UTILISATION OF EMERGING TECHNOLOGIES FOR ACADEMIC ACTIVITIES BY STUDENTS OF KWARA STATE POLYTECHNIC, ILORIN, NIGERIA

By

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CERTIFICATION

This is to certify that this project titled **"*Utilisation of Emerging Technologies for Academic Activities by Students of Kwara State Polytechnic, Ilorin, Nigeria*"** by Balogun Ibrahim Olaoluwa meet the regulations guiding the award in National Diploma in Kwara State Polytechnic Ilorin and is approved.

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DEDICATION

This project is dedicated to God for being my ultimate source of strength and inspiration. In Him, I derived all powers needed to live, weather the storms and become an embodiment of hope to myself and the people around me.

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All praise is to God, the most beneficent, the most merciful. My sincere appreciation goes to my parents for their concern, prayers and words of encouragements towards the completion of this progamme. My utmost gratitude also goes to my supervisors Mr. Sulyman, A. S. for her moral and intellectual guidance and contribution towards the possibility of this project and all other lectures of the department.

To be given the privilege to contribute stream of knowledge make me appreciate the entire management of Kwara State Polytechnic Ilorin, and my noble department of Library and Information Science and my fellow colleagues that made my stay on the citadel more interesting and all my friends without whom this great work could not be achieved.

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Abstract

Emerging technologies have been found to be revolutionising academic engagements of students. This study explores the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin, Nigeria. It has five objectives and questions. Descriptive survey design was used. The population of this study was 9,310 students of Institute of Information and Communication Technology, Kwara State Polytechnic, Ilorin. Simple random sampling techniques was used to select 368 respondents. Questionnaire was used to obtain data and the data collected were analysed in simple percentages, frequency and mean ($\bar{X}$). Findings revealed that the respondents utilised emerging technologies for essay writing ($\bar{X}$ = 3.42), homework assignments ($\bar{X}$ = 3.40), project ($\bar{X}$ = 3.38) and reports ($\bar{X}$ = 3.29). The emerging technologies utilised by the respondents include smartboards ($\bar{X}$ = 3.75), gamification ($\bar{X}$ = 3.69) and artificial intelligence ($\bar{X}$ = 3.63). Gamification ($\bar{X}$ = 3.70), smartboards ($\bar{X}$ = 3.65) and artificial intelligence ($\bar{X}$ = 3.59) are highly utilised by the respondents. Findings further revealed that emerging technologies help to enhance the respondents' learning experience in new ways, saving the time spent on performing academic activities, aiding their interactions with academic materials ($\bar{X}$ = 3.30) and providing 24/7 support ($\bar{X}$ = 3.27). However, challenges such as duplication of responses to prompts ($\bar{X}$ = 3.25), affect independent and critical thinking skills ($\bar{X}$ = 3.16), increase engagement in academic misconducts ($\bar{X}$ = 3.06) and poses threats to privacy ($\bar{X}$ = 3.04) affect the respondents' utilisation of emerging technologies for academic activities. This study concludes that emerging technologies have reshaped the paradigms of engaging in academic activities by students of Kwara State Polytechnic, Ilorin. One of the recommendations of this study is that lecturers in Kwara State Polytechnic, Ilorin, should devise the strategy of "double-checking" the academic activities such as essay writing and assignment.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Every educational institution is set up to achieve certain objectives. Among the objectives educational institutions usually focused on are promoting student learning, leading to their effective growth and development, helping them to emerge into moral and ethical human beings and productive citizens of the country and facilitating enhancement of their career prospects. In order to achieve these goals and objectives, teachers and educators heavily relied on involving the students in different academic activities (Davis, 2021; Kravchenko & Nygård, 2023).

Academic activities are different exercises designed to engage the students in learning. They can be deployed by the teachers in different contexts in order to achieve the intended aims and objectives of the teacher, lecturer or facilitator. Academic activities have generally been shown to be beneficial for young people's educational outcomes. Identified as a 'practical' aspect of educational capital, it is conducive to the acquisition of cognitive abilities, normative orientations, and cultural codes that are recognized and rewarded in formal education (Kravchenko & Nygård, 2023).

Academic activities are carried out in a verbal manner as well as in writing. When the students are communicating with others in a verbal manner or are working on assignments, projects or other written activities, they need to make use of decent words (Chakraborty, 2018). Formation of sociable terms and relationships with others and reinforcement of the traits of efficiency, honesty and truthfulness are the keys to carry out academic activities successfully. Academic

activities are not only regarded as fundamental in promoting students' learning and facilitating the achievement of their academic goals, they are also regarded as efficacious in leading to up-gradation of the overall system of education (Kapur, 2021).

One of the important aspects that needs to be taken into account in academic activities is that the students need to possess constructive viewpoints in terms of various aspects of academics and overall educational situations (Kapur, 2021). When students experience any setbacks, they need to pay attention towards up-gradation of skills and abilities to overcome setbacks. The academic activities can be complicated as well as manageable.

In educational institutions of all levels, the teachers are encouraging the participation of students in various types of academic activities. The academic activities are formulated in a manner that would facilitate in understanding academic subjects, achieving educational goals and leading to up-gradation of the overall system of education (Davis, 2021). The various aspects that need to be taken into account in organizing academic activities are, grade levels of students, academic subjects and lesson plans, learning abilities of students, academic needs and requirements, educational goals and the overall system of education. Furthermore, the educators need to ensure, the academic activities are pleasurable and students develop motivation towards them.

Chakraborty (2018) claimed that well-designed academic activities attract students to participate. Varied academic activities are carried out within the classroom settings as well as outside the classroom settings. The students may carry them out on an individual basis and in groups. The teachers need to make provision of information among students in terms of methods and procedures. The students need to understand them in an efficacious manner. After the teachers have imparted information among students in terms of academic subjects, they implement

various types of academic activities. The class assignments, which the students normally work on through making use of textbooks and other reading materials are also regarded as academic activities. However, the conduct of academic activities in the achievement of academic goals has been revolutionised by emerging technologies.

Emerging technologies is a combination of two words – emerging and technologies. Emerging mean "coming into forth or being," or "rapidly growing." Technologies, on their parts, mean "machines, tools, equipment, apparatuses or devices invented to help human beings overcome their impediment to comfort. When the two word are merged, emerging technologies means evolving or rapidly growing machines developed or manufactured to help human beings performed their daily activities in an unprecedented way. Emerging technologies possessed the attributes of newness, fast growth, convergence in technologies, benefits for a wide range of sectors to create the new or transform the existing ones and its unfinished nature (Küfeoğlu, 2022).

Emerging technologies can be defined as a set of technologies whose development and application areas are still expanding rapidly, and their technical and value potential is still largely unrealised. Naturally, the continuous realisation of the potentials of technologies leads to a vivid innovation environment for emerging technologies (Küfeoğlu, 2022). Emerging technologies are those machines, tools or devices that have the potential to change the current state of affairs in every sphere of human life. Emerging technologies include but are not limited to virtual reality implementations, augmented reality, internet-of-things, edge computing, cloud computing, machine learning, big data, hardware with sensors (Cukurova, Luckin & Baines, 2017) and technologies that allow collaboration among the people.

Trends in global information communication and technology (ICT) have dramatically changed the way people academic activities are performed as a result of the ever-changing digital landscape. The change has reached an extent that threatens the survival of the traditional academic activities unless teachers and schools respond positively to the contemporary mode of engaging in academic activities. This is mainly because new teachers and facilitators have emerged by employing the emerging technologies to outclass the traditional modes of performing academic activities. Thus, the earlier academics and educators responded to these evolutionary trends for creating engaging and stimulating academic activities in their schools, the better their chances of remaining relevant in their institutions (Ahenkorah-Marfo, 2015).

In recent times, emerging technologies is increasingly shaping the academic landscape. With the introduction of emerging technologies in academic activities, every facet of academic engagement ranging from assessment, teaching, learning, assignments, class works, essay writing, project taking, group discussion and research writing have changed. The emerging world of academic activities has been transformed from the physical teachers and learners oriented to a technology facilitated one (Friday & Onuh, 2022).

Mittal (2017) defines emerging technologies as those that have the potential to become socially relevant during the next 10 to 15 years. This indicates that they are still in the early stages of their growth. Simultaneously, they have progressed beyond the purely conceptual stage. Despite this, these new technologies have yet to be described. Their specific shapes, capabilities, limits, and applications are still a work in progress. Emerging technology is a term used to describe a technology that has great potential but has yet to prove its worth or gain widespread acceptance. Emerging technologies, such as AI, Cloud Computing, Edge Computing, Internet-of-Things, Blockchain, Big Data, Machine Learning, Augmented Reality, Virtual Reality and others

have redefined globalisation, allowing classes to become more interconnected, with communication between teachers and students increasingly mediated through technological platforms and transactions increasingly frequently conducted remotely (Fairhurst, 2019).

Noting the potency of emerging technologies to academic activities, therefore, becomes the basis for this study to be exploring the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin, Nigeria.

1.2 Statement of the Problem

Emerging technologies are the complex variants of the popular technologies, which are becoming prevalence in every sphere of human's life because of their abilities to simplify processes, offer people new experiences by allowing their daily tasks to be performed in a seamless manner. In education, teaching and learning, educators have been considering the diverse usefulness of emerging technologies to support the teaching and learning processes by leveraging the technologies to enrich the academic contents to attract students' interest in academic activities.

For example, the prevalence of artificial intelligence, big data, machine learning, virtual reality, augmented reality, deep learning, Internet-of-things, cloud computing, gamification and edge computing have transformed the academic environment. However, it has been observed by this researcher and reported in various studies that students find it difficult to participate in academic activities through emerging technologies because of their inadequate knowledge of the technologies, unethical use of the technologies, use of the technologies for wrong purposes, inadequate ICT infrastructure and inadequate knowledge of the teachers to create emerging

technologies-driven academic activities (Chakraborty, 2018; Davis, 2021; Kravchenko & Nygård, 2023).

The need to find out if the identified issues are peculiar to Nigeria justifies why this study will explore the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin, Nigeria.

1.3 Research Objectives

The main objective of this study is to explore the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin, Nigeria.

The specific objectives are to:

1. Ascertain the academic activities emerging technologies are utilised for by students of Kwara State Polytechnic, Ilorin,
2. Identify the emerging technologies utilised for academic activities by students of Kwara State Polytechnic, Ilorin,
3. Determine the extent of utilising emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin,
4. Explore the importance of utilising emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin, and;
5. Explore the factors affecting the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin.

1.4 Research Questions

This study aims to answer the questions below:

1. What are the academic activities emerging technologies are utilised for by students of Kwara State Polytechnic, Ilorin?
2. What are the emerging technologies utilised for academic activities by students of Kwara State Polytechnic, Ilorin?
3. What is the extent of utilising emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin?
4. What are the importance of utilising emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin?
5. What are the factors affecting the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin?

1.5 Significance of the Study

This study will contribute to the existing literature and expand the frontiers of knowledge on emerging technologies and academic activities. Specifically, this study will be valuable to the management of tertiary institutions, educators in tertiary institutions, developers of emerging technologies, students, educational agencies, policy and decision makers and other stakeholders.

Management of tertiary institutions will find this study beneficial because its findings are expected to reveal the emerging technologies students are utilising for their academic activities, which the management can make available to the students, either independently or through collaborations. Also, educators in tertiary institutions and students will find this study valuable

because they will discover different emerging technologies they can be utilising to engage their students in academic activities.

More so, developers of emerging technologies will significantly benefit from this study by knowing the technical or demographic glitches students are encountering in utilising emerging technologies for their academic activities, which the developers can improve upon in developing future emerging technologies that can be utilised for academic purposes. Finally, educational agencies, policy and decision makers and other stakeholders by discovering the policies affecting the utilisation of emerging technologies for academic activities by students, which recommendations will be made on how they can intervene to create an enabling environment for the utilisation of emerging technologies for academic activities.

1.6 Scope and limitations of the Study

This study will explore the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin. It will focus on the students of Institute of Information and Communication Technology, Kwara State Polytechnic, Ilorin. Thus, the participants of this study will be the students of the above-stated Institute. Descriptive survey design will be used in this study because the researcher intends to gather numerical data which will be used to describe the beliefs, attitudes and behaviours of the participants towards the utilisation emerging technologies for academic activities. This study will be conducted between December, 2024 and June, 2025.

1.7 Operational Definition of Terms

The following terms will be operationalised in this study:

Academic activities: These are activities designed to attract, engage and stimulate the interest of the students in their academic endeavours through emerging technologies.

Emerging technologies: These are advanced machines with the abilities to perform complex computations and functions, which are being utilised for academic activities by students of Kwara State Polytechnic, Ilorin.

Kwara State Polytechnic, Ilorin: This is a tertiary institution of learning in Ilorin, Kwara State, where this study will explore the utilisation of emerging technologies for academic activities by her students undertaking courses for their first-degree certifications.

Students: These are individuals undertaking courses for their national diploma certifications in Kwara State Polytechnic, Ilorin, who are expected to be utilising emerging technologies for their academic activities.

Utilisation: This is the act of attaching values to emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter is concerned with reviewing of related literature. The chapter review is done under the following sub-headings:

2.2 Concept of academic activities

2.3 Concept of emerging technologies

2.4 Emerging technologies used for academic activities

2.5 Academic activities emerging technologies are used for

2.6 Importance of utilising emerging technologies for academic activities

2.7 Factors affecting the utilisation of emerging technologies for academic activities

2.8 Appraisal of reviewed literature

2.2 Concept of Academic Activities

Academic activities have been explained by different authors. Kumar, Agarwal and Agarwal (2021) defined academic activities as the exercises performed by the students which is assessed by marks by a teacher. It is an avenue for achieving educational goals set by students and teachers to be achieved over a specific period of time. Academic activities contribute to the attainment of academic excellence of students through making them, which is the foremost motive of academic institutions. It is the key feature and one of the important goals of education (Narad & Abdullah, 2016; Rono, Onderi & Owino, 2014).

Narad and Abdullah (2016) opined that since a sound academic activity is considered as a pre-requisite for academic successes, leading to securing good jobs, a better career and subsequently a quality life, significance of the students' participation in academic activities is immense. Academic activities may seem to be a simple part of education, but its impact on the academic performance of students in any nation is multi-faceted. Narad and Abdullah (2016) mentioned in their research noted that at the basic level, the success or failure of any academic institution depends largely upon the academic activities the students participated in. They also reiterated the general belief that good academic activities signal better career prospects and thus a secure future.

The academic activities students are exposed to are immensely significant on the educational as well as the social development of any country. The better the students perform academically, the better are the prospects of the development of a quality manpower, who will contribute to the economic and social development of the nation (Kumar, Agarwal & Agarwal, 2021). Students engaging in robust and well-planned academic activities are meant to perform better than the expectations (Akinleke, 2017).

Academic activities can be understood as one of the nucleuses around which a whole lot of significant components of education system revolve. It is immensely significant for every student involved in education. This is why the academic activities of students, specifically belonging to Higher Education Institutions (HEIs), has been the area of interest among researchers, parents, policy framers and planners. Singh, Malik and Singh (2016) presented a straight and significant connect between academic activities and the educational development of a country, because acquisition of relevant knowledge as well as skill development become evident through students'

participation in academic activities. This accords a great reason to educators granting the highest priority to the academic activities of their students in the contemporary world.

2.3 Concept of Emerging Technologies

Emerging technologies are also known as "high-end technologies" or "cutting-edge technologies." Litvinski (2018) defines emerging technologies as a special kind of technology exhibiting core characteristics: radical novelty, fast growth, coherence, prominent impact, ambiguity as well as leverage, ascendancy, ambivalence, and materiality. Emerging technologies have become an integral part of human aspects of living revolutionising the way businesses, educational institutions, industries and organisations approach tasks and decision-making. The advanced models emerging technologies have expanded capabilities, leading to a surge in tools that embed them into everyday business applications (Mittal, 2017).

The International Telecommunication Union (2021), in their holistic assessment of emerging technologies posited that emerging technologies are validating the claims of Moore's Law and Kurzweil's Law relating to other aspects of technology and to any information-driven domain. They claimed that with regard to emerging technologies, progress has been made across many aspects. This is the case, for example, of mobile computing, which has evolved from feature phones to the very powerful smartphones of today; and networks, which have expanded rapidly from 2G to 5G. This exponential growth is also notable, for example, in cameras, storage media and 3D printers.

The price-to-performance ratio of these technologies is falling exponentially, making yesterday's very sophisticated and expensive technologies available today to many at the price point of older technologies. Now, smartphones are as powerful as former supercomputers, and are used to

access such Internet services as videoconferencing with high fidelity, or mobile banking and stock trading, or virtual games with players who are thousands of miles apart. When combined, information-driven technologies such as mobile, Internet (IP-based), cloud computing and digital cameras drive even more acceleration and disruption. Today, many such emerging technologies are growing fast because they have established a virtuous circle that provides a framework for development and acceleration (Mittal, 2017).

2.4 Emerging Technologies Used for Academic Activities

The growing selection of edtech has impacted the modern classroom for the better, contributing to technology-enhanced learning opportunities. The traditional one-size-fits-all approach no longer sustains the modern academic environment. Instead, institutions are invested in providing diverse, accessible, and student-centered learning experiences with digital tools. Overall, technology has opened doors to educational opportunities, facilitating flexible and tailored learning. Therefore, schools and institutions want to stay updated with the latest and greatest in educational technologies. In this article, we'll learn about emerging technologies, their implementation, and planning for the future.

It takes time to implement new technologies into the environment once they are introduced. These technologies may come with a learning curve – requiring proper training. This is why educators benefit from professional development, teaching resources, and a supportive administration. Educators also learn to balance new technologies with traditional pedagogical approaches. They can use technology to enhance their instruction with conventional methods.

Emerging technologies have revolutionised the academic ecosystem, improving learning and teaching practices. Educators and students have embraced these technologies as they regularly

use learning management systems and other digital tools. This systemic use of emerging technologies in education ushers in a new generation of digitally literate educators and students (Kumar, 2021).

William (2023) asserted that the evolution of emerging technologies has made essential for schools and institutions to stay up-to-date with the latest and greatest edtech tools. With technology becoming an integral part of society, modern students need tech-enhanced education to build their toolbox and stay competitive. Now more than ever, it's important to implement technology in the classroom, ensuring students build transferable tech-based skills.

Over the years, the traditional chalkboard has evolved into interactive whiteboards, and instead of carrying around books, students have access to e-books and digital resources. It's evident that schools and institutions have transformed throughout the years, primarily due to technology (University of South Florida, 2024). In recent times, schools and institutions want to implement technologies to improve their learning environments and maintain a competitive edge. However, this can prove challenging – especially for economically and geographically disadvantaged schools. To bridge the digital divide, schools are increasing learning opportunities through tech, ensuring education is accessible to every learner through emerging technologies. This provides a solution for education desserts and learning hurdles.

Pioneer studies on the adoption and utilisation of emerging technologies for educational purposes have revealed that emerging technologies such as artificial intelligence (AI), machine learning (ML), big data, cloud computing, edge computing, learning management system (LMS), augmented reality (AR), virtual reality (VR), internet-of-things (IoT), gamifications, QR codes,

radio frequency identification (RFID), smartboards, blockchain and others (Fairhurst, 2019; Küfeoğlu, 2022).

University of South Florida (2024) defines blockchain is a transparent, peer-to-peer distributed network of computers, a decentralized shared platform and a democratized global ledger of transactions organized in the cloud. It is immutable and cryptographically secured. No single entity can enact changes or is in charge. An attempt to remove or add a false document to a blockchain will break the chain and immediately render it invalid. Blockchain is being used to help students consolidate information about educational and training programs into a single, universal, secure, permanent and unified record. The student has access to an identifier that can be provided to a future employer, for example, to validate credentials. Georgia Tech's Blockchain Credential Project coalesces student academic information into an immutable transcript, and MIT Media Lab has registered a system of digital credentials on the bitcoin blockchain.

Williams (2023) claimed that AI is also driving innovation in the classroom through new programs. The University of Utah, for example, has developed an AI concentration on entertainment arts, engineering and games, and UCLA Law has received funding to study potentially disruptive societal and legal changes. AI is a component of new media training in the School of Communication at The Ohio State University. The University of Florida (UF) has just announced a $70M partnership with NVIDIA to provide the fastest artificial intelligence supercomputer in higher education. Every UF student will have a class that exposes them to AI concepts.

In education, quantum computing has revolutionised the way students learn deeper concepts. This function may enable advanced data analysis, modeling and simulations. In the same vein, neuromorphic computing is a futuristic technology that can advance cognitive computing and build systems capable of learning and adapting (Williams, 2023). Biometric technologies could someday secure access to educational materials. This is emerging as some students and educators may use their face ID or fingerprint to unlock academic tablets and computers.

Küfeoğlu (2022) viewed emphasised the importance of VR and AR to education activities. He posited that VR and AR learning tools help facilitate interactive learning experiences. Students benefit from immersive learning opportunities as they engage in simulated environments. These tools can also help with challenging subjects – turning a complex subject into an enjoyable experience. Similarly, IoT supports the integration of sensors and smart devices like digital whiteboards. Educators can provide diversified and interactive instruction with these technologies. It is important to stress that educators have leveraged gamification to increase student engagement and satisfaction with gamification. By integrating common gaming elements such as competition, challenges, and rewards, students are motivated to learn and play an active role in their learning (University of South Florida, 2024).

2.5 Academic Activities Emerging Technologies are Used for

Sharples (2022) claimed the evidence of the beneficial effects of the utilisation of emerging technologies for academic purposes. A sufficient reason is required prior to the investment of time and other resources, such as the effort of a teacher and students. Although, passing off the work of another person as one's own has been a prevalent practice for a very long time, written essays continue to be an important component of educational assessment all around the world.

This task has become much simpler thanks to the proliferation of online commercial essay mills that offer custom writing on a wide variety of subjects.

The most recent advancements in emerging technologies, such as AI which are referred to as 'big language models,' like OpenAI's GPT-3, Learning Management System (LMS), Machine Learning (ML), Internet-of-Things (IoT) and Virtual Reality (VR) are poised to have an even greater influence. There are already several commercial organisations that provide students with Automatic Essay Writing (AEW) tools. These AEW programs, which may automatically write individual paragraphs or full essays in response to a prompt, such as an essay topic, have become increasingly popular in recent years. Even though the writing that is currently being generated by AEW can be simplistic and even nonsensical at times, it can be difficult to tell whether the content being generated was written by an algorithm or a human student at times. It is not known, however, whether AEW technologies contribute to or detract from the learning of students. In spite of this, it is likely that they will have an effect on the way in which they evaluate pupils due to the increasing sophistication of AEWs and what may be called a "race to the bottom" between AEW detectors and AEWs (Llego, 2023).

Kapur (2021) asserted that one of the important aspects that needs to be taken into account in academic engagements is that students need to possess constructive viewpoints in terms of various aspects of academics and overall educational situations. When students experience any setbacks, they need to pay attention towards up-gradation of skills and abilities to overcome setbacks. The academic performance can be complicated as well as manageable. Kapur (2021) and Davis (2021) posited that the prevailing methods of using emerging technologies for academic activities are as follow:

Using Emerging Technologies for Tests: Tests are regarded as the academic activities that are organized by the teachers in educational institutions of all levels. These are put into practice to assess the academic performance of the students. The students are given time by the teachers to prepare themselves to participate in these academic activities. The students normally feel apprehensive, when they are to take a test or at the time of exams. But when they devote sufficient amount of time towards their preparation, they are able to overcome apprehensiveness and vulnerability. In other words, they need to be well-prepared (Davis, 2021). The educators are required to provide information to the students regarding the subjects and concepts in an adequate manner. When the teaching methods are implemented well, the student learning will be promoted in a well-ordered manner. The participation of the students in tests and exams is mandatory. Therefore, tests and exams are regarded as the academic activities which have contributed in an effective manner in identifying the learning abilities among students (Kapur, 2021).

Using Emerging Technologies for Group Discussions: In educational institutions of all levels, the students are encouraged to participate in group discussions. These contribute in augmenting knowledge among students and hone their communication skills and interactive abilities. Within the classroom settings, the teachers give a topic to the students in terms of which they carry out group discussions. The students are given the opportunities to express their ideas and viewpoints (Davis, 2021). In some cases, the students may have same viewpoints, whereas, in other cases, they may disagree with others. The classmates need to form pleasant and sociable terms and relationships with each other to do well in their studies. When they do not agree with each other regarding some concepts, they need to ensure, disagreements do not assume a major form. One

of the important aspects that needs to be taken into account is, the interaction needs to take place in a well-mannered way (Kapur, 2021).

Using Emerging Technologies for Homework Assignments: The main objective of homework assignments is to facilitate adequate understanding in terms of academic subjects and lesson plans. When students experience any problems, they make note of them and discuss them with their teachers or classmates. As the name implies, homework assignments are the ones, which the students normally work on within their homes. The teachers work hard to impart understanding among students in terms of academic subjects (Davis, 2021).

Using Emerging Technologies for Projects and Reports: In educational institutions of all levels, the students are encouraged to work on projects and reports. The different topics are selected to work on them. The main objective of projects and reports is to facilitate adequate understanding of the academic subjects and achieve educational goals. These are carried out on an individual basis as well as in groups. The teachers give reasonable amount of time in completing these assignments. The students are making use of technologies and various types of reading materials in the implementation of various types of projects and reports (Davis, 2021).

Using Emerging Technologies for Teamwork: The teamwork is encouraged among students by the teachers within the course of implementation of various assignments and projects. The students may carry them out on an individual basis and in teams. The team is formed of two or more individuals. When the individuals are working in a team, they are able to benefit to a major extent. The various benefits are, generating information in terms of various methods and approaches; exchanging ideas and viewpoints; alleviating work pressure; developing motivation towards the implementation of job duties; curbing the feelings of apprehensiveness and vulnerability; augmenting information regarding modern, technical and pioneering methods;

providing solutions to various problems in an appropriate manner; forming sociable terms and relationships with others; carrying out job duties successfully and achieving educational goals in a well-ordered manner (Kapur, 2021).

Using Emerging Technologies for Debates: In educational institutions of all levels, the students are encouraged to participate in debates. Debates augment knowledge and abilities among students as well as hone their communication skills and interactive abilities. Within the classroom settings, the teachers give a topic to the students in which they are required to carry out a debate. In the debate, the students are given the opportunities to express their ideas and viewpoints. In some cases, the students may have same viewpoints, whereas, in other cases, they may have opposing viewpoints. The classmates need to form cordial and sociable terms and relationships with each other to achieve academic goals (Chakraborty, 2018). When they do not agree with each other regarding some concepts, they need to ensure, arguments and disagreements do not assume a major form. One of the important aspects that needs to be taken into account is, the communication processes need to take place in a polite and courteous manner.

Using Emerging Technologies for Class Assignments: After the teachers have imparted information among students in terms of academic subjects and lesson plans, they give class assignments to the students. The main objective of these assignments is to facilitate adequate understanding and clear all the doubts. The class assignments, which the students normally work on through making use of textbooks and other reading materials are also regarded as academic activities. The class assignments are carried out on an individual basis as well as in groups. In textbooks, at the end of lesson plans, there are exercises given (Chakraborty, 2018).

Using Emerging Technologies for Role Playing: Role playing is the academic activity, which is usually carried out in the subjects of English, Hindi and history. This academic activity is pleasurable and enjoyable to a major extent. In this academic activity, the students are required to assume the roles of characters. They are required to learn and memorise the dialogue and act out the play (Kapur, 2021). Within classroom settings, when the teachers have completed the lesson plans, they encourage role playing. In this case, the students may use their books and speak the dialogue through reading from the books. There are organization of competitions as well. In the competitions, the students have to be well-prepared.

Using Emerging Technologies for Presentations: In educational institutions of all levels, the students need to pay attention towards honing of presentation skills. The presentations are made through making use of reading materials or Power Point slides. These are normally encouraged by the teachers to assess the academic performance of the students. The various factors that need to be taken into account to hone presentation skills are, being informative in terms of subjects and concepts; overcoming apprehensiveness and vulnerability; making use of language understandable to the audience; speaking clearly and fluently; honing technical skills, when Power Points are to be prepared; providing factual information; providing accurate answers to the questions put forward by audience; making use of polite language and decent words; maintaining eye contact with the audience; carrying out presentations within the required time and dressing neatly (Davis, 2021). The educators are vested with the responsibility of providing information to the students regarding these factors. Furthermore, they generate information in terms of them on their own as well. These factors need to be reinforced in leading to up-gradation of presentation skills. Therefore, presentations are regarded as an academic activity,

which have proven to be meaningful and significant in achieving educational goals (Chakraborty, 2018).

Using Emerging Technologies for Quizzes: Quizzes are regarded as the academic activities that are organized by the teachers in educational institutions of all levels. These are put into practice to assess the academic performance of the students. The students are given time by the teachers to prepare themselves to participate in quizzes. The students normally feel apprehensive, when they are participating in quizzes. But when they devote sufficient amount of time towards their preparation, they are able to overcome apprehensiveness and vulnerability (Kapur, 2021). The educators are required to provide information to the students regarding the subjects and concepts in terms of which quizzes are to be put into operation. In some cases, the students are provided with the opportunities to make decisions regarding participation in quizzes. Whereas, in other cases, it is compulsory for the students to participate in them. The internet and some social networking sites have proven to be indispensable in augmenting skills and in clearing the doubts.

2.6 Importance of Utilising Emerging Technologies for Academic Activities

Emerging technologies have the potential to transform people's thinking about education and its related activities (Kumar, 2021). From personalised learning algorithms to virtual and augmented reality, emerging technologies are helping to enhance the learning experience of students in ways no one ever thought possible. The wide range capacities of emerging technologies make it a potent tool in enhancing the academic experience of students (Davis, 2021).

One of the most significant importance of emerging technologies to academic activities is its ability to personalise each student's learning experience. Through emerging technologies such as AI, educators can analyse students' performance and preferences data to create customised lesson plans and assessments that align with each student's unique strengths and weaknesses.

Additionally, emerging technologies is important in the automation of administrative tasks such as grading, freeing up time for educators to focus on other important aspects of teaching (Llego, 2023).

Llego (2023) posited that an emerging-technologies-centered approach in education is important in a number of ways, including relieving the workload of overworked educators and administrators, increasing students' educational experiences, and better preparing them for the world of labor in the future. The realisation of the full potential of emerging technologies in education by educators, administrators and policymakers requires placing a high priority on collaboration between humans and machines, employing technology to complement our capabilities and supporting the aims of providing quality education to all kids across the country.

According to Rodrigo (2023), in recent years, the field of education has been confronted with a variety of issues, some of which include inadequate funding, a lack of resources, and low teacher wages. However, the development of emerging technologies has presented the industry with new options to overcome these difficulties than ever before. There is a possibility that AI will bring about a sea change in the instructional methods used in schools. It has the potential to increase the effectiveness of teaching as well as the educational experience for students by providing more individualized learning opportunities. Students are able to learn at their own pace and receive quick feedback when using learning management systems, chatbots, and other AI-powered technologies such as virtual assistants and assistants online.

In addition, emerging technologies can help teachers save time by automating administrative activities such as grading assignments, keeping track of students' attendance and developing lesson plans. This can free up time for teachers to concentrate on more vital activities, such as delivering lessons and encouraging student participation. Emerging technologies can also assist

in identifying students who are having difficulty learning and in providing them with additional support to boost their overall academic performance (Llego, 2023).

Emerging technologies can also enhance the learning experience for students in a number of ways. For example, virtual and augmented reality can make learning more interactive and immersive, while chatbots and other AI-powered tools can provide 24/7 student support. Additionally, emerging technologies such as AI, gamification and LMS can be used to create personalised quizzes and games that help students to engage with the material in a fun and interactive way (Kapur, 2021).

William (2023) noted that with the help of various data mining techniques in an emerging-technology-driven educational space, institutions can gain knowledge of different factors and predict a student's performance in advance. Also, emerging technologies aid in assessing students' involvements in a particular course. This helps the institution in clustering students into various groups according to their performance levels and identifies the most talented and success-prone students as well as relatively weaker students. Personalised learning is one of the most exciting potential benefits of emerging technologies in education. With the ability to analyse data on student performance and preferences, emerging technologies can help educators to create customised lesson plans and assessments that align with each student's unique strengths and weaknesses. This can improve student experience and motivation, and ultimately lead to better academic outcomes.

Perez (2023) commented that emerging technologies have revolutionised academic research by processing and analysing large amounts of data quickly, uncovering new discoveries, generating hypotheses and conducting literature reviews faster than traditional methods. ChatGPT, for example, can assist researchers in writing papers by providing feedback and suggestions, and

even generate parts of the text. Additionally, it can be used in natural language processing such as text summarization, sentiment analysis, and language translation for analysing unstructured data.

Leveraging different identifications makes it possible for emerging technologies to take special care of students to improve their performance. Various emerging-technology-aided tools can be deployed in taking individual care of a student. Various recommendation systems can assign personalised learning curricula to students according to their needs and intelligence level. Personalized and customized course styling can be individually adapted as per the student's interest. This not only helps improve a student's performance; it also helps in preventing dropouts and attracting more and more students towards higher education, in turn building the youth of a nation (Dhara et al., 2022).

2.7 Factors Affecting the Utilisation of Emerging Technologies for Academic Activities

The incorporation of emerging technologies into the educational system does not come without its share of difficulties. One of the most significant problems is the absence of the necessary infrastructure and resources to support emerging-technology-powered educational issues. Preliminary findings have revealed that a lot of schools in Nigeria do not have access to fundamental technologies like computers and internet connectivity, both of which are necessary for emerging technologies to work properly. Other problems are poor Internet connectivity, technophobia, epileptic power supply, generation of irrelevant academic contents and the widespread lack of awareness and understanding of proper utilisation of emerging technologies among teachers and students (David, 2023).

Anders (2023) argued that the fact that many teachers and students are unfamiliar with emerging technologies and its potential advantages can be a barrier to their adoption and utilisation in education. Among the teachers, there is a growing apprehension that students may be tempted to use downloadable apps such as ChatGPT to write reports that synthesise the literature on any given subject and then pass off these reports as their own in order to complete the requirements of school assignments. Some people have the opinion that the growing popularity of these emerging technologies could lead to a "cheating epidemic" in schools.

Concerns raised by educators and educational institutions primarily fall into two categories: the first is that the increasing automation of the learning process may produce students who are unable to properly think, who are unable to reason on their own, and who uncritically accept everything that is fed to them; the second is that these tools may encourage the easy resort to dishonest shortcuts. Educators and educational institutions are concerned about both of these issues. (David, 2023).

While the opportunities for emerging technologies are promising, its impact on the culture of, norms in and expectations about interactions between students and instructors are still elusive (Seo, et al, 2021) because most students are not aware of the major emerging technologies they can use for academic purposes. Along with these potential benefits come some difficult challenges and risks the education community must navigate:

Overreliance on technology: Both teachers and students face the risk of becoming overly reliant on emerging technologies such as VR, AR and AI. For students, this could stifle learning, especially the development of critical thinking. This challenge extends to educators as well. While AI can expedite lesson-plan generation, speed does not equate to quality. Teachers may be

tempted to accept the initial AI-generated content rather than devote time to reviewing and refining it for optimal educational value (Bailey, 2022).

Student cheating: Students might use emerging technologies such as AI to solve homework problems or take quizzes. AI-generated essays threaten to undermine learning as well as the college-entrance process. Aside from the ethical issues involved in such cheating, students who use AI to do their work for them may not be learning the content and skills they need (Seo, et al, 2021).

Privacy concerns: When students or educators interact with emerging technologies, their conversations and personal information might be stored and analysed, posing a risk to their privacy. With emerging technologies such as AI and cloud computing, educators should refrain from inputting or exposing sensitive details about themselves, their colleagues, or their students, including but not limited to private communications, personally identifiable information, health records, academic performance, emotional well-being, and financial information (Rodrigo, 2023).

Decreased social connection: There is a risk that more time spent using emerging technologies will come at the cost of less student interaction with both educators and classmates. Children may also begin turning to these conversational AI systems in place of their friends. As a result, emerging technologies like AI could intensify and worsen the public health crisis of loneliness, isolation, and lack of connection identified by the U.S. Surgeon General (David, 2023).

2.8 Appraisal of Reviewed Literature

Emerging technologies, as technologies that are still forthcoming, have attracted the attentions of practitioners from all walks of life. The reasons for their attractions is their varieties that can be

used for different purposes. In the educational sector, emerging technologies promised to be highly useful for both the teachers and students, due to its potential to aid efficiency and effectiveness in the teaching and learning processes. Despite this, findings by this researcher revealed that there is a dearth of studies on the utilisation of emerging technologies in for academic purposes.

Existing studies that have attempted to explore the adoption and utilisation of emerging technologies in education focused on AI. For example, Seo, et al. (2021) explored the adoption of AI in education in Philiphines. Perez (2023), on his own part, investigated the utilisation of AI-tools for educational activities in Colombia. Also, in the Nigerian context, there is a dearth of studies focusing on emerging technologies and academic activities. Identifying these empirical and practical-knowledge gaps justifies why this study will be exploring the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin, Nigeria.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter will explain the approaches that will guide the researchers in conducting the study. This chapter will also espouse the justifications for any approaches used in conducting this study.

Hence, this chapter will be organised under the following sub-headings:

3.2 Research design

3.3 Population of the study

3.4 Sample size and sampling technique

3.5 Instrument for data collection

3.6 Validity and reliability of the instrument

3.7 Procedure for administration of the instrument

3.8 Method of data Analysis

3.9 Ethical considerations

3.2 Research Design

Research design indicates the patterns of how this study will be conducted. Kolawole and Ijiebor (2018) clearly asserted that research design is the conceptual outlook with which research is

conducted, which constitutes the yardstick for the collection, measurement and analysis of data. Thus, descriptive survey design will be adopted for this study. Descriptive-survey design is relevant for this study because it gives the researchers the chances of exploring the opinions, beliefs and perceptions of students of Kwara State Polytechnic, Ilorin, and their utilisation of emerging technologies for academic activities.

3.3 Population of the Study

Population is the total area, environment, location or group of people a study intends to cover. Issa (2012) explained population as all the members or elements of a particular group of people, animals, or things in a defined area. The population of a study is expected to show what constitute the study's participants, whether actual or targeted and also indicate their number.

The population of this study comprises students of Institute of Information and Communication Technology, Kwara State Polytechnic, Ilorin. The population of this study will be presented in the table below:

S/No	Departments	No of Students
1.	Library and Information Science	540
2.	Mass Communication	3,700
3.	Computer Science	4,070
Total		**8,310**

3.4 Sample Size and Sampling Technique

Sample is the unit, portion or element of the population, which will provide data that are relevant to the study. In this study, sample size was determined with Krejcie and Morgan Table of sampling size. Three-hundred and sixty-eight samples will be chosen based on the criterion specified in the table.

On the other hand, sampling technique is the process of choosing the respondents. Simple random sampling will be used to select the respondents because it allows the researcher to give equal chance to every undergraduate in the study area.

3.5 Instrument for Data Collection

This study will adopt questionnaire to collect data from respondents. Issa (2012) explains questionnaire as a data collection instrument containing series of questions and other prompt responses for the purpose of gathering information from library users. The questionnaire will be titled ***"Questionnaire on exploring the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin, Nigeria."***

The questionnaire will be arranged in the six major sections below:

Section A: Demographic characteristics of respondents

Section B: Academic activities emerging technologies are utilised for by students of Kwara State Polytechnic, Ilorin.

Section C: Emerging technologies utilised for academic activities by students of Kwara State Polytechnic, Ilorin.

Section D: Extent of utilising emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin.

Section E: Importance of utilising emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin.

Section F: Factors affecting the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin.

3.6 Validity and Reliability of the Instrument

Validity refers to the extent at which an instrument accurately measures what it intends to measure (Li, 2016). The questionnaire will be given to two subject experts for assessment of the quality of presentation of the contents of the variables the researchers wish to measure. Their expert opinions will be corrected before the questionnaire is presented to the supervisor for assessment and corrections, which thereafter, the questionnaire will be distributed to the respondents.

However, reliability refers to the extent at which an instrument yields consistent results. Internal consistency will be used to assess the extent of differences within the test items by exploring the same construct that produce similar results (Thomas, 2022).

3.7 Method of Distribution of the Instrument

The questionnaire will be distributed to the respondents by the student researcher and two assistants. The student researcher and his assistants will use five days to visit different departments in the faculty.

3.8 Method of Data Analysis

Data collected will be presented in simple percentage, frequency tables, mean and analysed by using the IBM SPSS Statistics. The reason for the choice of simple percentage, frequency tables

and mean is because it allows presentation, analysis and comparison of multiple attitudes, opinions and ideas which can enhance easy understanding of tables and the data they contained.

3.9 Ethical Considerations

Data will be gathered for this study by seeking the consents of the participants' voluntary participation. After that, the privacy and confidentiality of the respondents will be respected by reporting the provided data in anonymity. The student researchers will ensure that data that will pose potential harm to the reputations or credibility of the participants will be disregarded.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter is concerned with the analysis of data collected, presentation of results and discussion of findings. The chapter is presented under the following sub-headings:

4.2 Questionnaire distribution and response rate

4.3 Demographic information of respondents

4.4 Presentation, analysis, discussion and interpretations of results

4.2 Questionnaire Distribution and Response Rate

Out of the 368 copies of the questionnaires administered, only 299 were filled and returned. Out of the filled questionnaires, only 267 were adequately filled and suitable for analysis. The filled questionnaire represents 72.06% return rate. Chung (2023) asserted that a survey's response rate is excellent for analysis if it is more than 30%.

4.3 Demographic Information of the Respondents

Table 2: Characteristics of the Respondents

Items		F	%
Gender	Male	124	46.4
	Female	143	53.6
	Total	**267**	**100**
Respondents' department	LIS	125	46.8
	Mass Communication	81	30.3
	Computer Science	61	22.8
	Total	**267**	**100**
Academic level	ND I	23	8.6
	ND II	28	10.5
	HND I	88	33.0
	HND II	128	47.9
	Total	**267**	**100**
Age range	15 – 19 years	107	40.1
	20 – 24 years	125	46.8
	25 – 29 years	27	10.1
	30 years and above	8	3.0
	Total	**267**	**100**

Source: Researchers' Field Survey, 2024

Table 2 reveals that majority (143 53.6%) of the respondents are females, while (124 46.4%) are male. Also, Library and Information Science students are the highest (125 46.8%), followed by Mass Communication (81 30.3%) and Computer Science (61 22.8%). More so, 128 (47.9%) are in HND II; HND I has 88 (33.0%), ND II 28 (10.5%) and ND I (23 8.6%). Finally, 125 (46.8%) are between 20 – 24 years, followed by 15 – 19 years (107 40.1%), 25 – 29 years (27 10.1%) and 30 years and above (8 3.0%).

4.4 Presentation, Analysis, Discussion and Interpretations of Results

4.4.1: Academic activities emerging technologies are utilised for by students of Kwara State Polytechnic, Ilorin

Table 3: What are the academic activities emerging technologies are utilised for by you?

	SA		A		D		SD			
Statements	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**M**	**DR**
Class assignments	78	29.2	148	55.4	27	10.1	14	5.2	3.09	A
Homework assignments	155	58.1	77	28.8	21	7.9	14	5.2	3.40	SA
Projects	152	56.9	80	30.0	19	7.1	16	6.0	3.38	SA
Reports	141	52.8	83	31.1	22	8.2	21	7.9	3.29	SA
Team/groupwork	86	32.2	135	50.6	30	11.2	16	6.0	3.09	A
Debates	80	30.0	133	49.8	36	13.5	18	6.7	3.03	A
Role playing	92	34.5	128	47.9	31	11.6	16	6.0	3.11	A
Group discussion	93	34.8	133	49.8	27	10.1	14	5.2	3.14	A
Essay writing	160	59.9	74	27.7	19	7.1	14	5.2	3.42	SA
Presentations	81	30.3	136	50.9	36	13.5	14	5.2	3.06	A
Quizzes	85	31.8	136	50.9	30	11.2	16	6.0	3.09	A
Tests	92	34.5	138	51.7	23	8.6	14	5.2	3.15	A

Source: Researchers' Field Survey, 2024

Decision Rule: If mean is 1.0 to 1.74 = Strongly Disagree (SD); 1.75 to 2.49 = Disagree (D); 2.50 to 3.24 = Agree (A); 3.25 to 4.0 = Strongly Agree (SA).

Table 3 indicates that the respondents strongly agreed to be utilising emerging technologies for essay writing ($\bar{X}$ = 3.42), homework assignments ($\bar{X}$ = 3.40), project ($\bar{X}$ = 3.38) and reports ($\bar{X}$ = 3.29). The respondents also agreed to the other statements including utilising emerging technologies for tests ($\bar{X}$ = 3.15), group discussion ($\bar{X}$ = 3.14) and role playing ($\bar{X}$ = 3.11).

It can be deduced from the findings that the respondents utilised emerging technologies for essay writing, homework assignments, project and reports. Though, other academic activities were performed on emerging technologies. Davis (2021) asserted that academic activities are formulated to facilitate the understanding of academic subjects by students, achieving

educational goals and leading to up-gradation of the overall system of education. The modes and methods of engaging in academic activities are changing as technologies evolved.

It is noteworthy that essay writing is the major academic activity emerging technologies is utilised for among the respondents. This shows that the situation of utilising emerging technologies such as AI for essay writing among the respondents is consistent with the trend in other parts of the world, such as China and the United States. Fairhurst (2019) and Küfeoğlu (2022) reported that more than 50 per cent of students in developed and developing countries used technologies such as AI, blockchain, Internet-of-Things and machine learning for academic purposes.

More so, it is important to stress that the respondents utilised emerging technologies for homework assignments, projects and report writing. This finding is consistent with the claim of Davis (2021) that students utilised emerging technologies to facilitate adequate understanding in terms of academic subjects and lesson plans. Also, students are making use of technologies and various types of reading materials in the implementation of various types of projects and reports.

Above all, findings of this study are insightful because it reflects positive utilisation of emerging technologies among the respondents, based on their agreement to the usage of emerging technologies for all academic activities. This affirms the point of Llego (2023) that all academic activities can be performed and engaged in with emerging technologies.

4.4.2: Emerging technologies utilised for academic activities by students of Kwara State Polytechnic, Ilorin

Table 4: What are the emerging technologies utilised for academic activities by you?

	SA		A		D		SD			
Statements	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**M**	**DR**
Artificial intelligence (AI)	200	74.9	42	15.7	19	7.1	6	2.2	3.63	SA
Internet-of-things (IoT)	168	62.9	67	25.1	21	7.9	11	4.1	3.47	SA
Virtual reality (VR)	153	57.3	74	27.7	27	10.1	13	4.9	3.37	SA
Augmented reality (AR)	177	66.3	58	21.7	20	7.5	12	4.5	3.50	SA
Cloud computing	25	9.4	151	56.6	54	20.2	37	13.9	2.61	A
Edge computing	37	13.9	131	49.1	59	22.1	40	15.0	2.62	A
3D printing	25	9.4	135	50.6	65	24.3	42	15.7	2.54	A
Smartboards	220	82.4	29	10.9	15	5.6	3	1.1	3.75	SA
5G networks	44	16.5	110	41.2	69	25.8	44	16.5	2.58	A
Gamification	212	79.4	32	12.0	17	6.4	6	2.2	3.69	SA
Big data	44	16.5	116	43.4	58	21.7	49	18.4	2.58	A
Blockchain	52	19.5	113	42.3	56	21.0	46	17.2	2.64	A
Machine learning (ML)	94	35.2	132	49.4	22	8.2	19	7.1	3.13	A

Source: Researchers' Field Survey, 2024

Verdict: If mean is 1.0 to 1.74 = Strongly Disagree (SD); 1.75 to 2.49 = Disagree (D); 2.50 to 3.24 = Agree (A); 3.25 to 4.0 = Strongly Agree (SA).

Table 4 indicates the emerging technologies used for academic activities by the respondents. It was discovered the respondents strongly agreed to the use of smartboards ($\bar{X}$ = 3.75), gamification ($\bar{X}$ = 3.69), artificial intelligence ($\bar{X}$ = 3.63), augmented reality ($\bar{X}$ = 3.50), Internet-of-Things (IoT) ($\bar{X}$ = 3.47) and virtual reality ($\bar{X}$ = 3.37). The respondents also agreed to the other statements including machine learning ($\bar{X}$ = 3.17), edge computing ($\bar{X}$ = 2.62) and cloud computing ($\bar{X}$ = 2.61).

The above findings indicate the positive utilisation of emerging technologies among the respondents. These findings are consistent with the assertion of Fairhurst (2019), Küfeoğlu (2022) and Llego (2023) that emerging technologies like OpenAI's GPT-3, Learning Management System (LMS), Machine Learning (ML), Internet-of-Things (IoT), gamification, Big Data and Virtual Reality (VR) have penetrated the academic spaces, redefining it and giving both educators and students new teaching and learning experience.

Typically, smartboards are one of the emerging technologies deployed for academic activities in Kwara State Polytechnic. Thus, its utilisation, as claimed by the respondents is a welcome development. Also, anybody that is familiar with the academic status in Nigeria will not disregard the growing use of AI. Hence, being among the emerging technologies mostly utilised for academic activities the students become interesting.

More so, the utilisation of gamification, VR and AR among the respondents corroborates the point of University of South Florida (2024) that through gamification, AR and VR, educators can provide diversified and interactive instructions to students, increase student engagement and satisfaction by integrating common gaming elements such as competition, challenges, and rewards to motivate students to learn and play an active role in their learning.

4.4.3: Extent of utilising emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin

Table 5: What is the extent of utilising emerging technologies for academic activities by you?

	HU		MU		PU		NU			
Statements	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**M**	**DR**
Smartboards	214	80.1	24	9.0	17	6.4	12	4.5	3.65	HU
Internet-of-Things (IoT)	145	54.3	72	27.0	31	11.6	19	7.1	3.28	HU
Virtual reality (VR)	102	38.2	103	38.6	42	15.7	20	7.5	3.07	MU
Augmented Reality (AR)	106	39.7	112	41.9	28	10.5	21	7.9	3.13	MU
Cloud computing	25	9.4	142	53.2	54	20.2	46	17.2	2.55	MU
Edge computing	45	16.9	106	39.7	70	26.2	46	17.2	2.56	MU
3D printing	42	15.7	111	41.6	67	25.1	47	17.6	2.55	MU
Artificial intelligence (AI)	197	73.8	42	15.7	16	6.0	12	4.5	3.59	HU
5G networks	48	18.0	114	42.7	50	18.7	55	20.6	2.58	MU
Gamification	218	81.6	27	10.1	14	5.2	8	3.0	3.70	HU
Big data	49	18.4	122	45.7	41	15.4	55	20.6	2.62	MU
Blockchain	56	21.0	117	43.8	44	16.5	50	18.7	2.67	MU
Machine learning (ML)	159	59.6	71	26.6	23	8.6	14	5.2	3.40	HU

Source: Researchers' Field Survey, 2024

Verdict: If mean is 1.0 to 1.74 = Not Used (NU); 1.75 to 2.49 = Partially Used (PU); 2.50 to 3.24 = Moderately Used (MU); 3.25 to 4.0 = Highly Used (HU).

Table 5 indicates that the respondents highly used gamification ($\bar{X}$ = 3.70), smartboards ($\bar{X}$ = 3.65), artificial intelligence ($\bar{X}$ = 3.59), machine learning ($\bar{X}$ = 3.40) and IoT ($\bar{X}$ = 3.28). Similarly, the respondents also moderately used AR ($\bar{X}$ = 3.13), VR ($\bar{X}$ = 3.07), blockchain ($\bar{X}$ = 2.67) big data ($\bar{X}$ = 2.61) and others. This implies that the highly used emerging technologies among the respondents are gamification, smartboards, artificial intelligence, machine learning and IoT.

These findings are similar to that of Table 4 that reported the emerging technologies utilised for academic activities among the respondents. However, it becomes interesting to note that IoT is

highly used among the respondents. The utilisation of IoT among the respondents affirms the claim of Sharples (2022) that IoT are being used in many tertiary institutions across the globe. Through IoT, institutions are connecting their learners with different technologies to be harnessed for academic activities seamlessly.

The highly utilisation of smartboards is also worthy to be stressed because it reflects the respondents' transitions from the traditional system to the modern system. This validates the assertion of the University of South Florida (2024) that traditional chalkboard has evolved into interactive whiteboards, and instead of carrying around books, students have access to e-books and digital resources. Currently, schools and institutions are transforming the smartboards for teaching and demonstration.

4.4.4: Importance of utilising emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin

Table 6: What are the importance of utilising emerging technologies for academic activities to you?

Statements	SA		A		D		SD		M	DR
	F	%	F	%	F	%	F	%		
Helping to enhance my learning experience in new ways	138	51.7	84	31.5	32	12.0	13	4.9	3.30	SA
Personalising my learning experience	119	44.6	91	34.1	37	13.9	20	7.5	3.16	A
Providing me different quick feedback	79	29.6	115	43.1	47	17.6	26	9.7	2.93	A
Saving the time I spend performing academic activities	158	59.2	58	21.7	24	9.0	27	10.1	3.30	SA
Helping me in identifying my learning difficulty	85	31.8	98	36.7	54	20.2	30	11.2	2.89	A
Providing 24/7 support to me	164	61.4	43	16.1	29	10.9	31	11.6	3.27	SA
Enhancing my interactions with academic materials	165	61.8	45	16.9	29	10.9	28	10.5	3.30	SA
Aiding the assessment of my involvement in a particular course	48	18.0	88	33.0	93	34.8	38	14.2	2.55	A
Helping me in processing and analysing large amounts of academic data quickly	44	16.5	95	35.6	85	31.8	43	16.1	2.52	A

Source: Researchers' Field Survey, 2024

Verdict: If mean is 1.0 to 1.74 = Strongly Disagree (SD); 1.75 to 2.49 = Disagree (D); 2.50 to 3.24 = Agree (A); 3.25 to 4.0 = Strongly Agree (SA).

Table 6 reveals that the respondents strongly agreed that emerging technologies help to enhance their learning experience in new ways, saving the time spent on performing academic activities and aiding their interactions with academic materials ($\bar{X}$ = 3.30) respectively, providing 24/7 support ($\bar{X}$ = 3.27). Similarly, the respondents agreed that personalising their learning experience ($\bar{X}$ = 3.16), providing different quick feedback ($\bar{X}$ = 2.93) and helping in identifying my learning difficulty ($\bar{X}$ = 2.89).

Findings showed that the major importance of utilising emerging technologies for academic activities are helping to enhance their learning experience in new ways, saving the time spent on performing academic activities, aiding their interactions with academic materials and providing 24/7 support. These findings are consistent with the notion of Davis (2021), Kumar (2021) and Llego (2023) that emerging technologies have transformed people's thinking about education and its related activities.

Findings that emerging technologies enhanced respondents' learning experience in new ways, saving the time spent on performing academic activities and providing 24/7 support validated that claims of Kapur (2021) that emerging technologies enhance the learning experience for students in a number of ways, provide 24/7 students by making learning more interactive and immersive. Additionally, emerging technologies such as AI, gamification and LMS are used to create personalised quizzes and games that help students to engage with the material in a fun and interactive way.

Furthermore, the point that emerging technologies aid interactions with academic materials affirms the point of Llego (2023) that emerging technologies help students access different information materials they can use to enrich their learning and academic engagements, which will eventually boost students' overall academic performance.

4.4.5: Factors affecting the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin

Table 7: What are the factors affecting the utilisation of emerging technologies for academic activities by you?

Statements	SA		A		D		SD		M	DR
	F	%	F	%	F	%	F	%		
Absence of the necessary IT infrastructure	57	21.3	80	30.0	89	33.3	41	15.4	2.57	A
Poor Internet connectivity	52	19.5	90	33.7	77	28.8	48	18.0	2.55	A
I am not aware of emerging technologies I can be using for academic activities	60	22.5	94	35.2	74	27.7	39	14.6	2.66	A
Duplication of responses to prompts	137	51.3	78	29.2	34	12.7	18	6.7	3.25	SA
Increasing my engagement in academic misconducts	82	30.7	141	52.8	21	7.9	23	8.6	3.06	A
Affect my independent and critical thinking skills	119	44.6	93	34.8	34	12.7	21	7.9	3.16	A
Cost of purchasing the facilities needed to implement emerging technologies	50	18.7	148	55.4	37	13.9	32	12.0	2.81	A
Poses threat to my privacy	103	38.6	98	36.7	41	15.4	25	9.4	3.04	A
Decreases my social connection	55	20.6	143	53.6	45	16.9	24	9.0	2.86	A
Not all my colleagues have access to emerging technologies they can utilise for academic activities	60	22.5	144	53.9	41	15.4	22	8.2	2.91	A

Source: Researchers' Field Survey, 2024

Verdict: If mean is 1.0 to 1.74 = Strongly Disagree (SD); 1.75 to 2.49 = Disagree (D); 2.50 to 3.24 = Agree (A); 3.25 to 4.0 = Strongly Agree (SA).

Table 7 shows that the respondents strongly agreed that duplication of responses to prompts ($\bar{X}$ = 3.25) by emerging technologies affect their utilisation of it for academic activities. In the same vein, the respondents also agreed that emerging technologies affect independent and critical thinking skills ($\bar{X}$ = 3.16), increase engagement in academic misconducts ($\bar{X}$ = 3.06),

poses threats to privacy ($\bar{X}$ = 3.04), not all students have access to emerging technologies they can utilise for academic activities ($\bar{X}$ = 2.91) and others.

The findings implied that the factors affecting the utilisation of emerging technologies for academic activities are duplication of responses to prompts, affect independent and critical thinking skills, increase engagement in academic misconducts, poses threats to privacy and not all students have access to emerging technologies they can utilise for academic activities. The findings affirmed the claims of Anders (2023), David (2023) and Seo et al. (2021) that the numerous problems affecting the utilisation of emerging technologies include poor awareness of emerging technologies among the people, lazy independent and critical thinking skills, poses threats to privacy, encourage academic misconducts, poor Internet connectivity, technophobia, epileptic power supply and generation of irrelevant academic contents.

The problems of duplication of responses to prompts, affect independent and critical thinking skills, increase engagement in academic misconducts, poses threats to privacy by emerging technologies are associated with AI, machine learning, IoT and others. Thes are similar to the problems of overreliance on technology, students cheating and privacy concerns raised by Bailey (2022), Rodrigo (2023) and Seo, et al. (2021).

Rodrigo (2023) lamented the piracy-related problem of emerging technologies to academic activities by noting that when students or educators interact through emerging technologies, their conversations and personal information might be stored and analysed, posing a risk to their privacy. The findings regarding increase engagement in academic misconducts affirms the point of Seo, et al. (2021) that contemporary students are fond of using emerging technologies

such as AI to solve homework problems or take quizzes. AI-generated essays threaten to undermine learning as well as the college-entrance process.

Similarly, the utilisation emerging technologies poses threat to independent and critical thinking skills of the respondents. This corroborates the assertion of Seo et al. (2021) that aside from the ethical issues involved in cheating, students who use emerging technologies such as AI and chatbots to do their work for them may not be learning the content and skills they need to succeed academically and ultimately in life.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarises the findings of this study, draws conclusion from those findings and makes appropriate recommendations. This chapter is arranged in the following order:

5.2 Summary of findings

5.3 Conclusion

5.4 Recommendations

5.2 Summary of findings

Results of this study revealed that:

1. Students of Kwara State Polytechnic, Ilorin, utilised emerging technologies for essay writing, homework assignments, project and reports.
2. Students of Kwara State Polytechnic, Ilorin, utilised smartboards, gamification, artificial intelligence and Internet-of-Things for academic activities.
3. Students of Kwara State Polytechnic, Ilorin, highly utilised gamification, smartboards, artificial intelligence and IoT for academic activities.
4. Students of Kwara State Polytechnic, Ilorin, utilised emerging technologies for their academic activities because it helps to enhance their learning experience in new ways, saves the time spent on performing academic activities, aids their interactions with academic materials and provides 24/7 support.

5. Students of Kwara State Polytechnic, Ilorin, faced numerous challenges when utilising emerging technologies for academic activities including duplication of responses to prompts, affect independent and critical thinking skills, increase engagement in academic misconducts and poses threats to privacy.

5.3 Conclusion

Emerging technologies are reshaping every paradigm of human beings, including education. This study has revealed that the students of Kwara State Polytechnic, Ilorin, are utilising emerging technologies such as smartboards, gamification, artificial intelligence and Internet-of-Things for essay writing, homework assignments, project and reports. Utilisation of emerging technologies for academic activities is important to the students of Kwara State University by enhancing their learning experience in new ways, saving their time spent on performing academic activities, aiding their interactions with academic materials and providing 24/7 support. Nonetheless, challenges including duplication of responses to prompts, affect independent and critical thinking skills, increase engagement in academic misconducts and threats to privacy affect the students' use of emerging technologies for academic activities.

5.4 Recommendations

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

1. Management of Kwara State Polytechnic, Ilorin, should collaborate with relevant stakeholders such as faculties, departments, Nigerian Information and Communication Technology Development Agency (NITDA), to train their students on different emerging technologies and how they can be utilised for academic activities.

2. Faculties, Departments and Centers in Kwara State Polytechnic, Ilorin, should organise orientations sensitising the students on digital security. This will refrain them from inputting or exposing sensitive details about themselves and their colleagues when utilising emerging technologies.
3. Lecturers in Kwara State Polytechnic, Ilorin, should devise the strategy of "double-checking" the academic activities such as essay writing and assignments that can be done with AIs. This will enable the lecturers identify the students that are solely relying on AI and focus on helping the combat the problem of overreliance on its use.

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APPENDIX
KWARA STATE POLYTECHNIC, ILORIN
INSTITUTE OF INFORMATION AND COMMUNICATION TECHNOLOGY
DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

Questionnaire on "***Exploring the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin, Nigeria***"

Dear Respondent,

Request for Response to Questionnaire

I am an undergraduate of the above-named institution, carrying out research on the above-mentioned topic. My research is in partial fulfillment of the requirements for the award of National Diploma certificate in Library and Information Science (ND).

Your assistance is hereby requested for timely completion of this questionnaire. I am assuring you that all data provided will be treated with utmost confidentiality and used for academic purpose only.

Thank you for your anticipated cooperation.

Researcher

Section A: Demographic Characteristics of Respondents

Kindly select the option of your choice by ticking from the answers below

1. Gender: Male ( ) Female ( )
2. Respondent's department: Library and Information Science ( )
   Mass Communication ( ) Computer Science ( )
3. Academic level: ND I ( ) ND II ( ) HND I ( ) HND II ( )
4. Age range: 15 – 19 years ( ) 20 – 24 years ( ) 25 – 29 years ( )
   30 years and above ( )

Section B: Academic activities emerging technologies are utilised for by students of Kwara State Polytechnic, Ilorin

What are the academic activities emerging technologies are utilised for by you?

Kindly tick (✔) SA for "Strongly Agree," A for "Agree," D for "Disagree" and SD for "Strongly Disagree."

S/No	Items	SA	A	D	SD
1.	Class assignments				
2.	Homework assignments				
3.	Projects				
4.	Reports				
5.	Team/groupwork				
6.	Debates				
7.	Role playing				
8.	Group discussion				
9.	Essay writing				
10.	Presentations				
11.	Quizzes				
12.	Tests				
Others, please specify……					

Section C: Emerging technologies utilised for academic activities by students of Kwara State Polytechnic, Ilorin

What are the emerging technologies utilised for academic activities by you?

Kindly tick (✔) SA for "Strongly Agree," A for "Agree," D for "Disagree" and SD for "Strongly Disagree."

S/No	Items	SA	A	D	SD
1.	Artificial intelligence (AI)				
2.	Internet-of-things (IoT)				
3.	Virtual reality (VR)				
4.	Augmented reality (AR)				
5.	Cloud computing				
6.	Edge computing				
7.	3D printing				
8.	Smartboards				
9.	5G networks				
10.	Gamification				
11.	Big data				
12.	Blockchain				
13.	Machine learning (ML)				
Others, please specify……					

Section D: Extent of utilising emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin

What is the extent of utilising emerging technologies for academic activities by you?

Kindly tick (✔) HU for "Highly utilised," MU for "Moderately utilised," PU for "Partially utilised" and NU for "Not utilised."

S/No	Items	HU	MU	PU	NU
1.	Artificial intelligence (AI)				
2.	Internet-of-things (IoT)				
3.	Virtual reality (VR)				
4.	Augmented reality (AR)				
5.	Cloud computing				
6.	Edge computing				
7.	3D printing				
8.	Smartboards				
9.	5G networks				
10.	Gamification				
11.	Big data				
12.	Blockchain				
13.	Machine learning (ML)				
Others, please specify……					

Section E: Importance of utilising emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin

What are the importance of utilising emerging technologies for academic activities to you?

Kindly tick (✔) SA for "Strongly Agree," A for "Agree," D for "Disagree" and SD for "Strongly Disagree."

S/No	Items	SA	A	D	SD
1.	Helping to enhance my learning experience in new ways				
2.	Personalising my learning experience				
3.	Providing me different for quick feedback				
4.	Saving the times I spend in performing academic activities				
5.	Helping me in identifying my learning difficulty				
6.	Providing 24/7 support to me				
7.	Enhancing my interactions with academic materials				
8.	Aiding the assessment of my involvement in a particular course				
9.	Helping me in processing and analysing large amounts of academic data quickly				
Others, please specify……					

Section F: Factors affecting the utilisation of emerging technologies for academic activities by students of Kwara State Polytechnic, Ilorin

What are the factors affecting the utilisation of emerging technologies for academic activities by you?

Kindly tick (✔) SA for "Strongly Agree," A for "Agree," D for "Disagree" and SD for "Strongly Disagree."

S/No	Items	SA	A	D	SD
1.	Absence of the necessary IT infrastructure				
2.	Poor Internet connectivity				
3.	I am not aware of emerging technologies I can be using for academic activities				
4.	Duplication of responses to prompts				
5.	Increasing my engagement in academic misconducts				
6.	Affect my independent and critical thinking skills				
7.	Cost of purchasing the facilities needed to implement emerging technologies				
8.	Poses threat to my privacy				
9.	Decreases my social connection				
10.	Not all my colleagues have access to emerging technologies they can utilise for academic activities				
	Others, please specify……				