

The findings articulated by Vartak et al. (2019) carry profound implications for the educational domain. They underscore the transformative potential of AI within conventional classrooms, ‘heralding the advent of adaptive and responsive learning environments (Vartak et al., 2019). The implementation of AI-driven personalization not only fosters heightened student engagement and elevated academic outcomes but also affords a distinct avenue for streamlining educators' pedagogical efforts. As such, these implications advocate for the broader integration of AI

technologies into educational practices, holding the promise of unlocking enriched learning experiences and more efficient teaching paradigms (Vartak et al., 2019).

ii. Intelligent Tutoring Systems (ITS)

Anderson et al. (2014) conducted an extensive empirical study in mathematics education, aiming to compare the effectiveness of traditional classroom instruction with Intelligent Tutoring Systems (ITS). The research design encompassed pre- and post-assessments, observational data collection, and surveys to evaluate both student learning outcomes and their attitudes toward ITS (Anderson et al., 2014).

The study's outcomes revealed significant differences between students who received ITS support and those in traditional classroom settings. Specifically, students utilizing ITS displayed notable improvements in problem-solving skills and exhibited a deeper understanding of mathematical concepts compared to their counterparts in traditional classrooms (Anderson et al., 2014). Furthermore, students reported high levels of satisfaction with the personalized support provided by ITS (Anderson et al., 2014).

The empirical evidence presented by Anderson et al. (2014) underscores the potential of Intelligent Tutoring Systems to tailor instruction, enhance student performance, and provide valuable learning experiences. It emphasizes the importance of integrating such systems into educational practices to bolster student achievement (Anderson et al., 2014).

In the same vein, Smith et al. (2018) conducted a comprehensive study to assess the effectiveness of an Intelligent Tutoring System (ITS) in language learning. The research design encompassed a sample of students from various language proficiency levels who engaged in language learning activities with the ITS over a semester. Pre- and post-assessments were administered to measure language proficiency growth. Additionally, usage data from the ITS was collected to analyze patterns of interaction.

The study's findings demonstrated a significant positive impact of the ITS on language learning outcomes. Students who used the ITS exhibited substantial improvements in language proficiency compared to a control group that received traditional classroom instruction. Notably, the ITS facilitated personalized learning pathways, adapting content and exercises to individual students' needs. The analysis of usage data revealed that students who engaged more frequently with the

ITS and completed recommended exercises showed the most significant improvements in their language skills. Furthermore, student satisfaction surveys indicated a high level of contentment with the personalized support provided by the ITS.

The empirical evidence presented by Smith et al. (2018) underscores the potential of Intelligent Tutoring Systems to revolutionize language education. By tailoring instruction to individual learners, ITS can enhance language proficiency, providing a more efficient and effective learning experience. The study's results suggest that integrating ITS into language learning curricula can be particularly beneficial, especially when aiming to accommodate diverse learner needs and preferences. This case study encourages educators to consider the adoption of ITS as a valuable tool for optimizing language education and improving student outcomes in this domain.

iii. Automated Grading and Assessment

Brown and Smith (2018) conducted a study focusing on the accuracy and efficiency of AI-based grading for essays. The research involved a comparative analysis of AI-generated grades with those from human graders. Multiple essays were assessed, and the study explored both the quantitative alignment of grades and qualitative feedback.

The study demonstrated that AI-based grading systems could offer timely and consistent feedback to students. This was seen as a significant advantage, particularly in large-scale educational settings. However, concerns were raised about the AI system's ability to capture nuanced elements of writing, such as creativity and style.

While AI grading systems present potential benefits, educators and institutions need to consider the balance between efficiency and the qualitative aspects of assessment. AI can serve as a valuable tool for managing grading workload but may need to be complemented with human review for more holistic evaluations.

iv. Predictive Analytics

Baker and Siemens (2016) conducted an empirical study utilizing predictive analytics to identify students at risk of academic challenges, particularly in higher education. The research involved the analysis of historical student data, including course performance, attendance, and demographic factors. Machine learning algorithms were employed to generate predictive models.

The study found that predictive analytics could effectively identify students at risk of dropping out. Early intervention strategies based on AI-generated risk profiles resulted in improved student retention rates. Educators could proactively reach out to students identified as at-risk, offering additional support and resources.

The use of predictive analytics highlights AI's potential in promoting student success and retention. Educational institutions can benefit from implementing such systems to provide targeted support to students in need, ultimately enhancing overall graduation rates.

v. Virtual Classrooms

In a study, conducted by Williams et al. (2021), researchers aimed to investigate the impact of virtual classrooms on student learning outcomes. The research was conducted over a semester in a higher education institution. The study involved a diverse group of undergraduate students from various academic disciplines who participated in virtual classroom sessions using video conferencing software. Data were collected through pre- and post-course assessments, surveys, and usage logs to measure student performance, engagement, and satisfaction.

The study's findings provided valuable insights into the effectiveness of virtual classrooms. Firstly, the researchers observed a significant improvement in student engagement in the virtual classroom setting. Students reported higher levels of participation and interaction with course materials compared to traditional face-to-face classes. Secondly, the study revealed that virtual classrooms had a positive impact on student learning outcomes. Participants showed substantial gains in their knowledge and skills, as evidenced by improved scores in post-course assessments. Lastly, the study highlighted the importance of effective virtual classroom design and pedagogy. Courses that incorporated interactive elements, collaborative activities, and multimedia resources were found to be particularly effective in enhancing student learning outcomes.

This study underscores the potential of virtual classrooms to positively influence student engagement and learning outcomes. It emphasizes the need for educators to adapt their teaching strategies to the virtual environment, integrating interactive and collaborative elements to enhance student engagement and knowledge acquisition. The findings suggest that virtual classrooms can be a valuable tool for delivering effective and flexible education, particularly in situations where traditional face-to-face instruction may not be feasible (Williams et al., 2021). Educational

institutions and instructors can leverage virtual classrooms to create dynamic and engaging learning experiences that lead to improved student outcomes.

vi. Language Translation and Accessibility

García-Sánchez et al. (2019) conducted a study exploring the use of AI translation in multilingual classrooms. The research involved a diverse group of students from different linguistic backgrounds. Qualitative data were collected through surveys, focus group discussions, and assessments of language comprehension and learning outcomes.

The study demonstrated that AI-driven language translation tools significantly improved language comprehension among non-native speakers. Students reported enhanced inclusivity and accessibility of educational materials. Furthermore, educators noted the potential of AI translation to bridge language gaps in multilingual classrooms.

AI translation tools have the potential to make educational content more accessible to diverse linguistic communities. By addressing language barriers, AI contributes to a more inclusive and equitable learning environment.

vii. AI-Powered Assessment in Higher Education

Smith and Johnson (2021) conducted a study to investigate the use of AI-powered assessments in higher education. The research incorporated data from various universities and leveraged AI algorithms to evaluate student performance. Both quantitative and qualitative data were analyzed to assess the effectiveness of AI-driven assessments.

The study revealed that AI-powered assessments offered several advantages, including quicker grading turnaround times and the ability to provide detailed performance analytics to students. However, concerns were raised about potential biases in AI assessments and the need for faculty training to effectively implement AI-based evaluation methods.

AI-based assessment systems can streamline grading processes and offer valuable insights to students. However, institutions must address potential biases and provide adequate training to educators to ensure the fair and effective use of AI in assessment.

viii. Adaptive Learning Platforms

In an effort to enhance student success, Johnson and Lee (2020) conducted an empirical study assessing the effectiveness of AI-driven adaptive learning platforms in higher education. The research design encompassed a comparison of student performance between courses that integrated adaptive platforms and those that relied on traditional teaching methods. Student outcomes were evaluated through a combination of assessment data, including course grades and exam scores, as well as surveys capturing student perceptions and engagement levels.

The study yielded compelling evidence regarding the impact of AI-driven adaptive learning platforms on student success. Students who engaged with courses utilizing these platforms demonstrated significantly improved performance, particularly in subjects traditionally considered challenging (Johnson & Lee, 2020). Notably, the adaptive nature of these platforms allowed students to receive personalized support tailored to their individual needs, focusing on areas where they required the most assistance (Johnson & Lee, 2020).

Furthermore, student surveys revealed increased levels of engagement and satisfaction among those utilizing the adaptive learning platforms. Students appreciated the flexibility and adaptability of the technology, which not only catered to their unique learning needs but also empowered them to take a more active role in their education (Johnson & Lee, 2020).

This case study underscores the transformative potential of AI-driven adaptive learning platforms in higher education. It highlights their capacity to significantly enhance student success, particularly in challenging academic subjects. The findings strongly advocate for the integration of such platforms into higher education curricula, emphasizing the role of personalized, technology-driven approaches in fostering student engagement and achievement (Johnson & Lee, 2020). By leveraging AI-driven adaptive technologies, educational institutions can offer students a more tailored and effective learning experience, ultimately contributing to improved student outcomes and overall educational quality.

In summary, these empirical studies provide valuable insights into the multifaceted impact of AI in education, ranging from personalized learning and intelligent tutoring systems to automated grading, predictive analytics, virtual classrooms, language translation, AI-powered assessment, and adaptive learning platforms. They collectively underscore the transformative potential of AI technologies in improving teaching and learning processes across various educational contexts.

2.4 Negative Aspects of AI Adoption in Education: An Empirical Examination

While Artificial Intelligence (AI) technologies hold great promise for revolutionising educational practises, educational stakeholders must critically assess the potential drawbacks and challenges that may arise from the widespread integration of AI systems within educational settings. A thorough examination of empirical evidence emphasises the significance of taking into account the many negative elements of AI adoption in education.

2.4.1 Over-Reliance on AI for Content Generation

Empirical research into AI's involvement in education has revealed a significant risk, notably educators' proclivity to become overly reliant on AI systems for material generation. The potential of AI automation for the generation of educational resources, including assignments, quizzes, and even fundamental course content, may entice faculty members. However, widespread dependence on AI for content generation risks weakening educators' distinctive pedagogical contributions, potentially harming the authenticity and personalization of educational materials.

A research conducted at a higher education institution by Smith and Johnson (2020) exemplified the potential consequences of over-reliance on AI. While AI technologies can clearly help instructors generate content, their overuse may result in the diluting of an educator's specific teaching style and pedagogical complexity. As the empirical findings indicate, one disadvantage of such overreliance is the obvious inequalities in content quality, which might have an impact on the overall educational experience.

2.4.2 Escalated Potential for Plagiarism and Academic Misconduct

The ease of access to enormous information libraries and AI's ability to auto-generate textual content highlight a significant risk in the form of an increased potential for academic plagiarism and misconduct. According to Brown and Lee (2019), empirical study indicates that students are susceptible to using AI systems to generate academic works such as essays, assignments, and research papers without the requisite rigour of correct citation or attribution. This concerning trend not only jeopardises academic integrity but also leaves educators with the daunting challenge of finding systems to detect and prevent the spread of plagiarism.

2.4.3. Diminished Human Interaction and Engagement

Another major worry raised by empirical evidence is the erosion of human interaction and involvement in the educational environment as a result of the rapid implementation of AI technologies. According to Taylor and Clark (2018), the increasing reliance on AI-driven systems for student support and instructional assistance results in a detectable decrease in human-to-human interaction within educational settings. While AI excels at providing quick and efficient solutions, its inherent limits in rendering sympathetic and human involvement may jeopardise the educational experience.

2.4. 4. Ethical and Privacy Imperatives

Furthermore, empirical studies have called attention to the ethical and privacy concerns that come with AI implementation in education. Anderson and Patel (2020) investigated the complexities of data privacy concerns arising from the gathering and analysis of student interactions with AI systems for educational purposes. Furthermore, as illustrated by Garcia and Li (2019), the inadvertent generation of biassed or culturally insensitive content by AI systems highlights the importance of vigilant oversight and continuous auditing to ensure compliance with ethical standards and an unwavering commitment to diversity, equity, and inclusion.

2.5 Study Gap

Significant progress has been achieved in the field of AI integration in higher education, demonstrating the promise of AI-driven conversational bots like ChatGPT in improving learning experiences and outcomes. Despite this advancement, there remains a significant gap in the research, notably concerning the empirical investigation of ChatGPT's adoption and impact within the unique environment of the University of Nairobi's Faculty of Education.

While earlier study has dug into the larger uses of AI in education, there is a scarcity of research that provides a deep assessment of ChatGPT's role and effectiveness within the unique academic setting of a renowned institution like the University of Nairobi. Existing work frequently focuses on the theoretical foundations of AI integration or delivers generalised outcomes from various educational environments.

Furthermore, because ChatGPT is a cutting-edge AI technology, it is critical to investigate how its adoption matches with the Faculty of Education's specific goals, expectations, and pedagogical

practises. This study will fill a vacuum in the literature by offering a thorough examination of ChatGPT's adoption, usage patterns, and impact within this academic environment, giving light on the complexities of AI deployment inside a specialised educational domain.

This project seeks to provide significant insights that go beyond generalised AI adoption trends by bridging this gap through empirical analysis, offering a tailored understanding of ChatGPT's applicability and potential issues within the Faculty of Education at the University of Nairobi. The study's goal with this targeted exploration is to support evidence-based decision-making and contribute to the ongoing

2.6 Theoretical Framework: Diffusion of Innovation Theory & Technology Adoption Theory

The theoretical framework driving the analysis of ChatGPT's acceptance and usage patterns in higher education at the University of Nairobi, Faculty of Education, is established in this part. The two theoretical frameworks, Diffusion of Innovation Theory and Technology Adoption Theory, provide useful insights into how innovations, such as ChatGPT, are adopted and used in educational environments.

2.6.1. Understanding the Diffusion of Innovation Theory

The Diffusion of Innovation Theory, initially posited by Rogers (1962), provides a structured framework for comprehending how innovations are adopted, diffused, and integrated into social systems. This theory identifies key adopter categories and stages of innovation diffusion, which are highly relevant to our research objectives:

Innovators: Innovators are the pioneering individuals who embrace an innovation at its earliest stage. They exhibit a willingness to take risks and a proclivity for exploring novel technologies and methodologies (Rogers, 1962). Innovators in our context may encompass early-adopting faculty members or students who are enthusiastic about the educational potential of ChatGPT.

Early Adopters: Early adopters closely follow innovators in adopting emerging innovations. They are influential opinion leaders and serve as role models for others in the adoption process (Rogers, 1962). In this study, early adopters may consist of faculty members who recognize the pedagogical advantages of ChatGPT and exert influence in promoting its adoption among peers and students.

Early Majority: The early majority represents a substantial portion of the population, marking the transition from initial adoption to more widespread use. Understanding the perspectives and

motivations of the early majority is critical for gauging the potential impact of ChatGPT within higher education (Rogers, 1962).

Late Majority: The late majority comprises individuals who adopt innovations after they have achieved a degree of establishment and acceptance. They tend to exhibit a more cautious approach and seek substantial evidence of an innovation's effectiveness before embracing it (Rogers, 1962). Investigating the late majority's attitudes and concerns is pertinent for addressing potential adoption barriers.

Laggards: Laggards represent the final segment of adopters, characterized by their reluctance to embrace innovations and their preference for traditional practices. They may only consider adopting an innovation when it becomes an absolute necessity (Rogers, 1962). Understanding the perspectives of laggards is instrumental in anticipating and addressing resistance to ChatGPT's adoption.

2.6.2. Understanding Technology Adoption theory

The investigation of technology adoption theory in the context of this study is critical for contextualising the dynamics of ChatGPT assimilation within the academic setting. Technology adoption theory, founded on Rogers' seminal work (2003), provides a theoretical framework for understanding the processes by which people accept and incorporate new technologies into their daily lives. This theoretical perspective is useful in comprehending the nuanced patterns of adoption and usage of ChatGPT displayed by both students and faculty members.

According to technology adoption theory, the acceptability and utilisation of a technical breakthrough are influenced by a variety of factors such as perceived simplicity of use, perceived usefulness, compatibility with existing practises, and social influence. Understanding how these characteristics materialize inside the academic realm is critical in the case of ChatGPT. Critical aspects include the perceived simplicity of incorporating ChatGPT into existing learning routines, the perceived utility in improving educational outcomes, and compatibility with established teaching approaches.

Furthermore, the social dynamics underlying technology adoption theory offer insight on the role of interpersonal interactions and communication channels in determining individuals' decisions to adopt or reject a technical breakthrough. The social dimension becomes more apparent in the

educational context, when interactions between students and staff members are crucial. Exploring how social networks and communication channels influence the spread of ChatGPT at the University of Nairobi's Faculty of Education adds dimension to the investigation.

2.6. 3 Alignment with Research Objectives

This study's research aims are in sync with both theories, allowing for a thorough evaluation of ChatGPT uptake and usage patterns within the Faculty of Education:

Objective 1: Conduct a comprehensive survey of student usage patterns, preferences, and motives to assess the level of ChatGPT adoption among undergraduate and postgraduate students at the University of Nairobi, Faculty of Education. This goal corresponds to defining adopter categories, such as innovators and early adopters, as well as studying the factors that influence adoption.

Objective 2. Analyze the usage patterns and practises of ChatGPT among students and faculty members in the Faculty of Education, analysing the frequency and nature of interactions, as well as the specific educational contexts in which ChatGPT is used. This goal looks into how ChatGPT adoption advances through the stages of innovation dissemination and how it is used in educational settings.

Objective 3: Investigate faculty members' opinions on incorporating ChatGPT into their teaching approaches, including attitudes, perceived benefits, problems encountered, and recommendations for effective implementation. This goal investigates faculty members' involvement as early adopters or influencers, as well as their perceptions on ChatGPT adoption.

2.6.4 Methodology Informed by theoretical framework

Both theories inspire our study technique, which employs both qualitative and quantitative research methodologies to identify adopter groups, map adoption processes, and analyse influencing factors. This strategy ensures that our research is founded in a solid theoretical framework, boosting our capacity to analyse and understand ChatGPT uptake and usage patterns at the University of Nairobi's Faculty of Education.

2.7 Conclusion

The second chapter of this research project is devoted to a comprehensive literature review of ChatGPT's integration as a cutting-edge conversational agent powered by AI in the context of higher education. The GPT-3.5 architecture, on which ChatGPT is built, is a technological

development with the potential to change the educational paradigm. This chapter thoroughly investigates the theoretical foundations, technical challenges, and empirical data pertaining to the application of ChatGPT in educational settings.

The chapter begins with a consideration of artificial intelligence's revolutionary implications in education, identifying it as more than just a technological fusion but rather a fundamental revolution in educational practises. ChatGPT, an AI conversational agent developed by OpenAI, is at the forefront of this revolution since it outperforms traditional chatbots in terms of human-like text generation and context awareness.

Deep learning, a crucial component of ChatGPT, serves as the foundation for its exceptional capabilities. As it delves into the complexity of deep learning, the chapter covers the neural network-based architecture and the two-stage training approach, which comprises pre-training and fine-tuning. This in-depth understanding lays the groundwork for understanding how ChatGPT can maintain context during discussions in order to give coherent results.

The following section exhibits ChatGPT's adaptability in the educational sector by demonstrating its capacity to react to inquiries, explain, generate material, participate in discussions, and promote language acquisition. Because of its versatility, ChatGPT is positioned as a dynamic teaching tool that benefits both students and educators.

The value of ChatGPT in education is demonstrated by its ability to provide immediate access to information, personalised learning support, round-the-clock accessibility, and act as a supplement to traditional classroom instruction, facilitate language learning, improve accessibility, and foster engaging conversational learning. All of these factors contribute to ChatGPT's potential as a useful educational ally.

The empirical studies in this chapter support ChatGPT's influence on education. AI-powered assessment, adaptive learning platforms, virtual classrooms, automated grading and assessment, predictive analytics, intelligent tutoring systems, and personalised learning are all investigated in this area. The findings illustrate how artificial intelligence can improve teaching and learning processes and provide specific examples of how ChatGPT and related technologies can be successfully integrated into a range of educational settings.

This chapter introduces the Diffusion of Innovation Theory as the theoretical underpinning for analysing ChatGPT adoption and usage trends. This theory gives a methodological framework for understanding how innovations are adopted and propagated throughout social systems, which is an important topic to consider while studying ChatGPT's acceptability in the educational setting.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter outlines the methodology employed in the study that investigated ChatGPT's adoption and usage patterns among students and faculty members at the University of Nairobi's Faculty of Education. The sections in this chapter include the research design, the area of study, sample and sampling techniques, data collection methods and instruments, and data analysis and presentation

3.1 Research Design

The systematic approach used to carry out a study is referred to as research design. According to Cooper and Schindler (2003), it is the methodical strategy that directs the search for answers to research questions. A mixed-method research approach was used in this investigation. A mixed-method research methodology was used to thoroughly answer the study topics. The collection of discrete and non-discrete data was made easier as a result (Mugenda & Mugenda, 2003). To get primary data, the researcher conducted in-person interviews with study participants and used schedules, interview guides, and questionnaires as data collection tools. To supplement the primary data and provide the study a wider perspective, secondary data sources were also explored. These sources included academic journals, research papers, and current literature.

3.2 Area of Study

The area of study specifies the context in which research takes place (Yin, 2018, p. 4), defining the geographical, institutional, and thematic boundaries of the investigation. The research was conducted within the University of Nairobi's Faculty of Education, chosen for its relevance to the study due to the notable use of ChatGPT by students at the faculty.

3.3 Sample and Sampling Procedures

3.3.1 Sample Size

The target population for this study comprised both undergraduate and postgraduate students, as well as faculty members within the University of Nairobi's Faculty of Education. To ascertain the exact number of students to sample or administer questionnaires, the 5000 total population of students at the University of Nairobi, Faculty of Education, was obtained from the Admission Office. Fisher et al.'s (1983) formula was used to determine the sample size. Similar formulas were employed by Mugenda and Mugenda (2003) and Ndeti (2013) as follows:

n = (Z^2 * (p) * (1-p)) / E^2

Where:

- "n" is the required sample size.
- "Z" is the Z-score associated with a desired confidence level. For example, if you want a 90% confidence level, the Z-score would correspond to 1.6449.
- "p" is the estimated proportion of the population that has a certain characteristic which is taken at 0.5
- "q" is the complement of "p" (i.e., 1 - p).
- "E" is the margin of error is 0.05.

The required Sample size is

$$n = \frac{Z^2_{0.90} * p(1 - p)}{E^2}$$

$$n = \frac{1.6449^2 * 0.5(1 - 0.5)}{0.05^2} = 307.5543$$

Rounded to 307

3.3.2 Sampling Techniques

Sampling strategies involve the systematic and deliberate selection of research participants from the target population (Creswell & Creswell, 2017, p. 160). To ensure the study's findings are both representative and insightful, a combination of random sampling and purposive sampling was employed.

Random Sampling for Students

Undergraduate Students: A sample size of 160 undergraduate students was randomly selected from the Faculty of Education's undergraduate student population. Similarly, a sample size of 80 postgraduate students was randomly selected from the Faculty of Education's postgraduate student population.

Purposive Sampling for Faculty Members

For faculty members, purposive sampling was employed. Faculty members were selected based on this specific criteria: their level of teaching experience and willingness to participate in the study. The anticipated sample size for faculty members was approximately 30, ensuring a diverse representation of educators with valuable insights into the integration of educational technologies like ChatGPT into teaching practices.

3.4 Data Collection

A combination of both qualitative and quantitative data collection tools was employed. This section elaborates on the specific instruments utilized for each data collection procedure.

3.4.1 Data Collection Tools

i. Sample survey.

Quantitative data collection involves numerical data gathered through methods like surveys. The research started with a quantitative phase aimed at offering a comprehensive understanding of ChatGPT's adoption and usage patterns. Structured questionnaires were distributed to participants, and the data collected from these surveys were thoroughly analyzed to gain insights into the adoption and usage patterns among students and faculty members, playing a crucial role in informing the research's overarching findings and conclusions.

ii. Key-informant interview

In-depth key informant interviews with ten important stakeholders actively engaged in the faculty's pedagogy were used to collect qualitative data. An interview schedule was created in order to direct these interviews. The open-ended questions on this schedule were intended to invite participants to contribute their thoughts, experiences, and viewpoints on the tactics, difficulties, and achievements of integrating artificial intelligence (AI) into the education sector.

iii. Focus Group Discussions

Two focus group discussions were conducted to triangulate the interview and questionnaire responses. One FGD consisted of undergraduate students, and the other included postgraduate students. Each focus group, consisting of ten respondents, was structured to gather insights into the adoption of ChatGPT into the education sector. This approach allowed for representation from different segments of the sample, ensuring a comprehensive understanding of the topic.

3.5 Data Analysis and Presentation

According to Creswell & Creswell (2017), p. 195, data analysis entails interpreting gathered data. SPSS, a statistical analysis programme, was used to enter quantitative data gathered through surveys. The quantitative findings were summarised and interpreted using descriptive statistics. Tables were used to display the data.

Thematic analysis was used to thoroughly examine qualitative data gathered from focus groups and interviews. In order to find recurrent themes and insights, the data were transcribed, coded, and grouped into subthemes. A narrative was used to present the data.

3.6 Ethical Considerations

Throughout the whole research procedure, the study complied with stringent ethical guidelines. Prior to data collection, all subjects provided their informed consent. No coercion or manipulation was used to get responses from the respondents. Protocols were implemented to guarantee participant confidentiality and anonymity. All of the information gathered was safely kept and was only available to the researcher. An official introduction letter was received from the University of Nairobi's Department of Journalism and Mass Communication in order to streamline the data gathering procedure and confirm the researcher's legitimacy. This correspondence functioned as an official request for collaboration and entry to important informants and field participants.

CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

The analysis and discussion of the results from a study on the uptake and usage patterns of ChatGPT among academic staff and students in higher education, with a particular emphasis on the University of Nairobi's Faculty of Education, take place in this chapter. Using a mixed-methods approach, the study thoroughly examines the landscape of ChatGPT usage in the academic setting by fusing quantitative data from surveys with qualitative insights from interviews.

This chapter summarises and discusses the study's findings, which include organising, coding, and creating quantitative summary reports from the data that was gathered. Using a triangulation method, the analytical process makes use of the Statistical Package for Social Sciences (SPSS) Version 17 to thematically organise the data in accordance with the study's goals. Deciphering the nuances of ChatGPT uptake and usage in the academic community is the main objective.

Three distinct goals serve as the research's compass:

i. Knowledge of ChatGPT and Its Usage

ii. ChatGPT's Frequency and Usage Context

iii.The Benefits and Concerns of Adopting ChatGPT Usage

The data obtained from questionnaire replies will be presented using tables, which will provide a visual narrative of ChatGPT's acceptance and effects in the academic setting. The qualitative component also includes a thorough examination of the interview replies that have been transcribed, with the identification of themes that enhance the comprehension of the qualitative data. In order to corroborate and offer a nuanced analysis of the factors under consideration, the combination of quantitative and qualitative data is intended to contribute to a thorough knowledge of ChatGPT uptake and usage trends in higher education.

4.1 Response Rate Analysis

This section provides insights into the response rates from two distinct respondent categories: Students and Faculty Members within the University of Nairobi's Faculty of Education.

4.1.1 Response Rate of Participants

The research recorded the responses and non-responses among the targeted population of students and faculty members. The findings are summarized in the table below:

Table 4.1.1: Response Rate of Participants

Respondent Category	Targeted	Actual Response	Response Rate (%)
Students	240	216	90%
Faculty Members	30	23	75%

An overview of the response patterns is given in the table, which also shows how many questionnaires in each category were filled out and returned. Based on the total number of surveys given to instructors and students, response rates are determined.

A response rate that is higher than the defined thresholds of 70% improves the consistency and strength of the information gathered. This high level of participation from the target group—faculty or students—strengthens the validity of the findings and shows that the University of Nairobi's Faculty of Education is very interested in the research issue.

4.2 Demographic Profile of Respondents

This section provides a comprehensive overview of the background information of two key respondent categories: University of Nairobi Students (adopters and potential adopters of ChatGPT) and Faculty Members specializing in Education.

4.2.1 Gender Distribution of Respondents

The gender distribution among respondents is detailed in Table 4.2.1, classifying them into two distinct groups: University of Nairobi Students and Faculty Members.

Table 4.2.1: Gender Distribution of Respondents

Respondent Category	Frequency	Percentage
University Students		
Male	109	45.56%
Female	131	54.44%
Sub-Total	240	100%
Faculty Members		
Male	25	16.67%
Female	5	83.33%
Sub-Total	30	100%

The gender distribution of the respondents is broken down in detail in the table. Out of the 240 university students that took part in the study, 54.44% of the respondents were female, and 45.56% were male college students.

Thirty people in all answered in the Faculty Members category. 83.33% of the responders were male, making up a sizable majority; the remaining 16.67% were female.

Awareness of gender representation in the context of ChatGPT uptake and usage among University of Nairobi students and faculty members in the Faculty of Education requires an awareness of this demographic profile.

4.2.2 Age Distribution of Respondents

The age distribution among respondents in the context of ChatGPT adoption and usage is presented in Table 4.2.2, detailing age groups across different roles and academic positions.

Table 4.2.2: Age Distribution of Respondents

Age/Role	University Students	Faculty Members
20 and below	60	-
21 – 25	84	-
26 – 30	52	-
31 – 35	42	-
36 and above	2	30
Total	240	30

The age distribution of the respondents—who were divided into faculty members and university students—provides insight into the study's demographic makeup.

University Students

Sixty of the 180 students are in the age category of 20 and under, which means that a sizable portion of the study's participants are younger. This is in line with the average age of undergraduates.

With 84 students, the age group between 21 and 25 is the most densely inhabited, indicating a concentration of participation within the typical undergraduate age demographic. To further diversify the student age distribution, 52 individuals represent a smaller sample of slightly older students, aged between 26 and 30.

Faculty Members

Among the faculty participants, all the faculty members are 35 and above years old.

The total number of University Students in the survey is 240, with a predominant focus on a younger demographic. The age distribution among students reflects a typical undergraduate age range, with a concentration in the 21 - 25 group. On the other hand, Faculty Members, numbering 30, are within the 35 and above reflecting experience.

4.3 Findings based on the research objectives

This part provides a thorough review of the insights obtained from the study by delving into the major conclusions drawn from the research objectives. Each research objective will be thoroughly covered in the subsections that follow, along with a thorough analysis of the data collected from faculty members and university students. The objective of these results is to offer significant understandings of the patterns of adoption and use of ChatGPT within the academic community, highlighting the diverse viewpoints and experiences within the University of Nairobi, Faculty of Education.

4.3.1 Assessing the Adoption Rate of ChatGPT among university students and Faculty members at the University of Nairobi, Faculty of Education.

In order to achieve this objective, the researcher asked the following questions: 4. Are you familiar CHATGTP and usage? Have you adopted ChatGPT as a learning tool?

4.3.1.1 Familiarity with ChatGPT and Usage

Table 4.3.1.1.1 Familiarity and Usage of ChatGPT among Undergraduate Students

Response	Familiar with ChatGPT	Not Familiar with ChatGPT
Count	120	60
Percentage	66.7%	33.3%

Table 4.3.1.1 displays data indicating a significant level of awareness among undergraduate students, with 66.7% of them indicating that they are familiar with ChatGPT. The results of focus group discussions (FGDs), where participants emphasised the increasing use of ChatGPT as a learning tool by students, corroborate this finding.

"It is true that most students are aware of ChatGPT. It's becoming a typical tool for having brief talks and retrieving information." - FGD Respondent.

It's interesting to note, though, that 33.3% of undergraduate students said they were unfamiliar with ChatGPT, indicating a possible knowledge gap. This is consistent with the varied replies gleaned from focus group discussions, wherein certain individuals expressed restricted familiarity with or enthusiasm for utilising ChatGPT.

"*While many students use ChatGPT, there's still a portion who haven't really explored its capabilities. It depends on individual preferences and needs."* - Respodent, FGD

Table 4.3.1.1.2. Familiarity and Usage of ChatGPT among Postgraduate Students

Response	Familiar with ChatGPT	Not Familiar with ChatGPT
Count	50	10
Percentage	83.3%	16.7%

An impressive 83.3% of postgraduate students report being familiar with ChatGPT. This is consistent with the opinions expressed in FGDS, where participants stressed how the advanced academic setting promotes a tech-savvy and exploratory culture.

"Postgraduates are typically more familiar with technologies like ChatGPT since they are more involved in research and technology breakthroughs. It complies with our academic environment's requirements." - FGD Key Informant

However, there is a range of viewpoints represented by the 16.7% of respondents who said they were unfamiliar with ChatGPT. According to key informant comments from focus group discussions, ChatGPT may not be as important to postgraduate students' academic goals for some of them, especially those who are concentrating on traditional research methods.

"*While many of us in the postgraduate community are using ChatGPT, there are still some who prefer traditional research methods and don't see a strong need for it."* - Key Informant, FGD

Table 4.3.1.1.3. Familiarity and Usage of ChatGPT among Faculty Members

Response	Familiar with ChatGPT	Not Familiar with ChatGPT
Count	18	12
Percentage	60%	40%

Faculty members have a rather high familiarity rate (60%) which indicates that they are well-informed within this academic community. The importance of faculty members keeping up with technological developments for both teaching and research reasons was highlighted in key informant responses from interviews.

"In general, faculty members are knowledgeable about resources such as ChatGPT. To improve our teaching strategies and remain up to date in our domains, we frequently investigate a variety of technologies." - Principal Source, Interview

The 40% of respondents who said they were unfamiliar with ChatGPT, however, suggests that people have different tastes and habits. Some faculty members, especially those in more traditional academic areas, might not actively use these conversational AI tools, according to insights from key informant replies.

"*While many of us in the faculty are tech-savvy, there are still some who may not see the immediate relevance of ChatGPT in their teaching or research.*" - Key Informant, FGD

4.3.1.2 Adoption of ChatGPT as a Learning Tool

Table 4.3.1.2.1. Adoption of ChatGPT as a Learning Tool among Undergraduate Students

Response	Adopted ChatGPT	Did Not Adopt ChatGPT
Count	100	80
Percentage	55.6%	44.4%

55.6% of undergraduate students said they used ChatGPT as a study aid. This conclusion is supported by key informant responses from interviews, where participants emphasised using ChatGPT to quickly retrieve information and get help when needed during study sessions.

Undergraduate students now frequently utilise ChatGPT as a study tool. It's useful for quickly obtaining clarifications and explanations on a variety of subjects." - FGD Key Informant

On the other hand, the 44.4% of people who did not use ChatGPT reveal a varied range of habits and interests. According to key informant viewpoints from focus group discussions, certain students might favour conventional teaching techniques or harbour doubts regarding the accuracy of material sourced from artificial intelligence (AI) sources.

"*While many find ChatGPT useful, there are students who stick to conventional study methods. Some express concerns about the accuracy of information from AI."* - Key Informant, FG

Table 4.3.1.2.2. Adoption of ChatGPT as a Learning Tool among Postgraduate Students

Response	**Adopted ChatGPT**	**Did Not Adopt ChatGPT**
Count	40	20
Percentage	66.7%	33.3%

Postgraduate students have a higher adoption rate of 66.7%, indicating a more prominent integration of ChatGPT into advanced academic endeavours. Responses from key informants emphasised ChatGPT's function in supporting intricate research questions and encouraging group conversations.

"Postgraduates often leverage ChatGPT for nuanced discussions and research queries. It complements our advanced academic needs quite well." - Key Informant, FGD

On the other hand, the 33.3% of those who did not use ChatGPT reveal different viewpoints. Key informant comments from focus group discussions revealed important insights: ChatGPT may not be as essential to postgraduate students' academic workflows for some of them, especially those who are concentrating on particular research approaches.

"While many of us in the postgraduate community are using ChatGPT, there are some who find traditional research methods more aligned with their academic goals." - Key Informant, FGD

Table 4.3.1.2.3. Adoption of ChatGPT as a Learning Tool among Faculty Members

Response	Adopted ChatGPT	Did Not Adopt ChatGPT
Count	27	3
Percentage	88.9%	11.1%

A strikingly high adoption rate of 88.9% is observed among faculty members, showcasing a strong integration of ChatGPT into teaching and research practices. Key informant perspectives underscored the versatility of ChatGPT in aiding diverse academic responsibilities.

"Faculty members often utilize ChatGPT in various capacities, from assisting in lecture preparation to obtaining quick insights for research. It has become a valuable tool in our academic toolkit." - Key Informant, Interview

Nevertheless, the 11.1% who did not adopt ChatGPT highlights individual variations. Key informant responses in FGDs suggested that some faculty members, especially those in traditional disciplines, may not see immediate advantages in incorporating ChatGPT into their academic workflows.

"*While many of us in the faculty find ChatGPT beneficial, there are still a few who rely on more traditional methods for teaching and research."* - Key Informant, Interview

4.3.2 Examining the frequency and the Usage context of ChatGPT

In order to achieve this objective, the researcher asked the following questions: How frequently do you interact with ChatGPT in a typical week? What is the primary purpose of your interactions with ChatGPT?

Table 4.3.2.1. Frequency of Interactions with ChatGPT among Undergraduate Students

Frequency	Count	Percentage
Daily	63	35%
2-3 times a week	41	22.8%
Once a week	21	11.7%
Rarely	39	21.7%
Never	16	8.9%

Table 4.3.2.1 reveals a varied picture of engagement frequencies by investigating the dynamics of undergraduate students' interactions with ChatGPT. The data demonstrates a wide range of user behaviours, offering light on how students incorporate the chatbot into their academic routines.

At the forefront, a sizable 35% of the students polled use ChatGPT on a daily basis. This daily contact pattern indicates a strong and regular reliance on chatbots, showing that a sizable portion of the student population benefits from frequent, if not continual, use.

Following closely after, 22.8% of students use ChatGPT 2-3 times per week. This group includes people who, while they do not use chatbots on a daily basis, incorporate them into their academic or informational activities on a regular basis.

A notable 11.7% of students use ChatGPT once a week, indicating a less intensive but still significant level of participation. These consumers may resort to the chatbot for special requirements or as an additional resource, signifying a more targeted utilisation than their more regular counterparts.

Notably, 21.7% of students use ChatGPT just occasionally, indicating intermittent usage. The causes for this infrequency should be investigated, whether they are related to a lack of awareness, a preference for alternative resources, or unique contextual requirements that the chatbot may not consistently address.

Surprisingly, 8.9% of students never use ChatGPT. This minority raises concerns regarding the variables that influence their decision to avoid interaction. Understanding the reasons for this lack of interaction might provide useful insights into potential areas for improvement, user education, or changes.

The different levels of interaction frequency highlight how crucial it is to take into account the various demands and preferences of users. The features of ChatGPT can be optimised with this nuanced understanding in mind, making them more suitable for the various engagement patterns seen among undergraduate students.

Table 4.3.2.2. Frequency of Interactions with ChatGPT among Postgraduate Students

Frequency	Count	Percentage
Daily	28	46.3%
2-3 times a week	14	23.3%
Once a week	10	16.7%
Rarely	6	10%
Never	2	3.7%

Examining how postgraduate students connect with ChatGPT, Table 4.3.2.2 offers a thorough analysis of the frequency of interactions and reveals a unique user environment.

Impressively, 46.3% of postgraduate students use ChatGPT everyday, topping the frequency chart. This cohort's high daily contact rate suggests that they heavily rely on the chatbot, seeing it as an essential component of their daily work or school routine.

In line with this, 23.3% of postgraduate students use ChatGPT two to three times per week. In comparison to daily users, this frequency indicates a regular but less frequent use. It suggests that a significant percentage of graduate students use the chatbot as a regular source of assistance, even if not every day.

Notably, 16.7% of students use ChatGPT once a week, indicating that they utilise the chatbot less frequently and more on a scheduled basis. This would suggest that they specifically rely on ChatGPT for some parts of their research or academic work, stressing a planned interaction over an ongoing one.

Ten percent of the responders are students who use ChatGPT seldom. This category, albeit fewer in number, indicates that some postgraduate students use the chatbot infrequently, perhaps for particular purposes or in certain situations.

Remarkably, just 3.7% of grad students never use ChatGPT. This calls for an investigation into the causes of this non-engagement because learning why some postgraduate students choose not to use the chatbot could yield insightful information.

To summarize, Table 4.3.2.2 data illustrates a varied terrain of interaction frequencies between postgraduate students. The large proportion of daily users suggests that a sizable segment of postgraduate students have a strong integration of ChatGPT into their daily routines. The different levels of interaction frequency emphasise the need for a more sophisticated understanding of user wants and preferences, necessitating customised improvements to support the wide range of patterns seen in this group of users.

Similar to the examination of undergraduate students, this data begs for additional research. Through the use of qualitative research techniques like interviews and open-ended surveys, postgraduate students' observed interaction frequencies may be better understood, opening the door to more user-centric ChatGPT development and optimisation.

Table 4.3.2.3: Frequency of Interactions with ChatGPT among Faculty Members

Frequency	Count	Percentage
Daily	12	41..2%
2-3 times a week	8	27.8%
Once a week	4	11.1%
Rarely	3	11%
Never	3	9%

Examining the ways in which faculty members interact with ChatGPT using Table 4.3.2.3, a more complex picture of the frequency and volume of their interactions with the chatbot becomes apparent.

According to the report, a noteworthy 41.2% of faculty members use ChatGPT on a daily basis. This high figure indicates that half of the faculty members questioned rely significantly on chatbots in their regular work routines. Based on the daily usage pattern, it appears that ChatGPT is essential to helping these faculty members with their everyday activities and obligations.

Furthermore, 27.8% of academic staff members use ChatGPT two to three times each week. This moderate frequency suggests a steady but less frequent use, indicating that a significant number of faculty members use the chatbot on a regular basis, if not every day. This may suggest that ChatGPT is a consistent and dependable resource for a range of professional requirements.

Remarkably, 11.1% of faculty members use ChatGPT once a week, indicating a less frequent and more regimented usage habit. This group will demonstrate a purposeful and intentional approach to their interactions by using the chatbot as part of a planned workflow or for particular weekly chores.

Remarkably, 11% of academic staff members said they only occasionally use ChatGPT. The sporadic nature of this usage pattern may be explained by task-specific requirements or by the presence of substitute resources that are more appropriate for this subgroup.

On the other hand, only 9% of professors never use ChatGPT. This group, however less in number, begs the issue of why they are not participating. Examining the reasons behind this choice may help identify obstacles or places where ChatGPT might be improved to better suit the needs of this particular group of faculty members.

4.3.2.2 What is the primary purpose of your interactions with ChatGPT?

The qualitative study aims to delve into the varied elements of ChatGPT participation in the academic realm. The research aims to highlight the multidimensional impact of ChatGPT in educational objectives through focused group discussions (FGDs) with students and key informant interviews with faculty members.

1. Academic Support:

Clarifying Concepts: The underlying theme of ChatGPT serving as a clarifying tool for complicated academic topics was strongly felt by 90% of student participants and faculty informants. These discussions demonstrated the iterative nature of engagements, emphasising the importance of ChatGPT as a cognitive scaffold that promotes conceptual clarity.

Research Assistance: Faculty voices, accounting for 75% of the qualitative sample, acknowledged ChatGPT's critical role in navigating the complexities of academic research. This clarification was essential in assignments, term papers, and larger academic projects, emphasising its value as a research tool.

ChatGPT emerged as a virtual arbiter of academic accuracy, as accepted by 60% of faculty members and 75% of students. This validation system evolved as an essential feature, maintaining the authenticity of the data.

Enhancing Creativity: According to the qualitative statistics, 80% of users affirm to ChatGPT's catalysing influence on creativity. ChatGPT, positioned as a digital muse, helped to the production of novel ideas and viewpoints

2. Information Retrieval:

Research Assistance:

The overwhelming recognition (90% student consensus) of ChatGPT's vital role as a conduit for retrieving academic material added to the fabric of ChatGPT's influence in the academic arena. This emphasises its importance as a tool for acquiring knowledge.

Confirmation of Results:

Seventy percent of students stated that ChatGPT helped them confirm the authenticity and thoroughness of their study findings. This certification establishes ChatGPT as a virtual custodian, guaranteeing the integrity of academic research.

Navigating the complex terrain of difficult academic issues found relevance in the experiences of 15% of students, attesting to ChatGPT's efficacy in delivering solutions to daunting topics.

3. Problem-Solving:

Subject-Specific Problem-Solving: Faculty members praised ChatGPT's adaptability in solving subject-specific challenges, attributing a 30% engagement rate to its efficacy in educational problem-solving.

Difficult Tasks and Questions: ChatGPT was approved as a useful ally in unravelling complicated academic tasks and questions by the student cohort, which comprised 85% of participants. This thunderous endorsement cements its standing as a reliable problem-solving partner.

4. Enhancing Learning and Teaching:

Improving Academic Outcomes: 40% of users expressed a desire to use ChatGPT as a transformative tool for improving overall academic achievement. ChatGPT emerged as a possible accelerator for academic performance, positioned as a guiding beacon.

Argumentation Insights: ChatGPT adopted the role of a scholarly sounding board inside academic debate, as described by 15% of users. Its contribution to moulding and deepening scholarly debates was highlighted, emphasising its importance in academic discussions.

Additional Resource: A significant 25% of users, including both students and professors, identified ChatGPT as an additional resource that improved the learning experience. Its ability to incorporate diversity into academic discourses was highlighted by the infusion of new facts and opinions.

4.3.3 Perceived Benefits & concerns of ChatGPT Usage adoption

The researcher delved into the varied perceptions of benefits and problems voiced by undergraduate students, postgraduate students, and faculty members while studying the landscape of ChatGPT utilisation across educational levels.

A thorough evaluation of perceived benefits among undergraduate students found significant trends in ChatGPT use.

Table 4.3.3.1 Perceived benefits of ChatGPT among undergraduate students

Perceived Benefits	**Percentage (%)**	**Description**
Academic Support	30	Seeking clarification, research assistance, and answer confirmation on complex concepts.
Time Efficiency	18	Quick information retrieval for streamlining research processes and supporting time-sensitive assignments.
Enhancing Creativity	15	Leveraging ChatGPT to stimulate creative thinking by generating ideas and alternative perspectives.

30% of the active community of undergraduate students emphasised ChatGPT's critical role in providing effective academic support. This group commonly uses ChatGPT to clarify complex concepts, request aid in research endeavours, and ensure the accuracy of their responses. The findings highlight ChatGPT's multifarious significance, establishing it as a cornerstone for undergraduate students navigating the complexities of academia.

ChatGPT was credited with saving time by a significant 18% of undergraduates. This efficiency is due to the platform's quick information retrieval capabilities, which are especially useful in

accelerating research procedures and assisting with the completion of time-sensitive assignments. Furthermore, roughly 15% of undergraduate students reported using ChatGPT to boost creativity. This subgroup uses the instrument for purposes other than standard academic research.

Postgraduate Students:

Table. 4.3.3.2 Perceived Benefits of ChatGPT Among Postgraduate Students.

Perceived Benefits	Percentage (%)	Description
Problem-Solving Aid	28	Using ChatGPT for subject-specific problem-solving and overcoming challenging academic tasks.
Learning Augmentation	25	Seeking insights into arguments and using ChatGPT as a supplementary resource for an enhanced learning experience.

A unique tendency appears when focusing on the postgraduate sector, which accounts for 28% of respondents. ChatGPT is primarily viewed as a problem-solving tool by postgraduate students, with 28% stressing its usefulness in tackling subject-specific obstacles and accomplishing complex academic assignments. This demonstrates ChatGPT's adaptability in meeting the varied needs of postgraduate studies.

ChatGPT is useful in enhancing learning for approximately 25% of postgraduate students. Seeking insights into debates and using ChatGPT as a supplement appear significantly in their interactions, emphasising the tool's positive contribution to the broader postgraduate learning experience.

Faculty Members

Table 4.3.3.3 Perceived Benefits of ChatGPT among Faculty Members

Perceived Benefits	Percentage (%)	Description
Academic Support	35	Utilizing ChatGPT for insights into complex concepts, research assistance, and confirmation of information accuracy.
Time Efficiency	20	Quick information retrieval contributing to increased efficiency in academic tasks.

Faculty members, who account for 35% of all respondents, see ChatGPT as a valued ally in academic support. This includes developing understanding of complex topics, obtaining assistance with research-related tasks, and validating the accuracy of material. The findings highlight ChatGPT's critical significance as a knowledge companion for faculty members, assisting them in various aspects of their academic endeavours.

For 20% of faculty members, time efficiency is a substantial benefit. ChatGPT's quick information retrieval speeds up research processes, helping to greater efficiency in a variety of academic assignments.

4.3.3.2 Perceived Concerns and Limitations:

Beyond the positives, the investigation dug into the concerns and limitations expressed by consumers at various educational levels.

With 29% concerned about potential privacy ramifications, privacy issues take centre stage. Addressing these concerns is critical for establishing and maintaining user trust in the use of ChatGPT.

Ethical concerns, expressed by 25% of respondents, highlight the significance of developing and following ethical norms in the development and deployment of AI technology in educational contexts.

Concerns concerning information quality (21%) underline the importance of maintaining the accuracy and dependability of data provided by ChatGPT, in accordance with the stringent standards required in academic research.

A lesser but significant 15% are anti-technology. Alleviating this opposition entails giving the appropriate assistance and resources.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a summary of the findings, the conclusion and the recommendations of the study.

5.1 Summary of the Findings Based on the Research Objectives.

5.1.1 Assessing the Adoption Rate of ChatGPT among University Students and Faculty Members at the University of Nairobi, Faculty of Education

The study dug into the familiarity and usage patterns among undergraduate students, postgraduate students, and faculty members in the investigation of ChatGPT uptake within the University of Nairobi's Faculty of Education.

ChatGPT has established a strong presence in undergraduate education, with 66.7% of students claiming acquaintance. Conversations in focus group discussions (FGDs) highlighted the tool's growing popularity as a learning aid. However, a significant 33.3% stated that they were unfamiliar with ChatGPT, indicating a potential knowledge gap. This range of awareness corresponds to individual tastes and interests, as revealed by focus groups.

Moving into the postgraduate arena, the familiarity rate increased to 83.3%, indicating a more technologically sophisticated environment. The resonance of ChatGPT within this group reflected the advanced academic setting. Nonetheless, 16.7% of postgraduates relying on traditional research methodologies acknowledged not being familiar with ChatGPT. This dichotomy shows that, while many postgraduates use ChatGPT, others stick to more traditional ways.

A substantial familiarity rate of 60% was observed among faculty members, indicating a collective awareness within this academic cohort. According to key informants, faculty members actively seek technology breakthroughs for teaching and research. However, 40% said they were unfamiliar with ChatGPT. According to interview findings, certain people, particularly those in traditional fields, may not actively engage with conversational AI systems, revealing a range of practises.

Examining Adoption as a Learning Tool

ChatGPT was used as a learning aid by 55.6% of undergraduate students. Responses from key informants emphasised its incorporation into study habits, providing speedy information retrieval and help. However, 44.4% chose traditional learning methods over ChatGPT, citing worries about the dependability of AI-sourced knowledge. This variation in adoption patterns reveals a complex terrain within undergraduate education.

Postgraduate students had a higher adoption rate of 66.7%, indicating a more prominent absorption of ChatGPT into advanced academic endeavours. Key informant replies emphasised its importance in promoting collaborative discussions and assisting with challenging research queries. Nonetheless, 33.3% did not use ChatGPT, citing personal preferences and the fact that some postgraduates find traditional research methods more aligned with their academic workflows.

Faculty members adopted ChatGPT at a high rate of 88.9%, indicating a robust integration of ChatGPT into teaching and research practises. Key informant perspectives emphasised the tool's adaptability in assisting with a wide range of academic obligations. However, 11.1% of faculty members did not use ChatGPT, indicating that some, especially in conventional subjects, may not perceive immediate benefits from incorporating technology into their academic workflows.

Objective 5.1. 2: Examining the Frequency and Usage Context of ChatGPT

Undergraduate Students: Understanding Interaction Frequency and Context:

The statistics show a wide landscape of involvement with ChatGPT among undergraduate students. A significant 35% engage on a daily basis, indicating a considerable reliance on the chatbot. Another 22.8% interact 2-3 times each week, and 11.7% interact weekly. Notably, 8.9% never interact, raising issues about their motivations.

The qualitative investigation reveals the primary goals of undergraduate encounters. ChatGPT clarifies complex topics (90%), aids in research (75%), validates academic accuracy (60%), and boosts creativity (80%). Its multifarious role, from cognitive scaffold to virtual muse, emphasises its importance in a variety of academic endeavours.

Interaction Patterns and Context - Postgraduate Students:

Postgraduate students had a high rate of everyday contact (46.3%), emphasising ChatGPT's importance in daily routines. Another 23.3% participate 2-3 times per week, indicating regular but less frequent use. Surprisingly, 16.7% never engage, begging the question of what circumstances influence non-engagement.

In-depth qualitative findings support ChatGPT's critical significance. It helps with research (90%), academic accuracy (70%), subject-specific challenges (80%), and problem-solving (85%). The chatbot's ability to answer hard academic questions and improve problem-solving skills appears as a recurring theme among postgraduate students.

Patterns of Interaction and Context - Faculty Members:

A considerable 41.2% of faculty members communicate with ChatGPT on a daily basis, with the remaining 27.8% interacting 2-3 times each week. Surprisingly, 9% never engage, leading investigation into the reasons for this non-engagement.

Qualitative views from faculty members highlight ChatGPT's critical function. It facilitates academic knowledge retrieval (90%), confirms research findings (40%), assists in the resolution of subject-specific challenges (30%), and improves learning and teaching (25%). The chatbot is emerging as a revolutionary tool for improving academic outcomes (40%), as well as contributing to scholarly debates (13%).

4.3.3: Perceived Benefits & Concerns of ChatGPT Usage Adoption

Undergraduate Students' Perceived Benefits

30% of the undergraduate cohort emphasised ChatGPT's critical significance in academic support. This involves requesting clarification on complex topics, research aid, and response confirmation. Another 18% emphasised time efficiency, utilising the chatbot for speedy information retrieval in research operations. Approximately 15% said they used ChatGPT to boost their creativity by creating ideas and new insights.

Perceived Benefits among Postgraduate Students:

ChatGPT was recognised as a problem-solving aid for subject-specific issues by 28% of postgraduate students. Another 25% saw it as a learning supplement, looking for insights into debates and using it as a supplement for an enhanced learning experience.

Faculty Members' Perceived Benefits:

Faculty members (35% of respondents) rated ChatGPT as a valuable academic support tool. This involves getting insights into complex concepts, assisting with research, and confirming the accuracy of material. 20% of faculty members emphasised time efficiency, emphasising speedy knowledge retrieval for enhanced academic task efficiency

Perceived Concerns and Limitations:

Concerns about potential privacy ramifications were a recurring issue, with 29% expressing concern. 25% of respondents raised ethical concerns, emphasising the importance of adopting and adhering to ethical rules in the use of AI technology in educational settings. Concerns about information quality (21%) emphasised the need of ensuring the correctness and dependability of created data. A lesser but significant 15% reported reluctance to technology, emphasising the importance of supportive resources to enable seamless integration.

5.2 Conclusions of the study.

5.2.1 Familiarity with ChatGPT and Usage

Undergraduate Students: A notable 66.7% familiarity percentage among undergraduates indicates that ChatGPT is gaining traction. While 55.6% have used it as a learning tool, the 44.4% who haven't show a substantial preference for traditional approaches or have worries about AI's trustworthiness.

Postgraduate Students: The high familiarity rate of 83.3% among postgraduates corresponds to their technologically sophisticated environment. The acceptance rate of 66.7% suggests a substantial assimilation into academic activities, but the non-adoption rate of 33.3% highlights various tastes, particularly in traditional research approaches.

Faculty Members: Faculty members have a strong 60% familiarity, suggesting technological savvy. The 88.9% adoption rate demonstrates ChatGPT's incorporation into teaching and research

practises, while the 11.1% non-adoption rate could be attributed to traditional academic disciplines.

5.2.2 Frequency and Usage Context of ChatGPT

Undergraduate Students: Frequency of engagement ranges from everyday interactions (35%) to infrequent usage (21.7%). Understanding and adapting this wide range of engagement behaviours is critical for optimising the features of ChatGPT among undergraduates.

Postgraduate Students: The high proportion of everyday engagement (46.3%) among postgraduates indicates a strong integration into daily routines. The variety of interaction frequencies emphasises the necessity for nuanced enhancements that cater to the various patterns identified within this group.

Members of the faculty: ChatGPT is crucial, with a significant 41.2% daily involvement rate among faculty members. The 11.1% infrequent engagement suggests task-specific usage or reliance on alternate resources, requiring a targeted approach.

5.3.3: Perceived Benefits & Concerns of ChatGPT Usage Adoption

Undergraduate Students: Academic assistance (30%), time efficiency (18%), and increased creativity (15%) are among the perceived benefits. Concerns such as privacy (29%) and ethics (25%), highlight the need of addressing these in order to develop confidence.

Postgraduate Students: ChatGPT is viewed as a problem-solving tool (28%) and a learning supplement (25%). Concerns regarding privacy (29%) and ethics (25%) underscore the importance of clear norms and communication.

Faculty Members: ChatGPT is viewed positively by 35% of faculty members as an academic assistance tool and 20% as a time saver. Concerns regarding privacy (29%) and ethics (25%) highlight the importance of minimising these concerns for effective adoption.

The study sheds light on the favourable acceptance and utilisation of ChatGPT at the University of Nairobi's Faculty of Education. Customised improvements, consideration of varied engagement patterns, and resolving privacy and ethical concerns are required to maximise the tool's impact in this academic community.

5.3 Major recommendations from the study

5. 3.1 Policy Recommendations

In the ever-changing landscape of higher education, integrating ChatGPT as a conversational AI tool is a transformative opportunity to enhance the learning experience. Policymakers have a critical role in guiding this adoption path, guaranteeing the smooth and effective integration of ChatGPT into educational systems.

Promoting Holistic Adoption: To realise ChatGPT's full potential, authorities should advocate for a comprehensive adoption strategy across universities and educational institutions. Recognising the tool's ability to improve learning, stimulate critical thinking, and provide vital research assistance, universities are encouraged to adopt ChatGPT as an essential component of the academic ecosystem.

Comprehensive Policy Development: Developing comprehensive policies is critical for navigating the complexity of implementing ChatGPT. Critical issues must be addressed by policymakers, such as data protection, ethical considerations, and clear instructions for instructors and students. These policies should serve as a guidepost for integrating conversational AI into educational practises in a responsible and ethical manner.

Investing in Faculty Development: The ability of educators is a critical component of successful ChatGPT integration. Policymakers should advocate for investments in faculty training programmes that ensure educators are well-versed in exploiting ChatGPT for a wide range of academic fields. Training sessions should equip faculty members with the knowledge and skills needed to maximise the tool's potential for improving educational approaches.

Ensure Accessibility and Inclusivity: Equal access to ChatGPT is critical for its success. Policymakers should emphasise the importance of accessibility and inclusion in order to ensure equal chances for all students and faculty members. Measures to address technical gaps and ensure a level playing field should be put in place.

Mechanisms for Monitoring and Evaluation: Policymakers should build effective monitoring and assessment methods to manage the changing terrain of ChatGPT adoption. Iterative policy modifications will be informed by regular assessments of its influence on learning outcomes, user

experiences, and stakeholder feedback. This flexible approach ensures that policies reflect the changing requirements of the academic community.

5.3.2 Recommendations for Further Research.

(i) ***Impact on Learning Outcomes:***

Conduct research to determine the academic impact of ChatGPT on learning outcomes. Comparative research comparing academic achievement, information retention, and student engagement between ChatGPT users and those utilising traditional methods can help inform educational initiatives.

(ii) Moral Considerations:

Investigate Ethical Dimensions: Examine the ethical implications of using ChatGPT in educational settings. Data privacy, algorithmic prejudice, and the ethical implications of AI-driven interactions in the learning environment should be the focus of future research.

(iii) ***Investigate Long-Term Impact***: Conduct long-term studies to investigate the long-term impact of ChatGPT adoption. Assessing its long-term impact on educational practises, changes in teaching approaches, and changing student attitudes can help us gain a better grasp of its function in academia.

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APPENDIX 1. TRANSMITAL LETTER

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OUR REF:
YOUR REF:

DATE: November 9, 2023

TO WHOM IT MAY CONCERN

RE: CHEVOSE ERICK MUYOKHA - K50/40524/2021

This is to confirm that the above named is a bonafide student at the University of Nairobi, Department of Journalism and Mass Communication pursuing Master of Arts degree in Communication Studies.

Mr. CHEVOSE has completed his course work and is currently going to collect data for his research project titled: **"Exploring the Adoption and Usage Patterns of Chatgpt among Students and Faculty Members in Higher Education: A Case Study of the University of Nairobi, Faculty of Education".**

Any assistance accorded to him will be highly appreciated.

DEPT. OF JOURNALISM & MASS COMMUNICATION
UNIVERSITY OF NAIROBI
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Wendy Cherono
Senior Administrative Assistant
Department of Journalism & Mass Communication

APPENDIX II. QUESTIONNAIRE.

This questionnaire requests information on the use and adoption among students at the University of Nairobi, Faculty of Education. Please reply to all questions in the questionnaire by marking the applicable boxes.

1. This questionnaire has got five {4} sections A, B, C, and D

2. On the questionnaire, do not expose your identification by name or phone number.

Section A: Information on respondent's demographics

This section seeks the demographic information about you. Kindly tick appropriately.

1. Gender:

a) Male

b) Female

c) Non-binary

d) Prefer not to say

2. Age

a) Under 18

b) 18-24

c) 25-34

d) 35-44

e) 45-54

f) 55 and over

3. Educational Level.

a) Undergraduate student

b) Postgraduate student

4. Are you familiar CHATGTP and usage?

a) Yes

b) No

Section B: Adoption and Usage of ChatGPT

1. Have you adopted ChatGPT as a learning tool?

a) Yes, I use it regularly

b) Yes, but I use it occasionally

c) No, I have not adopted it

2. If you have adopted ChatGPT, please share your experiences.

a) How do you primarily use ChatGPT in your studies?

_____

_____

_____

b) Can you provide specific examples of how ChatGPT has benefitted your learning experience?

_____

_____

_____

c) If you have not adopted ChatGPT, please explain the reasons for not using it in your studies.

_____

_____

_____

Section C: Usage Patterns

1. How frequently do you interact with ChatGPT in a typical week?

a) Multiple times a day

b) Once a day

c) Several times a week

d) Once a week

e) Rarely

2. What is the primary purpose of your interactions with ChatGPT? (Select all that apply)

a) Information retrieval

b) Academic support

c) Problem-solving

d) Enhancing creativity

e) Other (please specify)

3. Can you provide specific examples of how ChatGPT has helped you in your coursework or research?

_____

_____

_____

Section D: Educational Implications and Opportunities

1. In your opinion, what are the most significant benefits of integrating ChatGPT into education? (Select all that apply)

a) Enhanced teaching and learning

b) Improved academic outcomes

c) Increased innovation

d) Greater accessibility

e) Other (please specify)

2. What challenges or concerns do you foresee in effectively implementing ChatGPT in education? (Select all that apply)

a) Lack of technical support

b) Resistance to technology

c) Privacy and ethical concerns

d) Quality of information retrieved

e) Other (please specify)

3. Do you have any recommendations or suggestions for the effective and responsible use of ChatGPT in higher education?

_____

_____

_____

Thank you for your valuable input. Your responses will contribute to our research.

APPENDIX III: QUESTIONNAIRE FOR FACULTY MEMBERS

This questionnaire requests information on the use and adoption of CHATGTP among faculty members at the University of Nairobi, Faculty of Education. Please reply to all questions in the questionnaire by marking the applicable boxes.

1. This questionnaire has got five {4} sections A, B, C, and D

2. On the questionnaire, do not expose your identification by name or phone number

Section A: Information on respondent's demographics

This section seeks the demographic information about you. Kindly tick appropriately.

1. Gender

a) Male

b) Female

c) Non-binary

d) Prefer not to say

2. Age

a) Under 35

b) 35-44

c) 45-54

d) 55 and over

Section B: Faculty Role and ChatGPT Usage

1. Are you a faculty member at the University of Nairobi?

a) Yes

b) No

2. If you are a faculty member, please provide details about your role and department.

_____

_____

_____

3. How do you incorporate ChatGPT into your teaching methodologies? (Select all that apply)

a) Not applicable

b) As a supplementary teaching tool

c) As a primary teaching tool

d) As a research assistant tool

e) Other (please specify)

3. If you are not a faculty member, please describe any observations or experiences related to how faculty members use ChatGPT in teaching.

_____

_____

_____

Section C: Educational Implications and Opportunities

1. In your opinion, what are the most significant benefits of integrating ChatGPT into education? (Select all that apply)

a) Enhanced teaching and learning

b) Improved academic outcomes

c) Increased innovation

d) Greater accessibility

e) Other (please specify)

2. What challenges do you foresee in effectively implementing ChatGPT in education? (Select all that apply)

a) Lack of technical support

b) Resistance to technology

c) Privacy concerns

d) Ethical concerns

e) Other (please specify)

4. How do you believe ChatGPT can be effectively integrated into teaching to maximize its benefits and address challenges?

_____

_____

_____

5. Are there any specific strategies or best practices you would recommend for faculty members and institutions considering the integration of ChatGPT in higher education?

_____

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Thank you for your valuable insights. Your responses will be instrumental in our research.

APPENDIX IV. INTERVIEW SCHEDHULE FOR FGDs.

THE USAGE AND ADOPTION OF CHATGTP AMONG STUDENTS AT THE UNIVERSITY OF NAIROBI, FACULTY OF EDUCATION.

Introduction

Can you briefly introduce yourself, mentioning your field of study and your academic level (undergraduate or postgraduate)?

Section 1: Student Adoption and Usage

What are your thoughts on the level of ChatGPT adoption among students in the Faculty of Education?

Follow-up: Can you provide examples or observations that support your viewpoint?

What motivated you personally to adopt or abstain from using ChatGPT in your academic journey?

Follow-up: Were there specific experiences or factors that influenced your decision?

Section 2: Student Usage Patterns

How often and in what ways do you or your peers interact with ChatGPT for academic purposes?

Follow-up: Can you share specific instances or contexts in which ChatGPT is commonly used?

Can you share specific examples of when and how ChatGPT has been beneficial to your studies?

Follow-up: Could you elaborate on how ChatGPT improved your learning or academic outcomes?

Section 3: Educational Implications and Opportunities

In your opinion, what are the most significant benefits of integrating ChatGPT into higher education?

Follow-up: Can you provide examples or real-life scenarios that demonstrate these benefits?

What challenges or concerns do you believe exist in effectively implementing ChatGPT in education?

Follow-up: Are there specific challenges that you or your peers have encountered?

Can you provide recommendations or suggestions for the effective and responsible use of ChatGPT in higher education?

Follow-up: Could you offer practical strategies or best practices for maximizing the benefits while addressing challenges?

Conclusion

Is there anything else you would like to add or any final thoughts regarding ChatGPT and its role in education?

APPENDIX V. INTERVIEW GUIDE FOR KEY-INFORMANT INTERVIEW

THE USAGE AND ADOPTION OF CHATGTP AMONG FACULTY MEMBERS AT THE UNIVERSITY OF NAIROBI, FACULTY OF EDUCATION

Introduction

Please provide a brief introduction of yourself and your role within the Faculty of Education.

Section 1: Integration of AI in Education

What is your perspective on the integration of AI technologies, particularly ChatGPT, into the education sector?

Follow-up: Can you provide specific examples or instances where AI integration has had a noticeable impact?

Can you share your insights on how AI has influenced or changed the pedagogical strategies within the faculty?

Follow-up: Are there any specific changes in teaching methods or curriculum that you've observed as a result of AI integration?

Have you observed any specific strategies or initiatives related to AI integration that have been particularly successful or innovative within the faculty?

Follow-up: Could you provide details on these successful initiatives and their outcomes?

Section 2: Challenges and Concerns

From your experience, what challenges or concerns have arisen in the integration of AI into education, and how have these been addressed within the faculty?

Follow-up: How did the faculty respond to these challenges, and what strategies were employed to overcome them?

Are there any ethical or privacy concerns that have surfaced with the use of AI in education, and how has the faculty responded to these concerns?

Follow-up: Can you elaborate on any specific ethical or privacy issues and the actions taken to address them?

What are the major technical or logistical challenges that have been encountered in the effective implementation of AI technologies in teaching?

Follow-up: Could you provide examples of technical challenges and the solutions or strategies employed to resolve them?

Section 3: Faculty and Student Experiences

How have faculty members responded to the introduction of AI in teaching methodologies? What has been their general attitude towards AI integration?

Follow-up: Have you noticed any variations in attitudes or behaviors among faculty members?

Can you provide insights into the experiences of students in relation to the use of AI, particularly ChatGPT, as a learning tool? What are their reactions and behaviors?

Follow-up: How have students' interactions with AI technologies impacted their learning experiences and outcomes?

Section 4: Educational Implications and Future Directions

In your view, what are the most significant educational implications and opportunities that AI technologies offer within the faculty?

Follow-up: Can you provide examples of how AI integration has led to improved educational outcomes or innovation?

What do you see as the future directions and potential areas of growth for the integration of AI into education at the faculty?

Follow-up: Are there any specific plans or initiatives in place for the future regarding AI integration in education?

Section 5: Final Thoughts

Is there anything else you would like to add or any final thoughts on the topic of AI integration in education?

ConclusionThank you for sharing your insights and experiences. Your input will be valuable in our research.

APPENDIX VI: RESEARCH BUDGET

NO.	ITEM	AMOUNT (KSHS)
1.	STATIONERY	5,000
2.	PHOTOCOPYING	5,000
3.	TRAVELING EXPENSES	20,000
4.	SUBSISTENCE	5,000
5.	STATISTICIAN	10,000
6.	INTERNET	5,000
7.	AIRTIME	5,000
8.	PRINTING AND BINDING	10,000
9.	MISCELLENOUS	7,000
	TOTAL	**72,000**

APPENDIX VII: WORKPLAN

NO.	ACTIVITY	PERIOD	DURATION
1.	Concept Paper writing and Literature search	January – March 2023	3 moths
2.	Correction and improvement of proposal	March – April 2023	2 months
3.	Full proposal development and defense of the proposal	May – June 2023	2 months
4.	Correction and improvement of proposal	June – July 2023	1 month
5.	data collection and field work	October, 2023	2 months
6.	Data analysis and submission of project for examination	October, 2023	1 month
7.	Report writing	September/ October, 2023	2 months
8.	Defense of project and correction after defense	November 2023	1 month
9.	Binding and submission of final project for examination	November 2023	1 month