

**INFLUENCE OF ARTIFICIAL INTELLIGENCE TOOLS ON THE RESEARCH
OUTPUT OF UNDERGRADUATES IN ENUGU METROPOLIS**

BY

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DECLARATION

I, Anonde Maryjane Uchenna, hereby declare that this research work was written by me and has not been submitted or received anywhere for the purpose of acquiring degree in Mass Communication or any other program

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CERTIFICATION PAGE

I, Anonde Maryjane Uchenna with the registration number Gou/U22/ Mas/515 of the department of Mass Communication, Faculty of Management and Social Sciences, Godfrey Okoye University, Ugwuomu-Nike, Enugu State, have satisfactorily completed the requirements for the award of B.Sc Degree in Mass Communication. This project is original and has not, to the best of my knowledge, been submitted in part or full for any other certification, diploma or degree program of this or any other University

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(Head of Department)

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Date(Head of Department)

DEDICATION

I dedicate this project especially to my family. I am where I am now only by their constant motivation to keep moving. I want to say a big thank you to my parents, Mr. Oliver and Mrs. Fidelia Iloh , and my siblings Chisom Anonde and Michael Anonde . I came this far only because of your constant support.

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I want to thank God for his guidance, preservation and protection over me throughout these four years. I do not deserve all the love and Favour he showed to me, but he still did, he showed up for me at desperate times, I owe it all to you, God. Let it be known I am only a person helped by your unwavering kindness. I am eternally grateful.

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ABSTRACT

This study seeks to examine how Artificial Intelligence tools has influenced the research output of undergraduates in Enugu Metropolis. To this end, it sought to ascertain how knowledgeable undergraduates are to AI tools, examine their usage of these tools and determine the extent to which the adoption of the tools has influenced their research output. The study was anchored on Technology Determinism Theory and Diffusion of Innovation Theory while survey was adopted as the research design. The population of the study covered two tertiary institutions which are Godfrey Okoye University and University of Nigeria Enugu campus. With a sample size of 375; the multi-stage sampling technique was used in the selection of respondents and questionnaire adopted as the instrument for data collection. Findings from the study revealed that at a mean value of 3.3, undergraduates in Enugu Metropolis were found to be knowledgeable about Artificial Intelligence tools and extensively use the tools for research output at an average mean of 3.1. Further findings indicate that at a mean value of 2.5, the adoption of AI tools negatively influence the research output for undergraduates of Enugu Metropolis. The study therefore recommends that measures should be enforced by the authorities of universities against students who uses these tools for their research. Training and workshops should be held to teach the students on the proper use of AI tools.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

According to Russell and Norvig (2021), Artificial intelligence can be interpreted as the aptitude for computer programs to accomplish the kind of activities often related with human intelligence, such as problem-solving, reasoning, perception, and decision making. It is an engineering, math and computer sciences field concerning the exploration and design of procedures and programs which allows computers to perceive and react to their surroundings. They are equipped with the skill and learning capacities required to take action and thereby raise the likelihood of attaining specified goals. The domain gained widespread recognition as a scientific field of study in 1956, with periods of intense interest throughout its existence. The phrase Artificial intelligence, created by Professor John McCarthy of Stanford University in 1955, was defined as the science and engineering of "intelligent" machine design. Research indicates that researchers create machinery that functions logically, like in games such as chess; yet, today, our efforts focus on machinery equipped with a human-like ability to learn. A subfield of artificial intelligence named machine learning research the methodologies computers and agents employ to gain awareness, and knowledge through experience or information. Therefore, knowledge from statistics, psychology, and neuroscience are involved. As it is presented by Marsden (2017) artificial intelligence technology definition which demonstrates intelligent behaviors by performing activities associated with human intellect like perception, learning and independent action. In simpler terms, it means technology which enables a machine to make a decision or understand how to react under certain scenarios. It is not that, unlike data processing based on predefined algorithms, that is how the technologies operate; but artificial intelligence can take on much more complicated jobs. College of international studies (2023) has explained that artificial intelligence is just as much of an innovation, a fundamental issue which has challenged current educational systems as the artificial intelligence technologies present new and important questions, influencing not only the way students learn, but even the relevance of this type of technological tool in education.- Artificial intelligence allows you to tailor your learning materials to fit with each learners current ability. It signifies that each one may be taught and gain at their pace, focusing on their areas for enhancement and accelerating their strengths. AI can assist students achieve access to

information and resources of high quality irrespective of income level and place. Continual progress through learning, learners will monitor and adapt to get advice, giving their strengths and shortcomings as an update to their learning approach and their capabilities for them to improve. Integration of artificial intelligence in tertiary schools is the dawn of a revolution in the practice and teaching of education.

ChatGPT, Gemini, Grammarly and Claude) and other literary research tools has brought substantial change to the learning process of many people. However, there has been great concern around the consequences if reliance gets too strong, as this may result in the learning process losing its independent analysis and crucial thought processes (Cotton et al,2023). Innovations are numerous, yet artificial intelligence stands out as one among many such developments. Technologies like progressive data analyzing tools, assistive writing machines and bibliography construction software have greatly impacted how we discover, acquire, process and disseminate knowledge.

As for learning establishments, all this and much more technological inventions have impacted students, thus reshaping conventional researching practices (Holmes, Balik, & Fadel, 2019). With the extensive development of these technologies, their utilization for academic tasks by Nigerian students has increase dramatically. Using artificial intelligence technologies is quite common; such activities enhance research productivity and simplify complex work as long as it is used appropriately (Eze & Onah, 2024). Several educational centers can be found in Enugu, among them, University of Nigeria, Godfrey Okoye University, and other schools which can be grouped under Polytechnic colleges or Universities for students to be able to obtain their degree. The research productivity of students significantly contributes to the credibility of any university; this is the very basis by which a university can secure future prospects and better career opportunities. AI may have an impact in several ways – how and to what extent are AI tools incorporated into different stages of research? What is considered good and bad about these instruments? Will they affect traditional learning methods in research? Are there certain risks associated with using this technology as part of a research methodology? (Grassini, 2023). Technology such as Large language models, literature search algorithms and data analytic tools has drastically changed the overall context of education as the AI tools were introduced. (Zhai, 2022) The increased use of mobile phones, improved connectivity and wide access to AI apps

have contributed to improved availability of technology to many Nigerian students (Dahunsi,2022). Artificial Intelligence could make student work easier for summary creation, outlining and many others. However, these developments have led to the introduction of a two sided debate with the fact that on the one side, these technologies simplify the processes involved with many tasks for students, on the other side they can contribute to students making less use of the critical thinking skill and creativity. 2023). The use of artificial technology in the research and education process in developing countries, such as Nigeria is still in its initial phases. However, the utilization continues and growing rapidly, with technology emerging as a tool that can support students to tackle complex research challenges. (Okoye& Ani 2020) Historically, undergraduate research has been viewed as one way in which critical thinking and independent problem-solving skills are encouraged. Currently, due to several factors like; lack of information resources, time constraints, overwhelming student-supervisor ratios, and the proliferation of AI based fake news can hinder the effective research outcomes and student performance. (Farrokhina et al.2024) Nevertheless, the adoption of artificial intelligence technology can result in enhanced personalization and efficiency in learning environments and students research. Indeed, theres no denying that the ability of AI to transform teaching, learning and researches to something a lot more personalized and responsive to students (Baker & Ryan 2019). What is more likely to happen is that an even higher level of performance of students comes due to a more personalized education strategy through AI (Lee & Ko,2020). The innovation process of artificial intelligence for education is still continuing. Therefore, its effect is the subject of ongoing researchers which can lead to new outcomes from its implementations in diverse research settings, simulations, and gaming environments. (Irfan & Iftekhar, 2021)Academic idleness, one form of it associated to academic activities related to reliance on some technology, is an issue related to AI tools being relied on for tasks like researching, homework, composing an essay, and the like. It involves students being passive listeners than participants in the whole learning process(Danner & Pessu 2020). The current study is conducted with a desire to learn exactly how artificial intelligence tools have come to shape how undergraduate students conduct research within the scope of Enugu metropolis, taking in to account the potentials as well as challenges of this particular technology. Learning from the specific geographical location and the population will permit the researcher to compile empirical data so that it can add to our pool of knowledge, enhance educational policies and also

strengthen existing debates concerning the deployment of Digital technology in higher education institutions of Africa. Knowing its implication seems pertinent as the Nigerian universities prepare themselves in the post Covid- 19 era, when technological solutions become indispensable tools in all levels of Education. (Popoola, Garba &Adenuga, 2021).

1.2 Statements of the problem

Artificial intelligence tools has become a major part of our daily life especially in carrying out research, helping students to simplify their research work and boost student capacity to produce good result. Artificial Intelligence tools like chatgpt ,meta AI, Gemini have aided undergraduates to have quick access to information. In Nigeria today, these tools has have helped students easily in aspect of research. Due to this educators have seen these AI tools has a powerful tool student use for their academic and have shown student over reliance on these tools. In as much as Artificial intelligence tools is beneficial, it also has its downside. The speed and ease with which these AI tools provide quick response can cause the information to be twisted or even completely false, and student may not be aware of information that is wrong. Perkins(2023), explains that we live in an age where artificial intelligence has permeated our daily lives in many ways. One area in which artificial intelligence has penetrated is education, focusing on issues such as the decline in critical thinking, issues of academic integrity and dependence on algorithm tools.

Notwithstanding the studies on AI, it is still vague as to whether the use of Artificial intelligence tools is beneficial or have led to the brain drain of undergraduates in Enugu metropolis. The extent on the usage and influence of these AI tools is the core problem that necessitated this study, as there is a little evidence showing whether AI tools is actually improving student research work or leading to a decline in the academic performance of students in Enugu metropolis.

1.3 Objective of the Study

The general focus of the study is to examine how AI tools has influenced the research output of undergraduates in Enugu metropolis while the specific objective is to:

1. Ascertain how knowledgeable undergraduates in Enugu metropolis are towards the usage of AI tools.
2. Examine the extent undergraduates in Enugu metropolis use AI tools for research output.
3. Determine the extent to which the adoption of AI tools influence the research output of undergraduate in Enugu.

1.4 Research Question

The below stated research questions have been framed keeping in mind the above mentioned research objectives:

1. To what extent are undergraduates knowledgeable about the usage of AI tools?
2. To what extent does undergraduate students in Enugu use AI for research outputs?
3. How has the adoption of AI tools influenced the research output of undergraduates in Enugu metropolis ?

1.5 Scope of the study

This research focused on exploring the application and effects of artificial intelligence (AI) on undergraduate students research outputs within Enugu city. Specific AI tools considered included but were not limited to Chat GPT, Claude, and Grammarly, which students primarily utilize for their academic research work.

The studys geographical scope is restricted to selected universities in Enugu city. To ensure a balanced perspective, one public and one private university were chosen for data collection: the University of Nigeria, Enugu campus, and Godfrey Okoye University, respectively.

1.6 Significance of the study

The results of this research would offer relevant lessons for students, universities and the academic circles. First and foremost, as it highlights the extent of the impact of AI on the

undergraduate research, educational institutions would know whether or not to adopt and use AI in their practices in making informed decisions.

Second, this research would inform the tertiary educational institutions in creating policy that directs the use of artificial intelligence among students. Moreover, this study serves as a stepping stone for researchers to future research on AI and Education as it would extend the body of knowledge. And for mass communication students, this would prompt for more exploration of the prevalent challenges and issue of communication and technology.

1.7 Limitations of the Study

During the process of collecting data for this research, there were difficulties such as inadequate financial resources to travel to the selected institutions and distribute questionnaires. Since this research is limited to undergraduate students in some tertiary institutions in Enugu city only, the results cannot be generalized to other students outside the specified locations. The study focuses exclusively on the impact of AI tools on research output and does not consider other factors that may influence research performance, such as the students discipline or academic background.

1.8 Operational Definitions of Terms

1. Artificial intelligence tools: these are software programs and digital devices which employ technologies similar to that of humans in order to assist learners with tasks that help in producing research work.
2. Research output: this refers to academic work/ results produced by undergraduates during their time of learning in the tertiary institution.
3. Undergraduate students: These are students in any tertiary institution (university, college of education, polytechnic) who have registered for a bachelors degree.
4. Influence: the effect a factor has on altering the way a person or organization makes decisions or acts.

5. Enugu metropolis: it is a city that can be described as the state capital of Enugu where a majority of government institutions and private organizations operate; it covers the entire north, east and west of Enugu State.

CHAPTER 2

2.1 Conceptual review

2.1.1 General Idea of Artificial Intelligence tools

Artificial intelligence AI research goes as early back as the mid 20th Century, British computer scientist and logic specialist Alan Turing claims. In 1935, the first logical theory concerning a fictitious computing system with an endless storage capacity and a reader (or writer) machine was formulated by Turing. The reader/writer scanner can manoeuvre between symbols across the storage via memory. Its behaviour is dictated by program instructions which, similarly composed of symbols, exist within the memory of the machine; This concept – placing program within memory, enabling the machine to modify instructions and consequently upgrade itself - is called the stored-programme concept, and the outcome is named universal Turing machine; During WWII, Turing was one of the top-performing crypt analysts in the Government code and cipher school at Bletchley Park, the UK, Turing could not begin assembling a stored program electronic machine up until the European war was over in 1945, nonetheless he devoted a good deal of time toward the concept of machine intelligence; Turing was associated at Bletchley Park by Donald Michie, the initiator of the Machine intelligence and perception dept. At the university of Edinburgh, who recalled Turing discoursing on computers aptness to acquire and solve unfamiliar issues from prior occasions through principles that is called

heuristic problem solving; During a presentation (London, 1947), one of the very first on pc learning, Turing expressed: "The goal of our efforts is a machine capable of learning via observation, and the ability to empower the device to change its very own directions is the engine that drives this growth". In 1948, the report named "intelligent machinery" was drafted by him where different concepts on AI showed up, though his paper was never posted and also later on was re-created by several others; It is also among Alan Turing's theories for a machine to train its self to accomplish a function on synthetic neural systems; As it might be noticed, AI and or Artificial Intelligence can be called the science and also design concerned with making smart machines, more particularly smart pc programs (McCarthy 2007) The definition can be defined as: Systems that think like humans; Systems that think logically; Systems that act like humans; and Systems that act logically (Russell & Norvig 2020).

These AI tools are software codes that are used to aid in the process of developing artificial intelligence technologies for automation. Various AI tools have various categories and uses as shown below: Machine learning frameworks. These types of tools give you the platform on how to develop the AI model. There are many machine learning frameworks and some of the most famous include Tensorflow, pytorch and scikit-learn which are used to build models of AI in classification, modeling and clustering. NLP tools. This type of tool helps to translate and understand human languages and perform operations such as chatbots translation. Some of the most famous tools here are GPT and BERT (Bird et. al. 2009; Devlin et. Al; 2019). Computer vision tools. These tools help in analyzing images acquired from videos. OpenCV, YOLO, and Mask R-CNN are some of the popular tools used for object detection, facial recognition, and image segmentation (Bradski, 2000; Redmon et. Al. 2016). Robotic process automation tools. They use AI technology to automate repetitive and rule-based processes. UiPath and Blueprism are among the common platforms (van der Aalst et.al. 2018). These are tools that provide infrastructure and pre-built artificial intelligence services. The automation machine learning, speech recognition and vision tools provided by Google Cloud AI and Microsoft Azure AI (Armbrust et.al.2010). The automation machine learning tools make artificial intelligence easy through automating model selection and hyperparameter tuning include tools like Google AutoML, H2O.ai and Auto-sklearn (He et.al. 2021). The generative artificial intelligence tools generate new content like text, images, audio and video. Some of the examples include DALL-E, Stable Diffusion, Chat GPT representing the latest advancements in generative artificial

intelligence tools (Ramesh et.al. 2021; Rombach et.al. 2022). There are many benefits of using artificial intelligence tools in the educational sector which include: Personalized Learning: Artificial Intelligence makes personalized learning possible according to the requirements of the learner (Zawacki-Richter et.al.2019). They discovered that an AI-powered adaptive learning system simplified the content and presentation according to the performance of the learner and thus created a platform which is compatible with the intellectual capability of the learner. Immediate feedback and assessment: (Luckin et.al 2016) found out that AI tools provide immediate feedback about research and assignments, and this enables students to learn from their mistakes immediately. The model of AI-powered continuous assessment was really useful in identifying the learning gap of the student in real time and thus enabling him in personalized learning (Hwang & tu 2021). Improved writing and language skills: The artificial intelligence tool such as Grammarly helps the student to identify grammatical mistakes, improve sentence structure and increase vocabulary which enhances his writing (Fitria 2021). The writing tool that utilizes artificial intelligence also assists in improving the writing skills of students, besides providing explanations (Bin-Hady, AI-kady and Hazara 2023). Improved research skills: AI-powered literature review tools have been very helpful in conducting research in less time(Kasneci et.al. 2023). Research assistants powered by AI have aided students in carrying out research work in an organized manner(Huang, Saleh & Liu 2021). Data-driven insights for educators: AI tools have aided educators in identifying struggling students and implementing measures which help them in their education(Viberg et.al. 2018). The challenges raised by these artificial intelligence tools in education include:

Academic integrity: Technology like Chat GPT is used by the students to compose their assignments using only these technologies without carrying out enough research(Cotton& Shipway 2023). Academic dishonesty has risen owing to artificial intelligence tools because they produce text similar to students work(Perkins 2023). Critical thinking skills: The students who make use of artificial intelligence to solve difficult problems can bypass the mental process important in building evaluative thinking(Sullivan, Kelly& McLaughlin 2023). The pre-programmed answers provided by AI could lead to intellectual dependency hence denying the students the ability to think critically (Baidoo-Anu& Ansah 2023). Inaccuracies and misinformation: AI provides inaccurate information. (open AI 2023)chatGPT and other related

AI tools generate highly convincing but false replies. Over-dependence and lack of human interaction:

The use of AI technology by students has led to reduced human interaction in class both between the lecturer and other students especially when a question is posed in class, most students prefer to use AI technology to ask and answer questions (Reich 2020). Lack of adequate contextual knowledge: However, most of the AI technologies that the students use do not have adequate knowledge and experience to pose questions. They will provide you with erroneous answers in case you do not apply them with caution (Birhane et.al. 2021). Violation of copyright and intellectual property rights: Some of the students may use these tools to generate works which are not authorized. These generated works must be cited correctly otherwise there is a very serious penalty involved, and the student may not know that (Henderson et.al. 2023). The adoption and incorporation of Artificial Intelligence into the educational sector all over the world have affected educational policies, teaching methods, and testing procedures (Abubakar et al., 2024).

The impact of this modern technological invention in Nigerian universities has been seen to affect the application of AI tools by undergraduate students during academic exercises such as assignment writing, conducting research, and exam preparation (Abubakar et al., 2024). In view of the prevalence of Artificial Intelligence among the students for academic purposes, there is a need to examine the effects of this modern technology on the psychological well-being of the students and the possibility of becoming technologically dependent ("Artificial Intelligence (AI) in Academic Research. "Multi-Group Analysis of Students Awareness and Perceptions Using Gender and Programme Type", 2024). The growing use of AI and generative AI for academic purposes by the students brings up a number of issues concerning the topic of academic integrity, the autonomy of the students, and the decline in their critical thinking skills (Eleje et al., 2025). The discussion that is going on is focused on the role of AI in developing and deteriorating the learning process of the students in terms of critical thinking and problem-solving (Zhou et al., 2024). On the one hand, there are the scholars who see the benefits of the usage of AI for adaptive learning and personal feedback and task automation, and on the other hand, there are those people who point out a number of drawbacks of the application of AI, such as dependency problems and the lack of creativity and independent thinking skills ("Artificial Intelligence (AI) in Academic Research. A Multi-Group Analysis of Students Awareness and

Perceptions Using Gender and Programme Type", 2024; Caffaratti et al., 2025). The main goal of this research is to determine the effect of AI tools on the mentality and dependency of students from Enugu Metropolis. Literature Review The introduction of AI tools, such as Generative AI tools including ChatGPT, became another stage in this debate since it presents an efficient virtual assistant in the sphere of higher education and, therefore, should be considered from the perspective of their impact on the performance of students and their psychological state (Shahzad et al., 2024).

Considering the popularity of AI technologies and the wide application of them in everyday life of individuals, it is important to discuss peculiarities of how these technologies affect the process of cognition of users, their dependence, and psychological condition in general (Vieriu & Petrea, 2025). Taking into account the fact that AI was rapidly implemented in the everyday life of college students, it is important to investigate their attitude towards the effectiveness of AI technologies in the educational process, the issues related to using these technologies, and their impact on academic performance and psychological well-being of students (Abubakar et al., 2024; Eleje et al., 2025).

CHATGPT Model:

The creation of ChatGPT was needed in order to develop a highly advanced language model for generation, translation, and analysis of texts. ChatGPT was developed on the basis of Transformer architecture. The latter was needed because of some limitations that were characteristic of the former models of natural language processing (such as RNN or CNN models).

On the contrary, ChatGPT makes use of GPT-3.5 architecture, which is a version of the model GPT-3 released by OpenAI Corporation back in 2020. The key difference between GPT-3 and GPT-3.5 lies in the number of parameters; the former contains 6.7 billion of parameters whereas the latter has 175 billion parameters. However, despite the fact that GPT-3.5 has a much lower number of parameters compared to its predecessor, it remains effective at language understanding, language generation, and machine translation tasks. The reason behind that is because GPT-3.5 was trained on a vast amount of text data.

2.1.2 Overview Of Research Output

In the concise Oxford dictionary, output refers to the production of goods or products by a person, machine, or industry or the process of such production or an energy supply generated by

some mechanism or system. In general, research output is used to refer to the whole process of research production. In the research excellent framework (REF), the definition of research output is considered to be any product of research done by staff members submitted for assessment, whether these were published or made publicly accessible during the assessment period (REF, 2021, p.9)(Moed 2005).

In The European Commission (2017), research outputs can refer to all types of research outcomes and include publications, data and other dissemination of information or knowledge. Research output can be classified into different types according to (Wilsdon et al. 2015; Dora 2012). Academic publication: journal articles, book, monograph.

Creative work: exhibition, performance art, design. Public presentation: teaching aids, blog, media appearance Research data: data set, method, research data. When compared with previous systems, ChatGPT has the following improvements and innovations including:

i) Context understanding: ChatGPT has a better capability of processing complicated inputs and producing appropriate text (Mbakwe ,2023).

(ii)Less biased: Even though ChatGPT cannot achieve complete lack of bias, ChatGPT has made efforts in avoiding biases in training data.

(iii)Fine-tunability: ChatGPT is able to be fine-tuned for certain purposes.

2.1.3 A Review of Artificial Intelligence Tools in Research

Academic writing is one of the major elements in writing research which requires arguments from evidence, concept, and critical thinking. Most researchers experience certain difficulties including processing huge amounts of data and concepts. AI tools are used during this process to help solve these problems and make research easier and more manageable. AI tools are employed in helping in accelerating processes such as literature analysis and improving written texts. The review shows how these AI tools helped in research processes. A review was carried out in order to determine the effects of AI tools on research output where the methodology of the review focused on peer-reviewed articles, reviews, and empirical research on the impacts of AI tools at different research stages (Khalifa & Albadawy, 2024; Stephen & Katiyar,2024). This helped in gaining deep insights on how these AI tools can assist in research processes through creation of ideas for your research (Khalifa & Albadawy, 2024).

Furthermore, the use of AI technology in carrying out research is highlighted as a crucial driving force that will enable researchers to handle large projects as well as automating data

analysis that will increase productivity and creativity(Stephen& Katiyar 2024). Use of AI technology in carrying out research ensures efficiency in the research process, which will help in simplifying the research process and making decisions at different stages of the research process(Madanchian &Taherdoost 2025).

AI technology has contributed to scientific writing by ensuring access and quality of scientific writing, particularly English language learners(Giglio& Costa 2023; Granjeiro et al. 2025). AI technology has become a significant tool in scientific writing. Use of AI technology in assisting in scientific writing will ensure enhancement of grammar, structure, and citation. These tools are not only useful, but they contribute to improving the quality of research (R. Golan et al. 2023). AI facilitates the systematic review of literature by automating the search and retrieval process of information from thousands of documents and identification of research gaps. Confidence tools and AI search engines make it easier for the researcher to wade through the ever-increasing number of scientific literature(Omara-Eves et al.,2015; van Dinter et al.,2021). There are various tools that can assist with several functions such as citation management, formatting of references, plagiarism check, and grammar check. Some of the tools that can be used include Grammarly, Turnitin, Zotero, and research management tools in research(Elgendi,2019; Foltynnek et al. 2020). Despite the various benefits associated with the application of AI in research, some biases in relation to use of AI tools need to be considered together with ethics since the AI may also have bias in the data used in training (Obermeyer et al. 2019; Rajkomar et al. 2018).

2.2 Empirical Review

Several studies have been conducted on the emerging trend of AI and its application in the educational system. One of such studies was conducted by Rajaei and Nashtifan (2025) who examine the opportunities, challenges, and provided research recommendations related to the application of AI in education. The research method was a systematic review conducted according to PRISMA standards. The statistical population included articles published between 2012 and 2023, and after the final screening, 92 articles were selected for analysis. The tools used in this study included various AI algorithms and adaptive learning systems to assess the impact of this technology on student learning and teacher instruction. and engagement, improved academic performance, and enhanced teacher efficiency The findings revealed that AI can have significant positive impacts across four key educational domains: learning, teaching,

assessment, and administration. These impacts include increased student motivation. However, challenges such as data privacy and cultural resistance to technology adoption were also identified.

Eneh, Asomba and Chukwu (2025) In their study on "Effect of Artificial Intelligence on the performance of students in Tertiary institutions in Enugu state urban 2015- 2024". This study examined the effect of Artificial Intelligence on the Performance of Students in Tertiary Institutions in Enugu State Urban 2015-2024. The study was carried out in two randomly selected tertiary institutions in Enugu State Urban; namely; University of Nigeria Enugu Campus (UNEC) and Enugu State University of Science and Technology. The study adopted survey research design; the population for the study comprised 1308 students in 200 level of both institutions. A sample of 306 respondents was sampled using Taro Yamani statistical formular. Simple percentage was employed for data analysis, while chi square was used for testing of the hypotheses at 0.05 level of significance. The findings of the study revealed that, Artificial intelligence has positive significant effect on students active engagement in the teaching and learning process in University of Nigeria Enugu Campus (UNEC) and Enugu State University of Science and Technology; Artificial intelligence has positive significant effect on students personalized learning experience in University of Nigeria Enugu Campus (UNEC) and Enugu State University of Science and Technology. Based on the findings, the following recommendations were made, Tertiary Institutions in Enugu State urban and Nigeria at large should embrace with caution the integration of Artificial Intelligence (AI) in their teaching and learning process in order to enhance students academic performance efficiency and the overall service delivery of the institution, government and all stakeholder should ensure the provision of the right infrastructure that will ensure integration of Artificial Intelligence (AI) in teaching and learning process in tertiary institutions across the nation.

Abuzaid (2024) in their study on "Reality of using artificial intelligence among university students". Artificial intelligence is a transformative technology in education, yet there is a gap in research addressing how to overcome the challenges it presents, including resistance to change and insufficient infrastructure. This study seeks to examine the applications of Artificial intelligence in education, identifying both the obstacles and opportunities to enhance its

integration into the educational system. The paper aimed to research the reality of using artificial intelligence among university students, a questionnaire was distributed to a sample of 30 students from Jerash University in Jordan. The results showed that the main challenges lie in students weak response to new technologies, the lack of awareness about the importance of artificial intelligence among faculty members, and the shortage of technical support. In this context, the study proposed solutions such as motivating faculty members to use artificial intelligence, organizing training workshops, improving infrastructure, and providing technical support to ensure the effective integration of Artificial intelligence in education.

Guidoum and Elkhansa (2024) researched on "Impact of Artificial Intelligence on students Academic performance from university teachers perspective". Artificial Intelligence is rapidly transforming various sectors, including education. This study investigates the impact of artificial intelligence on students academic performance across different fields from the perspective of university teachers at different universities in Algeria. The study employed a descriptive analytical approach and a questionnaire was administered to a sample of 150 higher education university teachers. The results indicate that university teachers generally perceive a positive impact of artificial intelligence techniques on students academic performance, citing improvements in critical thinking, problem-solving skills, independence in learning, and creativity. However, they also acknowledge challenges such as the potential for reduced human interaction, over-reliance on artificial intelligence, the need for teacher training, ethical considerations, and the digital divide. Overall, this study provides valuable insights into the perceptions of university teachers regarding the role of artificial intelligence in education and highlights the need for further research to address the challenges and maximize the benefits of artificial intelligence in higher education.

Murshidi et al. , Ahmed et al., Abdulazeez et al. and Asghar et al.(2024) in their study on "Exploring the effect of Artificial intelligence in enhancing students preparedness of learning". The integration of AI in education has the potential to revolutionize the way students learn and tutors teach. This study was conducted to evaluate the association between students interaction with AI and some socioeconomic characteristics of the respondents, examine students benefits of AI to students learning in the study area, and evaluate the perception of students about the use

of AI. The study is a survey design based on quantitative approaches. The study population comprised university students from various departments and backgrounds. The study's findings revealed that the majority of the respondents are females, the majority are within the age range of 18-24 years. Most students are from public universities, and over 80% are bachelors students. The result indicates that students' interaction with AI is independent of the gender of the students, type of institution, and course of study. Similarly, the perception of students about AI use in education was moderate, and the respondents understood that innovative technologies (AI) would enable efficient user satisfaction. The study shows that lack of human interaction, accuracy and reliability, and data privacy are the major risk factors for the usage of AI among students; the result also shows that AI enhances accessibility to information and gives personalized support and guidance.

Ros (2024) in their study on “correlational study of Artificial intelligence in education on students outcome”. Artificial Intelligence (AI) tool is very popular and essential for both teaching and learning activities in 21st century. While Artificial Intelligence (AI) has grown more widespread in education, its influence on student results is still debated. Some Cambodian universities have highlighted stresses about AI's ability to stifle innovation and learning. This study aimed to assess students' attitudes about AI and their perceptions of AI's role in education, as well as the relationship between these characteristics and student outcomes. Consequently, the aim of this research is to evaluate attitudes regarding Artificial Intelligence (AI) in education and views on the specific impact of AI on student achievements. Quantitative research was employed in the study, and this involved analyzing both descriptive and inferential data. Simple and multivariate regressions were utilized to assess the attitudes towards AI in education and specific perceptions in AI's Role in education which impact on students outcomes. The study has designed accurate questionnaires to survey 222 individuals from higher education in private university in Cambodia. A regression study demonstrates that perceptions of AI's Role in education have considerable impacts on students outcomes. The study's findings indicate that perceptions about artificial intelligence's role in education have major impacts on students achievements. This emphasizes the significance of instilling positive attitudes in pupils in order to get the benefits of AI in the classroom.

Maamor (2024) in their study on "Effect of Artificial Intelligence on students learning". Various studies have been conducted to identify factors that contribute to student engagement, personalized learning experience, and student academic performance. The evolution of technology offers various benefits including in the education sector. To date, the use of Artificial Intelligence (AI) in education has been seen to provide various benefits. This study aims to identify the relationship between the usage of AI with student engagement, personalized learning experience, and student academic performance. Data was collected from 110 undergraduate students from the Faculty of Business and Management, UiTM Punak Alam Campus using a questionnaire. 106 data were analyzed using SPSS version 29. The findings show that AI usage for study purposes significantly influences students engagement and academic performance. On the other hand, the usage of AI and personalized learning experience show no significant influence. This study not only provides a deeper understanding of the context of AI usage for better student engagement and academic performance but also gives valuable insight for UiTM and faculty specifically to develop strategies and modules that enhance the implementation and usage of AI in their learning activities.

Anyanwu et al., Ejiogu et al., Ibekwe et al., and Onuoha et al (2025) researched on "Influence of Artificial Intelligence on undergraduates reading habit". Artificial intelligences role in education has evolved rapidly over the past few decades. This study sought to ascertain the influence of artificial intelligence on the reading habits of undergraduates of Imo State University, Owerri. The objectives of the study were to; ascertain the awareness level of undergraduates of Imo State University, Owerri towards AI, determine the knowledge level of undergraduates of Imo State University, Owerri towards AI, ascertain the influence of AI on the reading habits of undergraduates of Imo State University, Owerri, and find out other factors that can influence the reading habits of undergraduates of Imo State University, Owerri. The study was anchored on the technology determinism theory. This study employed a survey research design, with an estimated population of 21,000 participants. To determine the appropriate sample size, the Australian sample size calculator was utilized, resulting in a calculated sample size of 378 individuals. Furthermore, a multistage sampling technique was implemented to facilitate the selection process. The primary instrument utilized for data collection was a questionnaire, which was meticulously crafted using a four-point Likert scale. Findings of this

study revealed that undergraduates of Imo State University are to a high extent aware of artificial intelligence, undergraduates of Imo State University, Owerri are highly knowledgeable towards artificial intelligence and its operations, artificial intelligence influences the reading habit of undergraduates of Imo State University Owerri, and there are other factors that influence reading habits of the respondents.

Olarewaju (2025) in their study on "Impact of artificial intelligence tools on student initiative". This study examines the impact of Artificial Intelligence (AI) tools on student initiative and academic laziness among education undergraduate students at the University of Ilorin. A descriptive survey design employing a mixed-methods approach was used. The study population consisted of undergraduate students in the Faculty of Education, with a target population of education students. A total of 377 participants were selected through simple random and convenience sampling techniques. Data collection involved a structured questionnaire and qualitative interviews. The instruments validity was ensured through expert review, and reliability was confirmed with a Cronbachs alpha coefficient of 0.81. Results indicated that 49.1% of students predominantly use AI tools, while 64.5% demonstrated high reliance, highlighting AIs integration into academic routines. Despite AIs benefits in facilitating learning and efficiency, concerns regarding its overuse reducing critical thinking and initiative were identified. Gender analysis showed no significant difference in AI reliance ($p = 0.32$), suggesting universal adoption across demographics. concludes that AI tools enhance accessibility and efficiency but may undermine students The study problem-solving abilities if excessively relied upon.

Ahmad and Zamri (2024) in their study on " students perception on the Artificial Intelligence Tools as academic support". In todays world, technology is considered a necessity as many can benefit from using it. Education sector also cannot run from integrating and incorporating technology in the teaching and learning process. Therefore, this study would like to investigate students perceptions on the use of artificial intelligence (AI) as a tool in the classroom. This study employed a quantitative approach in obtaining the data. There were 284 respondents who participated in this study. The instrument used to obtain the data was a set of questionnaires

where there were 20 items in it. Other than that, there were 6 sections in the questionnaire representing the constructs of the perceptions. The results showed that students perceived AI as a tool that could help them in their learning process. This implies that educators need to be more ready in using technology in the classroom and they should equip themselves with 21st century skills that are relevant in today's education system. Therefore, integrating technology in teaching and learning processes may assist the educators and students to be more engaged in the classroom and two-way communication may occur.

Vakhabova, Kosulin and Bodneva (2025) in their research on "Artificial intelligence on Education: Tools, challenges and perspective for students and teachers". The article is devoted to the analysis of the role of artificial intelligence (AI) in the modern educational environment. The purpose of the study is to identify the potential and limitations of using AI tools in the educational process, as well as to determine the prospects for their development. The paper examines the available AI tools, the challenges associated with their implementation, and the prospects for using AI for students and teachers. The study revealed that AI is able to personalize learning, automate routine tasks, and create interactive content, but there are limitations related to ethical issues, the digital divide, and the need to develop digital literacy. The practical significance of the work lies in forming an idea of the possibilities and limitations of the use of AI in education, which contributes to the effective use of intelligent technologies in the educational process.

Begum (2024) in their study on "Role of Artificial intelligence in higher education an empirical investigation". The importance of artificial intelligence (AI) is growing in all economic sectors and thus also in higher education. In recent years, there have been significant developments in this concept of "Artificial Intelligence in Education (AIED)". The purpose of this study was to find out how the concept of artificial intelligence can be applied to teaching and learning in higher education and the implications of the use of artificial intelligence in higher education. The impact of the development of technologies on learning is often studied on the methods and scope of learning and teaching. Artificial intelligence enables higher education services to become easily accessible with extraordinary speed, not only in the classroom but also outside the classroom. This report seeks to explore how AI will become an integral part of

universities and seeks to examine its immediate and future impact on various aspects of higher education. The challenges of implementing AI in these institutes were also explored. As artificial intelligence (AI) research in education increases, many researchers in the field believe that the role of teachers, schools and leaders in education will change. In this regard, the aim of this study is to investigate which are the possible scenarios for the arrival of artificial intelligence in education and what impact it can have on the future of schools. In this research, it confirmed that artificial intelligence has been widely adopted and used in various forms in education, especially educational institutions..

Okolie (2025) researched on “ Artificial intelligence and Teaching learning process in Education institutions in Nigeria”. This study examined the relationship between AI and the teaching-learning process in education in Nigeria, specifically focusing on undergraduates at Delta State University, Abraka. A cross-sectional study approach was used in this study, which obtained data from 437 undergraduate students. A stratified sampling technique was used to select a sample of the respondents. To analyze the data for the study, thet-test, correlation, and linear regression analysis were employed. This study demonstrated the robust and beneficial relationship between artificial intelligence and the teaching-learning process in education in Nigerian. However, there are also difficulties with using AI in education. These difficulties include students excessive reliance on technology, concerns about data security and privacy, unequal access, prejudice and discrimination, technological difficulties, and the decline of human values. The study concluded that in order to prepare their students for the challenges of the AI revolution, Nigerian educational institutions should educate and nurture their students. The use of AI has the potential to improve teaching-learning process, personalize learning to students needs, and boost administrative effectiveness in school management Ensuring fairness and inclusivity and the future of teaching in the AI age are crucial when creating AI-based educational systems.

Anukampa (2025) in their study on “Artificial intelligence and Higher Education: A comprehensive overview”. In recent years Artificial Intelligence (AI) is developing day by day. Higher education is also not untouched from it. Therefore, it is important to change the field and applications according to the need of current trends. AI is developing so many innovative

strategies in various related area such as teaching, learning, administration, assessment, evaluation, budgeting and career advancement. Students also wants to learn according to their pace and demands, in this context AI supports them. Easy operation and variety of information provided by AI is also its important features which makes AI familiar for everyone. Although some security measures such as data privacy, unbiased results, input based subjective outcomes and data analytics are challenging for managing it with transparency and accuracy. In this research study researcher explored all possible dimensions of AI in higher education including all possible opportunities and challenges in recent years. Researcher included all recent in this study to understand the concept precisely. Also, this research study will be helpful for educators and policy makers for developing insights related to features of AI in higher education.

Hada et al., Zainab et al., Shukla et al. and Bansal et al. (2025) in their study on “ use of Artificial intelligence for academic purpose among undergraduate students”. Artificial Intelligence (AI) is rapidly transforming various sectors, including education, and significantly impacting students academic experiences from school to college. This study explores how BAMS undergraduate students perceive the use of AI and AI-based tools for educational purposes and assess their prakriti. Method: This cross-sectional observational study was conducted among undergraduate BAMS students of Pt. Khushilal Sharma, Govt. Ayurveda College and Institute campus, Bhopal, Madhya Pradesh State, Central India, 200 undergraduate students aged 18 to 30. The collected data were analyzed using the software IBM SPSS Statistics Version 29.0.2.0(20). Data analysis used descriptive statistics (frequency, percentages, mean, standard deviation, etc.) as appropriate and inferential statistics (reliability, validity, and regression). Result: Among 200 undergraduate students, 33% were male and 67% were female. The mean age of students was 23.3 ± 1.92 (SD) years. 40% students belonged to Vatapittaja, 34% to Pittakaphaja, 22% to Kaphavataja, and 4% to Vatapittakaphaja prakriti. The finding indicated that 78.5% of students were familiar with AI concepts. ChatGPT, Grammarly, and Google Assistant emerged as the most frequently used AI tools. Only 6.5% of students use AI tools daily for academic purposes. Most of the students were satisfied with using AI tools for study purposes. Conclusion:.

2.3 Theoretical Framework

The theoretical framework of this research is based on the Technology Determinism Theory and Diffusion of Innovation Theory.

2.3.1 Technology Determinism Theory

Technological Determinism Theory was first postulated by Thorstein Veblen. Nonetheless, it was further developed and advocated for by different individuals including Karl Marx, Marshall Hall McLuhan, and Lynn White Jr among others. These theorists helped to develop the theory that technology is one of the main causes of societal change and influences human behaviors. In trying to understand the new technology, McLuhan realized that we live in an era characterized by technology that has never been seen before which he referred to as "Oracle of the Electronic Age". From McLuhans point of view, societies get transformed when a new technology, especially one that interacts with humans, gets introduced into society. The aim of the theory is to demonstrate how media and technological development have shaped the history and transformation of societies. Technology according to the principles of this theory is the message since human behaviors are determined by the messages they receive from new technology. Artificial Intelligence technology refers to a computer science technology whereby computers perform activities that require human intelligence (Yang Lu 2019). AI is seen as revolutionary, versatile technology much like others before them. AI can substitute human labor in industry, intellectual, and social spheres (Zhang et. al. 2021). The main aim of technological determinism theory is to analyze the influence of technology and how it shapes human beings behavior and thinking. According to technological determinism, as technology develops society changes too. For Ayodeji(2018), technology is one of the main factors that might bring changes to us as human beings. Therefore, this theory tries to explain how AI has influenced students, especially when it comes to writing their work. Technology and AI are often described in a deterministic way: it is said that technology is changing peoples way of learning and accessing knowledge(T. Hauer 2017). Deterministic frames say that when digital and AI become widespread, it leads to reduction of cultural differences and power distance due to increased information access(Mohammad Salehan et. al. 2018).According to Jarrar, Awobamise & Aderibigbe (2020), it helps us understand the significance of the technology and its impact on human beings. Following the theory, Artificial Intelligence is the tool which is used by the undergraduates for the purpose of doing their research works, assignments, projects etc. Therefore, the design and characteristics of the platform automatically make undergraduates too dependent on this technology. Artificial

Intelligence is a tool just like any other tool which may be used in an ethical manner as well as unethical manner. The influence of Artificial Intelligence technology on students is complicated, as it uses Artificial Intelligence tools for the purposes of checking answers for their assignments, understanding complex topics and completing deadlines (Yahaya Olarewaju 2025). According to the Technological Determinism Theory, technology is the major element which drives the society and influences human behavior and reasoning, it indicates that technology follows a certain path and can influence human reasoning in a long run.

The relevance of this theory to this study, there are many approaches through which technology determinism can be used: 1).Technology determinism takes place in undergraduate research through forcing institutions to standardize AI-based plagiarism detectors making the students adapt to the process(Ellul, j., 1964). 2).It depicts the ability of chatGPT, Grammarly to make it easier for undergraduates to respond to challenging issues (Williams Raymond. 1974). 3).This technology has increased research efficiency in automation of time in dealing with difficult assignments (Veblen T. 1921). 4).They help in getting information sources useful to the researchers.

2.3.2 Diffusion of Innovation Theory

This approach was advanced by Everett M. Rogers in 1962. He sought to explain how new ideas and innovations disseminate within a society. It explains how people adopt new technologies and why some are faster than others in adopting the innovations. According to Rogers, innovations were disseminated through five steps: 1).Knowledge- you know about the technology2).Persuasion: you like or dislike it3).Decision: you choose to use it or reject it4). Implementation: you start using it 5). New research showed that the adoption of AI in the higher education sector is going at an astonishingly fast pace 2.34 times faster than rogerss traditional threshold. Adoption decisions of AI in innovation vendors rely on social groups instead of institutions, students learn about AI research tools through peer groups rather than institutional learning, and thus those having access to informed peers benefit from better-quality research. (Kirk Phillips 2025).

The relevance of this theory to this work showed that, people who have high individual innovativeness have higher chances to adjust themselves to adopt new AI applications than others(Eric et.al. 2024). Research revealed that some attributes of diffusion of innovation affect AI adoption among undergraduates: Students perceived chatGPT as innovative, compatible and

user-friendly (Mohammed amin kuhail 2024). As a result of innovations, AI tools can increase access to information, personalize learning, yet cause plagiarism and decrease critical thinking skills. Unbalanced diffusion means that students adopting AI tools early and efficiently have competitive advantages in research output quality.(Abdur Rahman bin shahid 2024).This theory is relevant to the researchers study because it helps to explain how and why rapidly adopters of AI tools such as chatGPT, Gemini, Perplexity change the quality of their research output.

2.4 Summary of literature review

The perspectives of different researchers on artificial intelligence tool usage and its impact on undergraduate research outputs have suggested that excessive use and dependence on such tools decreases the ability to think critically. This research framework was conducted since there were some basic concepts that needed explanation with regard to their usage within the study. The key concepts considered in this research include the concept of artificial intelligence, the concept of student research output, AI tools and student research output, and the dependence of students on these artificial intelligence tools. The theoretical framework included the theories and models that were reviewed in accordance with the research. The empirical literature reviewed includes related research in relation to the concept under study. The theories reviewed are diffusion of innovations theory and technological determinism theory.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

Survey Research Method is the type of research design utilized in this research as explained by Anyanwu (2018). Survey Research Method provides the researcher with an opportunity to obtain an accurate picture of the views of the respondents while analyzing the data obtained. The survey research method also enables the researcher to acquire knowledge on a variety of subjects of his interests.

3.2 Population of the Study

The population of the study included students of two universities in Enugu Metropolis; Godfrey Okoye University and University of Nigeria, Enugu Campus. According to the data obtained from the admission office of the University, the population of students of Godfrey Okoye University was 2972 whereas the population of students of University of Nigeria, Enugu Campus was 11,739 making the total population of the study 14,711.

University	Population
Godfrey Okoye University	2972
University Of Nigeria, Enugu Campus	11,739
Total	14,711

Source: *Admission* office of the institutions

3.3 Sample Size

Sample Size, as defined by Hossan (2023), is the number of observation required for estimating the values of a given population. The number of observations taken into the sample is from the population. The size of the sample is 375 as estimated using the Australian online calculator.

Determine Sample Size

Confidence Level:

Population Size:

Proportion:

☒ Confidence Interval:

Upper

Lower

☐ Standard Error

☐ Relative Standard Error

☐ Sample Size:

3.4 Sampling Technique

Multi stage sampling technique was used in the survey aspect of this study to select undergraduate in Enugu metropolis. Multi stage sampling technique involves selecting a sample in two or more stage where the unit at each stage are clusters. This sampling technique was used in the sampling because it is appropriate for cluster (Obayi, Anorue and Onyebuchi,2016). This approach allows the researcher to narrow down from larger groups to smaller, more specific units, making the sampling process more manageable and representative..

Stage 1: In the first stage of the process, the researcher clustered the faculties in GOU and UNEC.

University	Faculty
Godfrey Okoye University	Education
	Management and Social Sciences

	Law
	Art
	Natural and environmental studies
	Medicine
	Nursing
University of Nigeria, Enugu campus	Business Administration
	Dentistry
	Environmental studies
	Law
	Medical sciences
	Health sciences

Stage 2: The researcher further selected two departments using simple random sampling from the faculties of each university

University	Faculty	Department
Godfrey Okoye University	Education	Mathematics Education
		Business Education
	Management and social sciences	International relation
		Mass communication
University of Nigeria, Enugu Campus	Business Administration	Marketing
		Banking and Finance
	Environmental Studies	Estate Management
		Urban and Regional Planning

Stage 3: By using the purposive sampling, 375 questionnaires were distributed to those who have been using artificial intelligence tools in doing their research output. Through the use of proportional sampling, estimation of the number of questionnaires distributed among all universities have been made to GOU and UNEC.

$$\text{GOU} = 2972 / 14711 \times 375 = 75$$

$$\text{UNEC} = 11739 / 14711 \times 375 = 299$$

Thus, 75 students will be chosen from Godfrey Okoye University and 310 students will be chosen from University of Nigeria, Enugu Campus. Moreover, 299 students sample size of which would be further apportioned into 2, depending on their total size in Each university through

3.5 Description of research Instrument:

The questionnaire served as an Instrument for survey research design. It allows questions that aligns with the research questions three and four. It comprises of two sections; Section A contains the demographic data of the respondents, while Section B contains the psychographic data of respondents. It was designed with a four point Likert scale of Strongly Agree(SA), Agree(A), Disagree(D) and Strongly Disagree(SD).

3.6 Validity of the instrument:

The faced validity was adopted in this study. The questionnaire was face-validated by two experts in the field of Mass communication and Measurement and Evaluation for scrutiny. The questionnaire was validated to make sure it actually measures what the study is focused on. Validation helps remove any confusing or unnecessary items that could affect the responses.

3.7 Reliability of the instrument:

The reliability of the test instrument was done using the Cronbach Alphas coefficient for the survey component of this study. For the survey instrument, twenty copies of the questionnaire were administered to residents outside the study sample. The data obtained were analyzed using Cronbachs Alpha which yielded a coefficient of 0.75, therefore the reliability of this study was considered Acceptable.

The Cronbach Alpha formula is represented as:

$$\alpha = \frac{K}{K-1} \left[1 - \frac{\sum s_y^2}{s_x^2} \right]$$

Where

K is the number of test item

$\sum s_y^2$ is sum of the item variance

s_x^2 is the variance of total score

3.8 Methods of Data Collection:

The data for the survey aspect of this study was collected using a questionnaire. The questionnaire was distributed through face -to-face methods and the questionnaire were collected immediately after completion by the researcher.

3.9 Method of Data analysis:

The data collected for the survey aspect of this study, the mean analysis and percentage analysis was used to analyse the data collected. The mean analysis was used to analyse the psychographic aspect of the study, while the percentage analysis was used to approach the demographic aspect of the instrument and the data generated. The descriptive statistics entails using frequency simple tables and percentages, to summarize the influence of AI tools on student research output.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

Presentation and analysis of the data collected from the distribution of the questionnaire forms the major contents of this chapter. In addition to that, analysis of the data collected from the respondents answers was provided.

4.1 Data Presentation and Analysis

Data Presentation and Analysis was done using the Quantitative Approach while information from the respondents was collected using the Questionnaire approach. The researcher distributed 375 questionnaires but only 362 were returned. This was because 13 questionnaires were found to be invalid upon analysis. The measuring instrument consisted of two sections dealing with demographic and psychographic data.

4.1.1 Analysis of Demographic Data

The data analysed here comprised the gender and age bracket of the respondents. This was done using items 1 and 2 of the questionnaire. Below is the analysis per state:

Table 4.1: Gender of Respondents

Option	Frequency	Percentage
Male	159	44%
Female	203	56%
Total	362	100%

Table 4.2: Age bracket of respondents

Option	Frequency	Percentage
16-19	60	16.57%
20-23	220	60.77%
24-27	50	13.81%
28 and above	32	8.84%
Total	362	100%

4.1.2 Analysis of Psychographic Data

This chapter has been concerned with analysing the psychographic data which was based on how knowledgeable and use of AI tools among the under graduates. It also takes into account how the use of AI tools affects the research output of undergraduate students in Enugu metropolis. The questionnaires were constructed using a four point likert scale which include:

SA for Strongly Agree

A for Agree

D for Disagree

SD for Strongly Disagree

The data collected were analysed using simple tables and mean analysis which follows the decision rule that,

If the calculated mean is equal to or greater than criterion mean (2.5) then the decision is accepted but if the calculated mean is less than the criterion mean (2.5) then the decision is rejected.

Research Question One: To what extent are undergraduate students knowledgeable about the usage of AI tools?

To answer this research question, items number 6-10 of the questionnaire were used.

Table 4.3: Summary of Research Question One

Options	SA	A	D	SD	Mean	Decision
AI tools are used to generate educational materials	130	210	17	5	3.2	Accepted
AI tools consist of ChatGPT, chatbot	100	182	80	0	3.0	Accepted
AI includes machine, natural deep learning techniques	230	120	12	0	3.6	Accepted
It serves as a support for both educators and learners	280	60	22	0	3.7	Accepted
The adoption of AI makes learning more interesting	122	202	33	5	3.2	Accepted
Average mean					3.3	Accepted

Analysis from the table indicates that a mean value of 3.3 students in Enough Metropolis were found to be knowledgeable about Artificial intelligence tools.

Research Question Two: To what extent do undergraduate in Enugu use AI for research output

To answer this research question, items number 11-16 of the questionnaire were used.

Options	SA	A	D	SD	Mean	Decision
I use AI tools in writing the literature review of my project work	110	180	60	12	3.0	Accepted
Creating of questionnaire is using AI tools like ChatGPT	131	210	11	10	3.2	Accepted
I rely on AI tools to structure my research objective and research questions	81	180	100	2	2.9	Accepted
I use AI tools to find relevant sources for my project work	126	222	13	1	3.3	Accepted
AI improves my research output by facilitating quick access to information	52	245	43	22	2.9	Accepted
Data presentation and analysis becomes easier through the use of AI	200	152	10	0	3.5	Accepted
Average mean					3.1	Accepted

Results from the table above disclosed that at an average mean of 3.1, undergraduate students extensively use artificial intelligence tools for research output.

Research Question Three: How has the adoption of AI tools influenced the research output of undergraduate in Enugu metropolis

To answer this research question ,items number 17-20 of the questionnaire were used

Options	SA	A	D	SD	Mean	Decision
AI distorts the originality of academic research	64	145	142	11	2.7	Accepted
AI limits knowledge acquisition skills	13	126	200	23	2.3	Rejected

The use of AI leads to a decline in the academic performance of student	11	121	221	9	2.3	Rejected
The use of AI gives room for plagiarism which is considered a fraud in academics	23	300	26	13	2.9	Accepted
Average mean					2.5	Accepted

The table above shows that at a mean value of 2.5, the adoption of AI tools negatively influence the research output for undergraduates of Enough Metropolis.

4.3 Discussion Of Findings

This section discussed the finding of study in relation to the Three research Questions posed in the study.

A) Undergraduates knowledge about Artificial Intelligence tools

Findings from this research question revealed that undergraduates in Enugu Metropolis are knowledgeable about Artificial intelligence tools. Based on their response, the students are aware that AI tools are used to generate educational materials. This AI tools consist of chatbot ,Grammarly and Claude. They do understand that it comprises machine and natural deep learning which could be applied for acquiring of knowledge. These artificial intelligence tools does act as support too for both the instructor and the students and makes learning more interesting.

The findings of this study is in relation to Vakhabooa, Kosulin and Bodneva (2025) who opines that AI is able to personalize learning, automate routine tasks, and create interactive content, but there are limitations related to ethical issues, the digital divide, and the need to develop digital literacy. The findings of this study is in relation to Begum (2024) who opines that artificial

intelligence has been widely adopted and used in various forms in education, especially educational institutions. Artificial intelligence was initially implemented in the form of computers and computer-related technologies, moving to web-based and web-based intelligent educational systems, and finally with the use of embedded computing systems and other technologies such as humanoid robots and web-based chatbots teachers & tasks and assignments independently or with tutors.

This finding contradicts the study of Abuzaid(2024) who opined that the main challenges lie in students weak response to new technologies, the lack of awareness about the importance of artificial intelligence among faculty members, and the shortage of technical support. In this context, the study proposed solutions such as motivating faculty members to use artificial intelligence, organising training workshops, improving infrastructure, and providing technical support to ensure the effective integration of Artificial intelligence in education.

The findings contradicts the study of Anyanwu, Ejiogu, Ibekwe, Onuoha(2025) who opined that undergraduates of Imo State University are to a high extent aware of artificial intelligence, undergraduates of Imo State University, Owerri are highly knowledgeable towards artificial intelligence and its operations, artificial intelligence influences the reading habit of undergraduates of Imo State University Owerri, and there are other factors that influence reading habits of the respondents.

B). Extent of AI tool usage by undergraduates in Enugu metropolis

This research question was aimed at finding out the extent to which undergraduates in Enugu metropolis use AI tools for their research output. Findings show that undergraduates extensively use AI tools for writing Literature for their project works. They adopt Chatbot to create questionnaires and analysis data generated for their research work.

The findings is in relation to Eneh, Asomba and Chukwu(2025) who opines that, Tertiary Institutions in Enugu State urban and Nigeria at large should embrace with caution the integration of Artificial Intelligence (AI) in their teaching and learning process in order to

enhance students academic performance efficiency and the overall service delivery of the institution, government and all stakeholder should ensure the provision of the right infrastructure that will ensure integration of Artificial Intelligence (AI) in teaching and learning process in tertiary institutions across the nation.

The findings contradicts Murshidi et al.,Ahmed et al.,Abdulazeez et al. and Asghar et al.(2024) who opines that students interaction with AI is independent of the gender of the students, type of institution, and course of study. Similarly, the perception of students about AI use in education was moderate, and the respondents understood that innovative technologies (AI) would enable efficient user satisfaction.

C). Adoption of AI tool influence on the research output of undergraduates in Enugu metropolis

Findings here indicates that heavy reliance of AI tools negatively influence the research output of undergraduates in Enugu metropolis. Although, the students disagreed with the claim that AI limits knowledge acquisition skills but admitted to the fact that AI will have a tendency to reduce students academic achievement especially as it gives room for plagiarism which is considered an academic fraud.

The finding is in relation to Olarewaju(2025) who opines that 49.1% of students predominantly use A Despite AIs benefits in facilitating learning and efficiency, concerns regarding its overuse reducing critical thinking and initiative were identified. Concludes that AI tools enhance accessibility and efficiency but may undermine students The study problem-solving abilities if excessively relied upon. The finding is in relation to Okolie(2025) who opines that this study demonstrated the robust and beneficial relationship between artificial intelligence and the teaching-learning process in education in Nigerian. However, there are also difficulties with using AI in education. These difficulties include students excessive reliance on technology, concerns about data security and privacy, unequal access, prejudice and discrimination, technological difficulties, and the decline of human values.

The finding contradicts the study of Ros(2024) who opines that perceptions about artificial intelligences role in education have major impacts on students achievements. This emphasizes the significance of instilling positive attitudes in pupils in order to get the benefits of AI in the classroom. The finding contradicts the study of Guidoum and Elkhansa (2024) who opined that university teachers generally perceive a positive impact of artificial intelligence techniques on students academic performance, citing improvements in critical thinking, problem-solving skills, independence in learning, and creativity. This finding contradicts the study of Elkhansa (2024) who opines that university lecturer highly value the impact of artificial intelligence techniques on the academic performance of the learners such as increased critical thinking skills, problem solving skills and creative learning. Rajaei and Nashtifan (2025) affirmed that AI can have significant positive impacts on learning, teaching, assessment, and administration. These impacts has thus increased student motivation and engagement, improved academic performance, and enhanced teacher efficiency. The findings contradicts the study of Ahmad and Zamri(2024)who opined that students perceived AI as a tool that could help them in their learning process. This implies that educators need to be more ready in using technology in the classroom and they should equip themselves with 21st century skills that are relevant in todays education system. Therefore, integrating technology in teaching and learning processes may assist the educators and students to be more engaged in the classroom and two-way communication may occur. The findings contradicts the study to Maamor (2024) who opine that AI usage for study purposes significantly influences students engagement and academic performance. On the other hand, the usage of AI and personalized learning experience show no significant influence.

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CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Through the use of the above-discussed strategies in this chapter, the research will effectively end. It will do so through the declaration of the research conclusions and recommendations as well as identifying more areas of research.

5.2 Summary of Results

The research was undertaken in order to identify the effect of artificial intelligent tools on the research output of the undergraduate students in Enugu metropolis. Three objectives and research questions were used in this research and after analyzing the average results from the respondents, a decision was arrived at. The results from the analysis indicate the following:

- 1.The knowledge of the respondents to artificial intelligent tools was high and they agreed that AI tools can be used to produce educational material and that the adoption of the AI tools makes learning fun.

2. The use of AI tools for research output by the respondents was positive. They agreed that the use of these tools helped them to get relevant materials for their work and that it improved their research output by making information easily accessible.

3. Artificial intelligent tools have made the originality of research output distorted and that it has led to poor academic performance by the students.

5.3 CONCLUSIONS

From the results above, it has been noted that undergraduates are aware of the use of AI tools. The respondent confirmed the use of these tools for producing material and learning. Other factors include quick access to information and its use for sourcing references for their work. Consistent use of this AI tools will cause dependence on the tools and decrease the level of critical thinking of students. It has also caused the poor academic performance of students.

5.4 RECOMMENDATIONS

Having carried out this study and analyzing field data, the following recommendations are made by the researcher:

1. Measures should be enforced by the authorities of universities against students who use these tools for their research.
2. Universities should have a fixed curriculum or classes where students can be trained on the proper use of AI tools.
3. The lecturers should check the research work of students particularly when assignments are submitted or group research work is being submitted since studies have shown that students depend on these AI tools and not doing proper research.

5.5 Recommendation for further research

It is recommended by the researcher that further research be carried out on:

1. Impact of AI tools on mental development and dependency on technology among university undergraduates in Enugu metropolitan area.
2. Artificial intelligence tool awareness, availability, and usage by instructors and students.
3. Artificial intelligence tool knowledge and usage by the students.
4. Adoption of the AI tool and its effect on students research productivity.

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