

CHATGPT: IMPACT ON ACADEMIC RESEARCH AND EDUCATION IN NIGERIA

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Abstract

As the contemporary world is on the precipice of technological revolution, there is a pointer already that research and education are becoming inextricably intertwined with artificial intelligence. Such symbiosis has however generated a lot of debates in the academia. This is particularly the case with chatGPT. The issue of propriety of chatGPT's admittance in research field and education has been on the front burner. Since its debut, chatGPT has been received differently in various quarters. This ranges from outright rejection to optimistic acceptance. While the optimistic acceptance harps on the chatGPT's potentials, the rejection is premised on its negative effects on learning and research. The present work, using the method of hermeneutics and analysis seeks to evaluate the potentials of chatGPT on the one hand and the pedagogical and ethical challenges of the new artificial intelligence with regard to research integrity and educational efficiency, on the other hand. It carries out its study within the Nigerian context. The paper underscores that in many ways the Nigerian culture devalues education, a scenario that makes young people perceive education as scam. It then argues that notwithstanding its positive potentials, chatGPT could be in the hand of students within such education-debasing society as found in Nigeria, a made-easy tool that offers a shortcut away from creative research and dogged learning. The paper harps therefore, on the need for a concerted effort to establish some guiding principles with ethical, pedagogical, technological ramifications for a more constructive use of the chatGPT as it offers Hosseini's proposal as starting point, while it points out that such effort would only be effective as an aftermath of creating a culture that values ducation and a system that makes education relevant for life.

Introduction

As the contemporary world is on the precipice of technological revolution, there is a pointer already that education is becoming inextricably intertwined with artificial intelligence. Such symbiosis has however generated a lot of debates in the academia. This is particularly the case with chatGPT. In 2020 the world was taken by storm by the news of the release of the AI - 3GPT (Generative Pre-trained Transformer-3) which is an autoregressive language model that uses deep learning to produce human-like text. At the twilight of 2022, Open AI, an American research laboratory, using the GPT technology, launched chatGPT, which became the fastest growing consumer application in history bagging 100 million users in just two months of its launch. ChatGPT, an AI chatbot which upon analyzing the statistical patterns found in large database of text extracted from the web can generate coherent sentences, has dramatically shaped businesses where it has been used for customer service automation, business intelligence and strategic decision making. This is the case with education where chatGPT appears to be exerting an enormous impact. The issue of propriety of chatGPT's admittance in research field and education has been at the centre of academic discussions. Since its debut, chatGPT has been received differently in various quarters. This ranges from outright rejection to optimistic acceptance. While the optimistic acceptance harps on the chatGPT's potentials, the rejection is premised on its negative effects on learning and research. The present work seeks to evaluate the impacts of chatGPT on education and academic research and it does it within the Nigerian context.

ChatGPT and Academic Research

The use of chatGPT with respect to academic research has been received with varied attitudes in various quarters. This ranges from outright rejection to optimistic acceptance. Many have been thrilled by the output of the AI tool. For instance, it has “produced research abstracts good enough that scientists found it hard to spot that a computer had written them. Adhari Alzaabi et al (2023) reports that in a recent study, it was shown that given the task of differentiating between AI and human generated abstracts, the human reviewers missed up to 32% of abstracts that were fully produced by chatGPT, whereas 14% of real abstracts were mistakenly identified as chatGPT generated (Else, 2003). With specific reference to abstracts in the area of neurology, none of the journal editors could distinguish between human and AI generated abstracts. In another scrutiny led by Catherine Gao, the team of investigators gave a mix of real and chatGPT generated abstracts to blind reviewers who knowing about the mix, could only identify 68% of fake abstracts while incorrectly identifying 14% of the real abstracts as being chatGPT generated (Rohman, 2023) these clearly indicate how potent chatGPT is with regard to creation of content. This has led to the ascription of authorship to the machine by a number of scholars, a position that has engineered debates among scholars. For instance, *Nature*, an academic journal reports that chatGPT has been recognized as co-author in four academic documents since its emergence in the scientific publishing. On the contrary, a number of journals and organizations such as *Nature*, *Springer Nature journals*, the JAMA network, Elsevier, Cell, lancet, COPE and WAME explicitly ban chatGPT from being listed as author on an academic paper. The attribution of authorship, the argument goes, requires accountability for the work, a feature that cannot be effectively applied to large language models, though in many of these aforementioned journals, the editorial and publishing guidelines indicate that the use and how of the use of the tools must be declared. (Thomas, 2023)

Beyond the debates concerning authorship since its debut in the academic literature, the academic community has been lit with debates concerning its use in publications that can influence researchers and the society at large. Not a few have continued to point out the limitations of the AI tool. Most of these limitations border on the accuracy of the information that are produced by chatGPT, though most of the times they sound credible. This indiscernibility already pointed out in the case of differentiating by human reviewers between chatGPT and genuine human outputs makes it even more problematic. There are pointers that the spread of chatGPT engendered large amount of unthinking or unverified content. This has been elsewhere referred to as the phenomenon of hallucinations by which is meant responses that though sound plausible are in reality erroneous or unsubstantiated information. There is concern that the use of chatGPT exacerbates what has been termed paper mill with the unfortunate consequence of fuelling the proliferation of predatory journals and dissemination of fake science and fabricated evidence. The authors give as illustration the case of a fictitious clinical trial involving two drugs demonstrating the superiority of drug A over B. ChatGPT did this by constructing argued conclusions in favour of A. Such scenario is simply reprehensible and could erode trust in scientific evidence (Alzaabi et al., 2023) Hosseini (et al., 2023) point to the same tendency to churn out misleading and erroneous information when he reports the outcome when chatGPT was queried as to whether Immanuel Kant believes that ‘ought’ implies ‘can’. ChatGPT replied that Kant upheld the opposite, namely, that ‘can’ implies ‘ought’ which means that “If someone is able to do something, then they have a moral obligation to do it. In other words, if someone has the ability to do something good or moral, then they ought to do it.” (Hosseini et al., 2023) Without much ado, one could easily observe the sheer falsity of such assertion, as Kant actually holds the view that ‘ought’ implies ‘can’. One cannot go far to see the disastrous implication that attends chatGPT’s response. In many

cases also the results are superficial and irrelevant. ChatGPT has been able to generate well-structured abstracts that contain fictional numbers and statistics. It has made it easier to fabricate transcripts of interviews and surveys or answer to open-ended questions, all of which impact negatively on the data integrity for research. (Hosseini et al., 2023) This is added to the issue of fake citations which explanation seems to elude even the developers of chatGPT. It does seem that for Hosseini the unfortunate challenge of factual and commonsense reasoning mistakes are not likely to cease especially when it has the task of putting together texts from different sources with respect to topic prompt which lack related human generated data. Yuan Luo (Rohman, 2023) raises the concern about a certain “authoritative appearance without substantiation,” such that being unfamiliar with certain contents, one is led to believe what has been put out which could be false with the result that people are misinformed. This is allied to the possibility of bias. Given that chatGPT’s response is dependent on the data with which it is trained, if the data is biased, the system could perpetuate this bias, which could be against gender, race, subject etc. In this way, the internet data become inundated with half-baked information and in many cases, with outright falsehood. A less reprehensible is what has been termed in science, Matthew effect where in already popular papers receive even more citations widening therefore the gap relative to other less popular papers. The point here is that chatGPT tends to cite more popular papers from frequently cited journals. It seems that for the moment there is exclusive reliance on data from GOOgle scholar in disregard of data from other scientific databases such as Web of Science or Scopus. This only points to the limit of data used in training and so it calls for more expansive dataset for training to make for a more widened scope in the responses given in respect to each prompt from the users.

Noam Chomsky characterizes chatGPT as essentially “high-tech plagiarism.” He adds that chatGPT makes it more difficult to detect plagiarized essays. This may have been corroborated by a certain manual check conducted on the output of chatGPT wherein the level of plagiarism was on the scale of 5% to 48.9%. In that evaluation, it was found that chatGPT copied word for word from general sources such as Wikipedia, LinkedIn and Apple App Store without verification of evidence. (Alser & Waisberg, 2023) Copying wholesale and uncritically chatGPT’s output would unfortunately increase the rate of misinformation and inaccuracies. This obviously casts a dark shadow on copyright and scholarship. The consequences of fake science are dire as it touches on the research integrity. It would be misleading subsequent researchers who unsuspectingly follow flawed investigation routes, all of which cast doubts on research results. Policy makers might have to found their decisions on incorrect information, a very dangerous situation. Little wonder the 40th International Conference on Machine Learning banned papers written by AI tools including chatGPT. The Science family of journals in updating their license and editorial policies, aimed at specifying the unacceptability of chatGPT produced text. According to them, most cases of scientific misconduct stems from inadequate human attention and chatGPT-generated content when permitted would significantly increase the risk (Thorpe, 2023). For Jun Wen and Wei Wang (2023), chatGPT would be more suitable for editing and correction of already written texts. According to them this is a way of bypassing the scientific community’s concerns about the inaccuracy or outdated information from AI. The authors in order to substantiate, illustrate with the computational biologist’s use of chatGPT to improve completed research papers as found in February 2023 article in *Nature*. Within five minutes a better-edited manuscripts emerged increasing readability while spotting equation-based mistakes (van Dis et al., 2023).

For the present researcher, a proper use of chatGPT must stem from the appreciation of chatGPT as simply a tool and research assistant. In this way, the user will approach it from a critical stand point with the sense of being responsible for whatever that is put forward in the

user's name. For a system that devalues education and care more for the quantum of papers that have been put forward as a qualification for promotion, then there is every reason to be apprehensive as the chatGPT rests in the hand of the subjects of such a system. In the hands of those with proper orientation of chatGPT as tool and research assistant, chatGPT becomes formidable, helping them in the expedition of the writing process and so frees them for a more innovative and disruptive research, generating thereby new ideas and findings and groundbreaking scientific achievements. It seems, however that many Nigerian institutions simply prioritize the quantity of publications. While these seem to take for granted that the authors who produce such papers are helped to deepen their grasp in such area, there is however the possibility of disproportionality between the quantum of writings and expertise of the author in the area on the one hand and the volume of writings and its quality with respect to impact in developing new concepts and breaking new grounds, on the other hand. This disproportionality between quantity of publication and quality of the publisher as well as the creative input of publication may exacerbate with the geometric incursion of artificial intelligence into academic research and writing, and that is, when the content produced by chatGPT is uncritically and simply relied upon. This therefore calls for critical touch of the author who must not cede his responsibility to the unconscious artificial intelligence lacking in human perception and cognition. Besides, the data generated for a particular purpose far from being proactively generated is always the result of the researcher's prompt on the chatGPT and the likes. The output must be holistically checked by juxtaposing with other texts and sources for "factual and citation accuracy; bias; mathematical, logical, and commonsense reasoning; relevance; and originality" (Hosseini et al., 2023).

It might be important for journals and organizations to articulate regulations on the use of chatGPT in research that ensures, as top priority, transparency, accountability and disclosure. It requires research ethics and integrity. Hosseini et al., 2023 (See Morris, 2023) suggest the following ethical guidelines which can be built upon by organizations, journals and publications houses in Nigeria:

- ❖ LLM-generated content must be checked by a domain expert for accuracy, bias, relevance and reasoning
- ❖ Human (co-) authors must be responsible for errors and biases where they occur and held accountable for its accuracy, cogency and integrity.
- ❖ For transparency, Researchers must disclose the use of LLMs and indicate text written or co-written by LLMs.
- ❖ Even in the absence of direct use, when NLP assistance has impacted the content of a publication, it should be disclosed.
- ❖ Researchers should not use LLMs to fabricate empirical data or falsify existing data

The above ethical guidelines serve to point to the need for organizations, journal editors and publishers in Nigeria to work to address the concerns generated by the use of chatGPT as other climes are already dealing with this reality. While chatGPT can actually help a conscientious researcher to have a diverse and extensive view of his subject especially when he is aware that result churned out by chatGPT is as good as the data with which it is trained and given that in many cases the authority of the data used are not as guaranteed for accuracy, the researcher is obviously exposed to wider and extensive and help in the thought process when it is embarked upon with critical and creative consciousness.

ChatGPT and Education in Nigeria

ChatGPT can be a formidable tool for the enhancement of learning and teaching. Leveraging chatGPT search functions, information related to the users' query are swiftly accessed and the user is opened to avalanche of information. Its ability to summarize, digest and explain texts

adds to its positive impact on learning. It has the potency to revolutionize education and make learning to be more accessible even to the disabled as it enhances personalized personal learning experience, learning tailored to the individual needs while providing immediate feedback in a non-judgmental environment which can lead to enhanced outcome and proficiency.

In addition, it can be relieving experience for the teacher, given that it can assist the teacher rather swiftly in generation of for instance, automated responses as regards lesson plans, assessments, quizzes and other teaching materials and thereby reducing the teachers' burden. ChatGPT has been among others, a promising tool for the customization of content and activities to the specific needs of each student, optimizing personalized interaction and feedback. It has also been to promote collaboration as it allows students to work together to research topic and develop communication and teamwork skill. This cannot however, be, without the teacher's proper technological knowledge to effectively use the tool with the clear appreciation of its possibilities and limitations with the associated ethical and pedagogical concerns and challenges.

The ethical and pedagogical challenges and concerns are by no means insignificant. We had seen Chomsky characterized it as high tech plagiarism as he argues that it is a way of removing learning from the student and destructive of the very foundation of education. Tan avers that the application of chatGPT on education may pose four risks, namely, "questioning academic integrity and imbalance of evaluation mechanisms, excessive dependence leading to addiction and potential weakening of teacher status, the inaccurate transmission of information and limited knowledge level and insufficient ethical awareness and difficulty in coping with ethical risks." These dangers are by no means light. If by any means they hold basis on reality then, that would be knocking education on its head. The University of Sidney specifically mentions in her latest integrity policy as a form of cheating, "generating content using artificial intelligence" The new AI has been banned across all devices in New York's public schools due to the concerns over the negative impact on student learning and potential for plagiarism. (Osaji, 2023) Universities in Australia are mulling returning to pen and paper for examinations. There is certainly cause to worry about chatGPT in the hand of the average student within the context of Nigerian educational system. The atmosphere in Nigeria makes mockery of anything education in Nigeria with the result that young Nigerians look at education with ridiculing disdain. Already there is ascendance of culture of expo and cheating during exams right from the primary education. There are cases of special centres where exams are written in total disregard for all ethics that govern right conducts in exam, and this done with teachers, supervisors and students in shameful connivance. It has become a common thing these days for exams to leak online days before the qualifying exams for the secondary schools. The government does not even help matter with its attitude towards education: poor funding, poor infrastructure, incessant strikes, high rate of unemployment even after an excruciating experience at school. The irony is that for one to take the position of the highest in Nigeria, the president, the 1999 constitution of the Federal Republic of Nigeria section 318 subsection c provides as requirement, "Primary Six School Leaving Certificate or its equivalent." The phrase "its equivalent" has been shown especially in recent court judgments to be evasive and so, is meant to include anything and so nothing. This is not to mention the unfortunate cases of forgeries of certificate that have become in the recent court cases in Nigeria. There is no doubt this spells a further decadence away from the already damaging certificate-orientedness of education system in Nigeria. All these have generated the cliché that education is a scam. One may argue against this proposition as one may, but it does not convince otherwise given what the youngsters see in the society where the educated go unrewarded or are minimally

rewarded while uneducated money bags are highly valued; where the educated have literally no job opportunity after several years of studies in the university.

One is left to imagine what chatGPT in the hand of students of such a marred system would amount to. It would certainly be about high-tech plagiarism or in the conventional parlance of copy and paste! One already witnesses that, where students copy and paste or pay mercenaries to produce a full memoir within days. There have been cases where students decapitate or erase the information bordering on the original author while replacing them with their own information, making a zero input, not even a rephrasing to bring in some level of personalization and originality of expression. So chatGPT in the hands of such inept student will only facilitate the decadence that has already bedeviled the system. In this atmosphere, there is no doubt that assignments given by teachers may no longer assist in deepening of knowledge and creativity, since the chatGPT is there to provide whatever the answer and the students are not ready to go the extra mile in terms of evaluative rationality and scrutiny.

In need of a Constructive Response and Engagement

Payne (See Morris, 2023) identifies three approaches in response to chatGPT: the conservative reactionary approach which opposes the use in assessments and projects. While this approach is understandable and has always in the event of new discoveries and disruptive technologies, this appears unenforceable as Payne notes even OpenAI refrains from guaranteeing that its AI text classifier tool can detect AI-generated content. The second approach is the adaptation to the use of AI tools mindful of the limitations. The third and his favoured approach is the progressive which comes with the recognition that these AI tools would not only affect education but they are also going to affect the work place and the work environment. And so learners must be provided with knowledge and skill to use them. (Morris, 2023) For Payne (see Morris, 2023), attention should be focused not just on the output rather emphasis should be given to the thought process behind the work. Besides, the students' usage offers an opportunity to gather accurate and insightful data on their thinking skills.

While I do not wholesale agree to the techno-determinism, it does seem that artificial intelligence is something that has come to be, the genie is already let out of the bottle and so an evaluative and productive engagement with it must be done. Here it concerns all: government at various levels, education administrators, institutions of learning, teachers, students, publishers etc. It may be an invitation to critically look at the system and method of teaching in Nigeria, moving away from the banking system of education to a more critical and engaging method that breeds creativity and independent thinking. There must be concerted effort with regard to giving students proper orientation on the usage but that would only be effective when the system show that education is a priceless value that is relevant for life. Unfortunately it does not seem that Nigeria is ready to make this journey given the antecedents and present situation of affairs in education sector. In this all hand must be on the deck- the government, the education administrators, teachers, students-to make a constructive use of the new technology in learning process. Hosseini's proposal above may be a good starting point, with all its administrative, ethical and technological import. Journal editors and education managers must be abreast with anti-plagiarism checkers and AI work detectors so as to be able to note bias and plagiarism. It may be important to point out that such effort would only be effective as an aftermath of creating a culture that value education and a system of education that makes it relevant for life. Without this, chatGPT would be an escape root for students of a decadent society who would not ever like to be burdened by the rigorous demands of academic process that they consider as scam and irrelevant to their life in practical terms.

Conclusion

The work has been able to join in the discussion around the propriety or otherwise of chatGPT's admittance in research field and education. The discourse has always bordered around the potentials of chatGPT on the one hand and the pedagogical and ethical challenges of the new artificial intelligence with regard to research integrity and educational efficiency. It carries out its study within the Nigerian context. The paper underscores that notwithstanding its positive potentials, chatGPT could be in the hand of students within such education-debasing society as found in Nigeria, a made-easy tool that offers a shortcut away from creative research and dogged learning. The paper harps therefore on the need for a concerted effort to establish some guiding principles with ethical, pedagogical, technological ramifications for a more constructive use of the chatGPT as it offers Hosseini's proposal as starting point, while it points out that such effort would only be effective as an aftermath of creating a culture that value education and a system that makes education relevant for life.

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