

**INFLUENCE OF ARTIFICIAL INTELLIGENCE (CHAT-GPT)
ON THE CRITICAL THINKING ABILITY OF
UNDERGRADUATE STUDENTS IN NNAMDI AZIKIWE
UNIVERSITY, AWKA**

By

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Abstract

This study looked at the influence of artificial intelligence (Chat-GPT) on the critical thinking ability of undergraduate students in Nnamdi Azikiwe University, Awka with a keen interest on their level of reliance on AI, the affects it has on their analytical minds and the wider consequences for methods of teaching and authenticity. The philosophical underpinning upon which the study was anchored was that of Cognitive Offloading Theory. The study's research design was that of survey and the sample was made up of 384 students chosen via multi-stage sampling technique from eight departments in four faculties of the university. It was found out, among other things issues such as plagiarism, lack of critical thinking ability, copyright violation, academic malpractice, generation of erroneous data and the likes, are part of the potential threats imbedded in the application of ChatGPT artificial intelligence tool in education. The study recommended inter alia that academics incorporate assignments and tasks that explicitly limit the utilisation of artificial intelligence techniques to guarantee that undergraduates gain and depend on intellectual abilities.

Keywords: artificial intelligence, critical thinking, influence, undergraduate students

Background of the study

The fast adoption of intelligent technology in university settings has spurred heated discussion regarding its effect on undergraduates. Dialogue substances, such as ChatGPT, have grown in popularity due to their capacity to aid with schoolwork. Nevertheless, this innovation may have downsides, especially in terms of university students' intellectual capacity advancement. To start with, ChatGPT's possible uses in academic settings can be explored in a variety of ways, including programs that generates counterfeit references (Cooper, 2023), develops projects (Sullivan et al., 2023), supports the composition of essays (Crawford et al., 2023), and encourages thoughtful discussion on artificial intelligence's adoption in the public at large (van Dis et al., 2023). To this end, Sallam (2023), contends that the usage of ChatGPT in educational institutions raises concerns about its correctness and trustworthiness. This is because, the capacity to think critically is a crucial talent in college or university that entails having the enablement to interpret, assess, and integrate ideas intelligently which is germane to learning achievement alongside successful solutions to issues. But, overt dependence on artificial intelligence such as ChatGPT may jeopardize the growth of these critical abilities.

It is interesting to know that the development of AI has advanced fast in the last few years, resulting in uses across a variety of fields, including healthcare (Xu et al. 2021) and academics (Zawacki-Richter et al. 2019). And, Bengio et al. (2021), noted that artificial intelligence algorithms can be programmed to replicate the way humans think and do everyday tasks with vast volumes of information. For instance, ChatGPT surprised everyone by passing four distinct exams at the University of Minnesota Law School (ChatGPT, 2023). Even though its overall ratings have not been particularly high, the findings show that an artificial intelligence program has the potential of getting an undergraduate degree (Choi et al. 2023). So, presently, ChatGPT is becoming widespread on the internet, and informal information indicates that undergraduates have become aware of it. It can be assumed that University students are utilizing ChatGPT or related applications (Cooper, 2023).

However, the simplicity with which ChatGPT can create answers, supply clarifications, and help with schoolwork may cause

undergraduates to rely too heavily on technological devices, avoiding the difficult cognitive tasks needed for intellectual inquiry. In NnamdiAzikiwe University, where the use of technology in schooling is growing, the ramifications of such dependency are especially serious. There is an increasing worry that the usage of ChatGPT can encourage an environment of shallow studying, wherein learners favour immediate responses at the expense of profound comprehension. This could hinder their capacity to deal creatively with learning materials, challenge presumptions, and build creative skills.

In the same vein, the possibility for artificial intelligence-generated material to add to scholarly deception must be considered. Learners may be enticed to use ChatGPT to finish homework with little effort, jeopardizing the quality of what they learn. This development not only has an impact on student performance results, but additionally raises concerns about the quality of education as well as the prestige of the university under study. Case in point, Turnitin and iThenticate are popular plagiarism detection programs for identifying duplicated material in student submissions (Lo, 2023). But, investigations have shown that ChatGPT can get around these detection devices by producing ostensibly genuine material (Khalil &Er, 2023; Ventayen, 2023). Also, Baši'c et al. (2023) found that undergraduates who used ChatGPT were more likely to plagiarize compared to those who did not utilize it.

Furthermore, ChatGPT might produce inaccurate or completely false data (Megahed et al., 2023; Baidoo-Anu&OwusuAnsah, 2023; Qadir, 2023). And in addition to this, Cotton et al. (2023), observe that learners who employ ChatGPT to produce outstanding assignments have an unjust edge over their colleagues who lack the privilege of using it. As it stands now, certain professionals are concerned about the viability of popular professions like programming in the age of ChatGPT (Welsh, 2022). As a result, in the midst of technologies like ChatGPT, it is critical to objectively assess the current scenario and develop an appropriate prospective academic course (Rahman &Watanobe, 2023).In simple terms, ChatGPT undermines the objectiveness and credibility of internet-based examinations and tasks (Rahman &Watanobe, 2023). And because ChatGPT could create humanoid written work for educational themes, teachers and educational organizations must be mindful of the likelihood of dishonesty during virtual examinations utilising ChatGPT (Rahman &Watanobe, 2023).

As hinted by Yang, (2022), artificial intelligence's capacity to carry out automated jobs, handle massive amounts of data, and deliver accurate predictions will continue to transform different parts of our everyday existence. During the last few years, university education has seen tremendous infiltration of pervasive technological devices, notably in both academia and research (Yusuf & Tambuwal, 2018). Chan and Hu (2023) in Yusuf et al. 2024, investigated undergraduates' opinions on GenAI in higher institution of learning. Result showed that undergraduates showcase a worm attitude regarding technological innovations such as ChatGPT, embracing their help in scholarly exercises. Institutions of higher learning are thinking about how ChatGPT can affect academic courses of study in the years to come, as the applications of this new tool are broad and ultimately revolutionary (Lim et al., 2023).

Notwithstanding its effectiveness, ChatGPT has posed fresh problems and risks to academics. Its capacity to deliver customised responses to user inquiries allows it to carry out written tasks and tests on learners' behalf, raising worries regarding artificial intelligence-aided fraud (Lo, 2023). Additionally, the adoption of big computational models of language like ChatGPT generates concerns about the possibility of intellectual property violation when produced material mimics or duplicates previous material (Karim, 2023). In reaction, some colleges have prohibited the use of ChatGPT on premises (VOANEWS, 2023) in (Lo, 2023). As colleges consider the consequences of artificial intelligence conversations, several scholarly lecturers are already incorporating them into their coursework to highlight its weaknesses and critique the innovation (Strzelecki, 2023).

This work investigates the harmful impact of ChatGPT on the analytical skills of university students in Nnamdi Azikiwe University, Awka. It intends to evaluate the magnitude to which ChatGPT effects the analytical skills of university students in this institution. By studying their conduct, learning outcomes, and views of artificial intelligence usage, this study will offer an understanding of the inherent concerns connected with artificial intelligence in the academia. The results of this study will help us gain an improved knowledge of how to reduce these hazards and support an equitable procedure to incorporating artificial intelligence into academic processes, while still prioritizing the growth of intellectual abilities.

Statement of the problem

The use of artificial intelligence systems like ChatGPT in teaching contexts is becoming more common, providing considerable benefits in regard to availability and help. But, the increasing dependence on artificial intelligence presents serious worries regarding its effect on learner's intellectual growth, especially their analytical skills. In Nnamdi Azikiwe University, Awka where the use of artificial intelligence in academics is growing, there is a pressing requirement to investigate these possible downsides.

The fundamental issue is that the application of ChatGPT may impede the advancement of crucial analytical abilities among university students. The capacity to think critically, or being able to personally analyse, assess, and interpret data, is essential for scholarly achievement as well as making sound decisions. Nevertheless, the convenience and availability of access to artificial intelligence-generated material may cause learners to become overly reliant on these technologies, leading to a shallow method of education. This reliance can impair their capacity to connect thoroughly with the instructional content, generate novel concepts, and tackle challenges with an intelligent mentality.

Furthermore, there are worries regarding scholarly honesty. The usage of ChatGPT to complete tasks with low individual involvement may foster instances of learning untruthfulness, jeopardizing the course of study. This practice not only has an impact on all undergraduate educational results, but it also threatens the legitimacy as well as the quality of education in the university in question.

Following these possible adverse effects, it is vital to explore how ChatGPT affects the analytical minds of undergraduate students in Nnamdi Azikiwe University Awka. The research aims to determine the amount of undergraduates' artificial intelligence reliance, how it impacts on their mental abilities, and wider consequences for methods of teaching and authenticity. Tackling these concerns is vital for devising measures to see that the positive effects of artificial intelligence in academics are maximized while not jeopardizing the university's key objectives for growth.

Research questions

To handle the research problem, the following research questions were developed:

1. What is the level of exposure of undergraduate students in NnamdiAzikiwe Universityto ChatGPT?
2. To what extent do undergraduate students in Nnamdi Azikiwe University dependon ChatGPT for academic exercises?
3. What are the inherent dangers of academic malpractice linked with the use of ChatGPT among undergraduate students in Nnamdi Azikiwe University?

Literature review

Lo's 2023 content analysis work centred on the impact of ChatGPT on education with a quick review of literature spanning the first three month period of itslaunch that is, December 2022 to February 2023. Results showed that despite the fact that chatGPT has the ability to function as an aid to lecturers by assisting them in producing anddeveloping teaching materials and proffering options, and also as an online teacher to undergraduates,issues abound that are linked to its usage which include the generation of counterfeit data and the avoidance of plagiarism checkers.

Rahman &Watanobe in 2023, looked at ChatGPT for education and research: Opportunities, threats, and strategies. Findings revealed that ChatGPT technological devices provides benefits for learners and teachers alike, such as individual evaluations, greater reach, engaging interactions, preparing for classes, assessment, along with novel approaches of explaining advanced ideas. Nevertheless, it also presents challenges to conventional learning and study systems, such as dishonesty during internet-based examinations, humanoid writing, decreased abilities to think critically, as well as assessment obstacles.

Examining science education in ChatGPT: An exploratory study of generative artificial intelligence was the area Cooper, 2023 researched on. It was found that right now, ChatGPT may be perceived as the supreme intellectual power, assuming only one reality with no sufficient proof or qualifications. Also, artificial intelligence raises worries about ethics around sustainability, material control, as well as copyright violation. The researcher went ahead to recommend the need for academics to demonstrate ethical application of ChatGPT, promote intellectual curiosity, as well as remain explicit regarding standards.

Pavlik 2023, carried out a study on Collaborating with ChatGPT: Considering the implications of generative artificial intelligence for journalism and media education. The findings revealed among others

that, generative artificial intelligence systems, like ChatGPT, demonstrate they can overcome the Turing Test, thus they could constitute a danger to traditional media and journalism experts, particularly in a period of dwindling press funding and overall journalistic hardship or an effort for cost-effectiveness. The researcher also recommended that an additional investigation is required to figure out the significance of generative artificial intelligence like ChatGPT and DALL-E in the fields of media and journalism training. Also, instructors need not only focus on incorporating artificial intelligence into their educational programs and syllabus but rather, think about creating educational initiatives to instruct individual learners on ways to apply artificial intelligence effectively, while also addressing possible ethical and prejudice concerns.

In an investigation that focused on how to harness the potential of ChatGPT in education, Zhu et al. 2023, found that in as much as the artificial intelligence tools, such as ChatGPT, possess the capacity to transform learning by understanding intricate inquiries, providing humanoid feedback, as well as assisting with difficult duties, its final result is limited due to erroneous, falsified, and skewed data, as well as the absence of analytical ability and comprehension.

Patel & Ragolane (2024), studied the implementation of artificial intelligence in South African higher education institutions: Opportunities and challenges. Findings revealed significant advantages, like enhanced productivity in administration, tailored education, and data-driven choices. However, these advantages are frequently hampered by problems like insufficient facilities, income disparity, as well as moral dilemmas with regard to computational prejudice and data security.

Theoretical framework

Cognitive Offloading Theory

This theory proposes that people utilise outside help to minimize the mental work needed to complete undertakings. This method may include the use of equipment, technological devices, or the surroundings to preserve, analyse, or recover contents. While cognitive offloading might improve productivity and effectiveness, it may also give rise to an excessive dependence on outside devices, thereby impairing intrinsic intellectual capabilities like retention, troubleshooting, and analytical ability.

Despite the fact that this theory lacks a particular, authoritative founder or a precise date of creation, it has emerged from many different areas of study in cognitive science, psychology, and various other domains. Edwin Hutchins, who wrote "Cognition in the Wild" in 1995, made significant improvements to the concept of cognitive offloading along with other similar theories. This work provides a solid foundation for comprehending the way outside resources help with mental activities.

Similarly, in their 1998 work "The Extended Mind," Andy Clark and David Chalmers suggested that the intellect stretches outside of the brain to incorporate exterior tools and materials. This theory is strongly related to the fundamental concepts of cognitive offloading, which propose that devices and objects in our surroundings form component of our conceptual structure.

This theory is relevant to this study because the use of AI devices, like Chat-GPT, in academic contexts causes both interest and worry. Whereas these devices have many advantages, like delivering fast data and assisting with different activities, there are rising fears regarding their possible harmful effects on the analytical skills of undergraduates.

So, notwithstanding the fact that artificial intelligence devices such as Chat-GPT can help undergraduates by delivering immediate responses, creating opinions, and explaining concepts, this ease may result in cognitive offloading, in which undergraduates turn to artificial intelligence for data recovery instead of conducting in-depth study; employ artificial intelligent-created concepts without seriously assessing their authenticity; and count on artificial intelligence for finding solutions rather than using their thinking faculties.

Methodology

This work adopted the survey research design. A survey can be said to be the research design where views of respondents are elicited to generate data that provide solutions to a set of research problems. Thus, Survey was utilized in this research because it is used to gather data regarding the views of university students on Influence of artificial intelligence (Chat-GPT) on the critical thinking ability of undergraduate students in Nnamdi Azikiwe University, Awka.

As obtained from the academic planning unit of the university, 25, 000 which is the total number of undergraduate students in the institution, made up the population of this study.

Three hundred and seventy nine (379) respondents which made up the sample for this study was approximated to 384. By utilizing the

Australian calculator to calculate sample size, this result was reached. It is essential to determine a sample size since it was impractical to investigate every component of the population for this study. The sample was picked from the students aged 18 and 45 years in 300 and above levels in four faculties and two departments in each of the faculties in the institution by adopting the multi-stage sampling technique. Thus, under the faculty of Environmental Sciences, Estate Management and Quantity surveying departments were chosen. In the faculty of Law, departments of Public and Private law and that of Commercial and Property law, were picked. Furthermore, the faculty of Social Sciences had departments of mass communication and Psychology, selected. Lastly, in the faculty of Arts, the departments of History and International Studies and Philosophy, were picked. With the adoption of a proportionate sampling technique, the eight departments chosen from the four faculties, had 48 respondents each, making it a total of 384 sample size.

The research instrument for this study was the questionnaire. A four-point Likert scale of strongly agree, agree, disagree and strongly disagree with assigned values of 4, 3, 2 and 1 respectively were also adopted for ease of statistical analysis, while the instrument was validated by three experts in research who are lecturers in the Department of Mass Communication, University of Nigeria, Nsukka. Also, the instrument got a Cronbach's Alpha coefficient of 0.709, which indicated that it was 71% trustworthy, according to the aforementioned reliability result. A total internal consistency of 0.71 indicated that the research instrument was reliable.

Descriptive statistics of mean and tables with percentage was employed to analyse the research questions. The options in the Likert scale were given the following statistical values: 4 points for Strongly Agree (SA), 3 points for Agree (A), 2 points for Disagree (D) and 1 point for Strongly Disagree (SD). Thus, the benchmark for the study was, 2.5.

Research question one: What is the level of exposure of undergraduate students in Nnamdi Azikiwe University to ChatGPT?

SA = Strongly Agree; A = Agree; Disagree; SD = Strongly Disagree

Responses on the level of exposure of undergraduate students in Nnamdi Azikiwe University to ChatGPT

S/N	ITEM STATEMENTS	SA	A	D	SD	MEAN	RATING
1	Fully exposed	301	53	26	-	3.7	Accepted
2	Exposed	199	83	65	33	3.1	Accepted
3	Undecided	42	52	175	111	2.1	Rejected
4	Unexposed	12	32	148	188	1.7	Rejected
5	largely unexposed	8	12	158	202	1.5	Rejected

The table above presented the level of exposure of undergraduate students in NnamdiAzikiwe Universityto ChatGPT. The findings showed that undergraduates in the institution are indeed fully exposed toChatGPT. This finding is in line with that of Chan and Hu (2023) in Yusuf et al. 2024, which showed that undergraduates showcase a worm attitude regarding technological innovations such as ChatGPT, embracing their help in scholarly exercises.

Research question two: To what extent do undergraduate students in Nnamdi Azikiwe University depend on ChatGPT for academic exercises?

Responses on the extent to which undergraduate students in Nnamdi Azikiwe University depend on ChatGPT for academic exercises

SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree

S/N	ITEM STATEMENTS	SA	A	D	SD	MEAN	RATIN G
1	Undergraduate students in Nnamdi Azikiwe University regularly depend on Ch atGPT for academic exercises	217	141	9	13	3.4	Accepte d
2	Undergraduate students in Nnamdi Azikiwe Universitymoderately depend on ChatGPT for academic exercises	16	4	186	174	1.6	Rejecte d
3	Undergraduate students in Nnamdi Azikiwe Universityrarely depend on ChatGPT for academic exercises	9	14	175	182	1.6	Rejecte d
4	Undergraduate students in Nnamdi Azikiwe Universitydo not depend on ChatGPT for academic exercises	3	12	154	211	1.4	Rejecte d

The result from the table above reveal that undergraduates in Nnamdi Azikiwe University rely heavily on ChatGPT for academic exercises. This result aligns with that of Lo (2023), which reported that, not minding the negative implications, undergraduates fall back on chatGPT because of its ability to function as an online teacher to them. The result also agrees with the assumption made by Cooper (2023) that university students are utilizing ChatGPT or related applications.

Research question three: What are the inherent dangers of academic malpractice linked with the use of ChatGPT among undergraduate students Nnamdi Azikiwe University?

Responses on the inherent dangers of academic malpractice linked with the use of chatGPT among undergraduate students in Nnamdi Azikiwe University

S/ N		SA	A	D	S D	MEAN	RATING
1	Undergraduates can apply ChatGPT to develop papers, research papers, as well as other academic works which they present to be from them, resulting in unintended or intentional plagiarism.	318	42	11	9	3.8	Accepted
2	Relying on AI-generated material can lead to a shortage of creative thinking and evaluation, thereby jeopardizing the educational value of undergraduate's presentations.	201	148	19	12	3.4	Accepted
3	During virtual examinations, undergraduates may use ChatGPT to respond to questions, circumventing the planned testing of their understanding and abilities.	189	141	32	18	3.3	Accepted

4	Through depending on ChatGPT for responses, undergraduates may not interact thoroughly with the content, leading in a superficial comprehension of the topic at hand.	123	102	71	84	2.7	Accepted
5	The simplicity of acquiring material via ChatGPT may deter undergraduates from completing rigorous investigation and analysing materials.	188	148	32	12	3.3	Accepted
6	Marks obtained by ChatGPT might not correctly depict learners' genuine ability, which could cause problems in further academics or professional contexts.	179	147	31	23	3.2	Accepted
7	The extensive usage of ChatGPT for academic assignments may weaken the standards of truthfulness and probity in schools and universities.	123	106	71	80	2.7	Accepted
8	If the utilization of ChatGPT for fraudulent educational activity grows widespread, it may legitimize illicit conduct among undergraduates.	258	104	16	2	3.6	Accepted

9	Dependence on ChatGPT could inhibit the growth of important intellectual abilities including analytical thinking, writing, and troubleshooting.	208	145	16	11	3.4	Accepted

Findings from the table above reveal the inherent dangers of academic malpractice linked with the use of ChatGPT among undergraduate students in Nnamdi Azikiwe University. This finding is similar to the ones presented by (Lo, 2023; Rahman &Watanobe in 2023;ooper, 2023; Pavlik 2023;& Zhu et al. 2023) which all pointed out issues such as plagiarism, lack of critical thinking ability, copyright violation, academic malpractice, generation of erroneous data and the likes, as part of the potential threats imbedded in the application of ChatGPT artificial intelligence tool in education.

Conclusion

The incorporation of AI, notably Chat-GPT, into the university environments has altered how undergraduates acquire knowledge, tackle issues, as well as study. Although technological advances provide various advantages, such as immediate data extraction, individualized educational activities, and improved productivity, they also present substantial obstacles to the growth of analytical capabilities among university students inNnamdi Azikiwe University.

Cognitive Offloading Theory demonstrates that, whereas artificial intelligence can lower mental workload by executing complicated exercises and offering immediate responses, this ease could give rise to an excessive dependence on outside assistance. Such dependence may reduce undergraduates' interest in profound, creative thought procedures, which are essential for building strong intellectual skills. The simplicity with which artificial intelligent devices deliver

responses may dissuade learners from indulging in the thorough troubleshooting, analysis, and assessment required for intellectual inquiry.

Situational variables unique to Nnamdi Azikiwe University, such as differences in availability of the internet, conventional approaches to instruction, and social disposition regarding learning, can increase the detrimental effects of artificial intelligence on intellectual ability. Undergraduates in situations where creativity is not extensively encouraged may be especially vulnerable to the risks of excessive dependence on artificial intelligence.

To prevent these adverse effects, it is necessary to encourage responsible and conscious usage of artificial intelligence technologies. Academic practices ought to promote engaged learning, incorporating creative thinking into the course of study, and empowering teachers to create an atmosphere in where technological equipment supports instead of substitutes creative cognitive skills. This way, we can maximize the positive effects of artificial intelligence while guaranteeing that undergraduates gain the capacity for reasoning creatively required for successful education and continuous development.

Recommendations

Based on the study's findings, the following recommendations are made:

1. Academics need to stress the value of individual inquiry and creative thinking by guiding undergraduates to utilize artificial intelligence as an addition instead of a major component of knowledge.
2. Academic institutions should strengthen conventional study methods' abilities by asking undergraduates to carry out some of their tasks without the use artificial intelligence device.
3. Academics should incorporate assignments and tasks that explicitly limit the utilization of artificial intelligence techniques to guarantee that undergraduates gain and depend on intellectual abilities.
4. The National University Commission (NUC), should include programs on the ethical utilization of artificial intelligence, covering topics such as confidentiality of data, property rights, as

well as the possibility of artificial intelligence to propagate prejudices.

5. NUC should also establish and promote standards for the appropriate implementation of artificial intelligence in schools and universities, specifying approved and improper applications.

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