



INFLUENCE OF ARTIFICIAL INTELLIGENCE ON ACCOUNTING EDUCATION IN TERTIARY INSTITUTIONS IN NIGERIA

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Abstract

Artificial intelligence (AI) is particularly urgent due to the innovations that have been introduced to teaching and learning at all levels of education. In this study, the researchers investigated the impact of artificial intelligence (AI) on Accounting Education by examining its impact on teaching and learning process, its impact on assessment and grading and predict its impact on graduates' future careers. The study employed a descriptive survey research design approach based on a survey of accounting education audience. A total of 92 participants were used in the study. The instrument used for data collection was a researchers' self-constructed questionnaire. The questionnaire was validated by three experts, one from measurement and evaluation, and two from business education (accounting option), all from the Faculty of Education, Ebonyi State University, Abakaliki. The result of the study demonstrates the crucial role of AI in future of accounting education. The findings highlight the effectiveness and efficiency of AI in equipping graduates with new skills for their future career. The study findings suggest that AI has positive impact on the learning experience by facilitating the acquisition of new knowledge and skills. This research provides insights into the potential of AI to transform accounting education and contribute to the development of new skills for graduates. It has important implications for educators, policy makers and other stakeholders in Accounting Education sector. The study suggests that AI should be more extensively integrated in Accounting Education curricular and that institutions need to consider the ethical implication of AI in the development and implementation of their programs. By doing so, they can better prepare graduates for the demands of the future workforce in AI era.

Keywords: AI, Accounting Education, Tertiary Institution, impact, teaching and learning



Introduction

Artificial Intelligence (AI) has been a topic of interest and investigation in various fields including Accounting Education in tertiary institutions in Nigeria. Artificial intelligence (AI) is a vast area in computer science concerned with development of intelligent computers capable of doing tasks that requires human intelligence. According to Stanford Encyclopedia of Philosophy (2020) Siri, Alexa, Self driving cars, Robo-advisors, talking bots, and email spam filler are some examples of Artificial Intelligence (AI). According to Vashiya et al (2020) AI as a recent technology has proved efficient in many areas, and was very efficiently used during COVID-19 pandemic. AI helped in the control of the virus and it globally rescued educational system and jobs (UNESCO, 2020).

Artificial Intelligence has impact on teaching and learning, assessment, ethics, required skills and future careers of individuals. Artificial Intelligence (AI) can be used in grading and has influence on graduates of accounting Education future careers. Zouhaire in his study opined that Artificial Intelligence (AI) has the potential to revolutionize education by personalizing teaching methods to suit individual students' needs, providing prompt feedback, and automating administrative tasks. Artificial Intelligence (AI) is capable of creating chances to educators thereby helping educators in focusing on development of curriculum and providing quality instruction. Previous literature suggests that Artificial Intelligence (AI) contributes to the development of new skills to graduates, policy makers and other stakeholders in accounting and needs to consider the ethical implications of Artificial Intelligence (AI). By so doing, can prepare graduates for the demands of future workforce. According to Edtech (2020), currently, Artificial Intelligence (AI) has become a vital part of virtual world and unquestionably, Artificial Intelligence (AI) plays an important role in accounting education. For example, the efficient uses of filtering emails, advertising, applications, YouTubes, and Virtual assistants such as Google, digital libraries, Google scholars, and other digital research engine in higher institutions worldwide (Garcia-Velez et. al., 2021).

According to Ma and Siau (2018) AI is not effective and Robust. It all means that Ma and Siau regarded Artificial Intelligence (AI) as fragile when it concerns a limited small, restricted and structured task like collecting data. Researcher regarded Artificial Intelligence (AI) as effective and efficient and Robust when performing most or all cognitive tasks that are human (Beight & Raddell, 2005). However, Artificial Intelligence (AI) plays an important role, researchers sees Artificial Intelligence (AI) as threat to human civilization and support the argument with what experts in the field think about Artificial Intelligence (AI) such as Bill Gates, Elon Musk and Stephen Hawking (Ma & Siau, 2018). Undeniably, what was said about Artificial Intelligence (AI) is important. So, the question now is, how can Artificial Intelligence (AI) impact the learning and teaching processes?

According to Taneri (2020), it is clear that Artificial Intelligence (AI) can have impact on teaching and learning processes in Accounting Education especially in enrolment and curriculum. Ma and Siau (2018) opined that Artificial Intelligence (AI) will speed consistency and accuracy in curriculum and registration. Furthermore, Zouhaire (2023) opined that human sciences and liberal arts majors will become more popular because these areas are less vulnerable to the field of Artificial Intelligence (AI) than other areas like Accounting and Finance. Considering teaching and learning, there is no doubt that Artificial Intelligence (AI) is replacing the lecturers or tutors in so many ways, such as blended learning and e-learning. E-learning limited the lecturer because the learner will interact with a Virtual classroom, be it blackboard, Moodle, Turnitin or any other platform (Zouhaire, 2023). According to Roland (2023) Artificial Intelligence (AI) is meant to change how we teach, learn, work, live, make decisions and be ready for the era of Artificial Intelligence (AI). Artificial Intelligence (AI) is therefore not all about its superficial effect, but about radical changes in the teaching and learning process as a whole (Zouhaire, 2023). Learning process is becoming interactive and engaging (Zouhaire, 2023). In the recent research, e-learning provides the learner



with artistic and pedagogical features as well as incorporates and deals with countless types of content which react effectively to the student's needs (Zouhaire, 2023).

Although Artificial Intelligence (AI) is efficient and effective in covering languages and academic integrity issues, semantic, pragmatic and cognitive levels, in several cases, it needs the intervention of human mind to perform the last touch. Artificial Intelligence (AI) gives different learners and tutors links about the topics needed by the subject matter and eases and inspires both learner and tutor by addressing various learning styles like autonomous learning, visual learning, e-learning, audio-visual learning and deep learning. Similarly, Artificial Intelligence (AI) helps the tutor to choose and use learning methods that the learner wants and identify the areas of improvement to be dealt with. The learner can access input anytime anywhere thereby encouraging autonomous learning. From the foregoing, it is clear that Artificial Intelligence (AI) assists in teaching and learning. What of Assessment?

Artificial Intelligence (AI) does not have impact only in teaching and learning but in assessment and grading. Artificial Intelligence (AI) could be used on assignments and research projects through software like Turnitin against billions of resources in a very short time. It can help to check plagiarism, consequently, online rubrics and grading forms are added to assignments with criteria and scales, and final grades are automatically added to the submitted work with ease. Artificial Intelligence (AI) helps provide feedback to the teacher and the learners, easy access in a relaxed manner anytime and anywhere, with more privacy and autonomy. The teacher and the learner can record feedback accurately to facilitate and improve learning from errors. Artificial Intelligence (AI) can be used to evaluate students' response and create a computer model that endorses rules inferred from the tutor's grading decisions.

Artificial Intelligence (AI) improves learning but does not make final authoritative decisions. In addition, it creates more transparency, trust and quality control (Zouhaire, 2023). Previous researches agree that grading essay is highly accurate in recording of results of accounting education students. Much deliberations have been made on the role of Artificial Intelligence (AI) in the teaching and learning process but a critical thinker with as the following questions, what about bias in marking reports? Who will guarantee that Artificial Intelligence (AI) is fair and objective? What about human side of learning process and assignments? Will Artificial Intelligence (AI) consider the psychology of learner grading or assessing paper?.

Artificial Intelligence (AI) impact on future careers of graduates. Artificial Intelligence (AI) will impact the future job market of require skills set. It will replace so many jobs that involve routine tasks and structures that are easy to automate instead of unstructured disciplines that require complex cognitive interference. (Wangl and Siau 2017). Artificial Intelligence (AI) does not stop in grading but can be extended to be gateway to a future career. Research conducted by Ma and Siau (2018) of Oxford University argues that within the next 20 years, 47% of jobs in the United State of America and 54% in Europe are at risk due to Artificial Intelligence (AI). Other pieces of research conducted in Oxford University forecast that Artificial Intelligence (AI) will write high school essays by 2026, write bestselling books by 2049, translate languages by 2024 and perform surgeries by 2053.

All these values of Artificial Intelligence (AI) is going into career world. Zouhaier (2023) criticized these aspects arguing that when it comes to soft skills such as empathy, communication, collaboration, innovation, critical thinking, problem solving and leadership, Artificial Intelligence (AI) is not robust to human cognitive ability. According to Chin (2018) citizens of new world order requires new skills. These skills such as adaptability, critical thinking, conflict resolution capabilities, and other cognitive skills. The impacts of Artificial Intelligence (AI) on Accounting Education increased the importance of adopting ethics in Artificial Intelligence (AI). Holmes (2018) believes that 'adaptive' or 'personalized' ethical learning system are not entirely taken into accounts. He also



stressed that there is 'moral vacuum' without guidelines, policies, regulations, or research done to stress the specific ethical issues raised by Artificial Intelligence (AI) in Accounting Education. Cognitive Impact of Artificial Intelligence (AI) has made it a present-day reality that imitates humans in many functions such as language translation, medical diagnostics and decision making. If humans interact, analyze, deduce, think logically and reason contextually, Artificial Intelligence (AI) performs these actions artificially based on powerful computers, high speed internet connections, algorithms and extensive real time data (Chin 2018). According to Zouhaier (2023) Artificial Intelligence (AI) performs fixed and domain-specific tasks with unmatched learning speed, extensive data, excellence, efficiency and unlimited computing capacity. On the contrary, humans learn flexibility, pose and solve issues creatively, think critically and innovate adaptively (Chin 2018). In short, humans empower Artificial Intelligence (AI) because cognitive intelligence Artificial Intelligence (AI) owns first of all, is inherited or programmed by a human mind that can ultimately control this potential (Zouhaier 2023).

Statement of the Problem

In recent times, artificial Intelligence (AI) has become a major academic discourse. It is so important in the teaching and learning of Accounting Education in tertiary institutions in Nigeria. Many researchers have dealt with Artificial Intelligence (AI), its influence on Accounting Education, the contributions of Artificial Intelligence (AI) but it is believed that many institutions have not been using Artificial Intelligence (AI) in their teaching and learning thereby not preparing our graduates for future career in this world of Artificial Intelligence (AI). It should be noted that Artificial Intelligence (AI) is very important in job preparation of our Accounting Education graduates, or we will produce graduates who cannot fit into the current job career in the Artificial Intelligence (AI) era.

Research Questions

1. What is the influence of artificial intelligence on the assessment and classification process?
2. To what extent does artificial intelligence influence future career concerns?

Methods

This research paper uses objectivism as a philosophy, as the data collected are based on perception, feelings and experiences. Objectivism entails realism, and ontologically, it considers social entities as physical ones making world independently (Saunders et...al 2009). Therefore, this article uses the descriptive survey research design to investigate the topic raised. The quantitative approach focuses on collecting data from people's experiences, views and feelings dealing with Artificial Intelligence (AI) in Accounting Education and life in general (Hammersley, 2012). A questionnaire was used for data collection. The questionnaire was ten (10) questions which aligned with the research questions. For data collection, the questionnaire was forwarded to participants via email for their responses (Tueharue & Riggs, 2015). The study targeted an audience made of Accounting Education students (50), academic staff (34), decision makers (8), and managers (8).

Overall, 92 participants responded, and they are men (62) and women (30) aged between 20 and 60 years and are currently students and academic staff from two universities in Ebonyi State (Alex Ekwueme Federal University, Ndufu-Alike, Ebonyi State (AE-FUNAI) and Ebonyi State University, Abakaliki (EBSU)). The questionnaire link was further shared on Facebook with selected academic staff and students who have a background in Accounting Education and Artificial Intelligence (AI) to ensure the validity of data collected from different universities in Ebonyi during

2022/23 academic session. The questionnaire was targeted on participants from the two universities via a link forwarded via emails, Facebook and WhatsApp to ease participants' contribution.

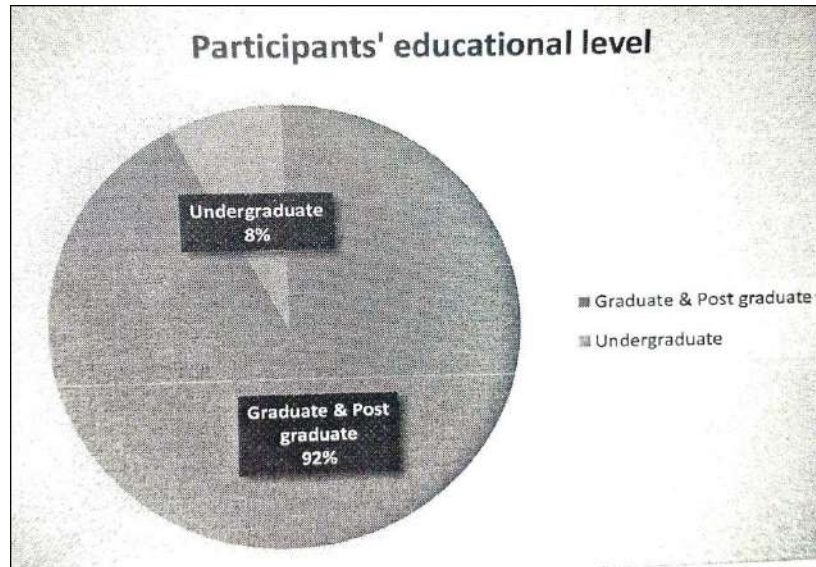


Figure 1: Participants educational level.

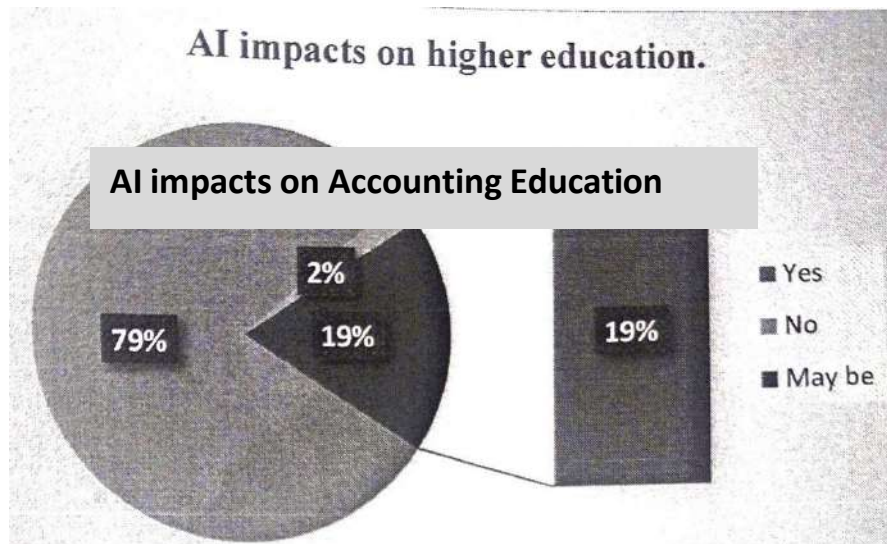


Figure 2. Impacts of Artificial Intelligence (AI) on Accounting Education.



Artificial Intelligence (AI) uses better learning styles and teaching methods in Accounting Education than humans. The responses reveal that 40 participants strongly agree, 14 agree that Artificial Intelligence (AI) uses better learning style and teaching methods than humans, compared to 19 participants who disagree, strongly disagree and 23 are neutral.

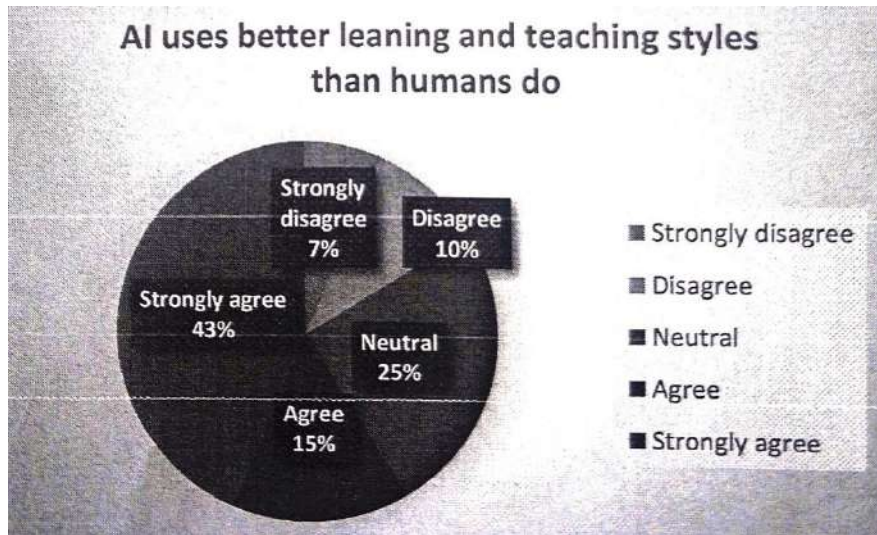


Fig 3. AI uses better learning and teaching styles than humans.

Impacts of Artificial Intelligence (AI) on the assessment and classification process.

Concerning the effects of Artificial Intelligence (AI) on assessment and classification, the vast majority of participants, 64 strongly agree that Ai is more effective, accurate, and objective in evaluating and grading complex and straightforward tasks than humans. However, 19 participants were neutral, 2 strongly disagreed and 7 disagreed.

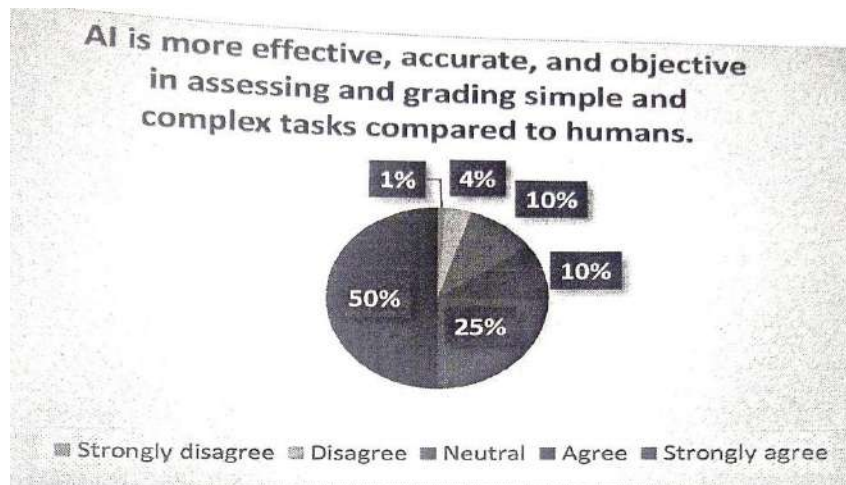


Fig4 AI impact on Assessment and grading process

**Artificial Intelligence (AI) impacts future careers of graduates.**

Regarding the fact, how will AI impact the future career of Accounting Education students? Findings reveal that 50 participants think the impact will be positive, and 3 think the effect will be negative. However, 39 believe that the effect will be negative and positive, with no participants saying there will be no impact.

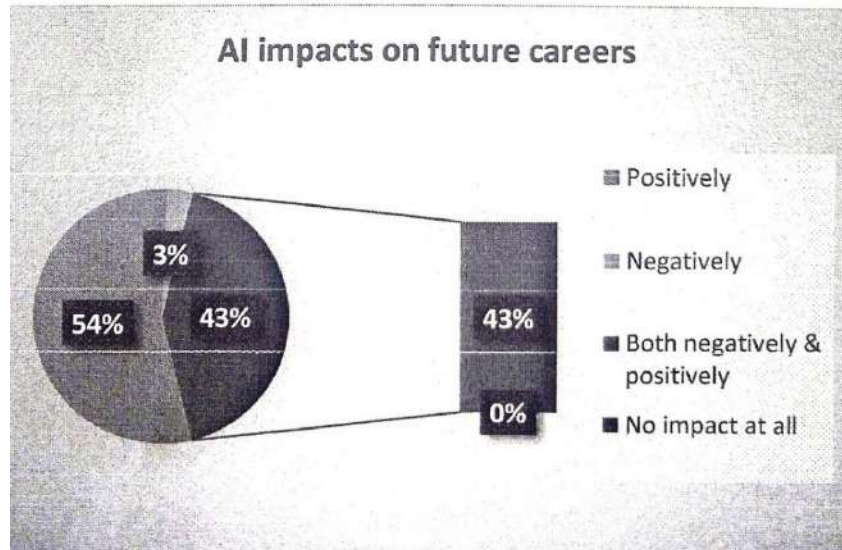


Fig 5 Impact of AI on future careers.

Likewise, results reveal that 76 think “yes” we need to teach students new skills to meet future career requirements dictated by AI, only 2 participants think “No” and 14 think “maybe”.

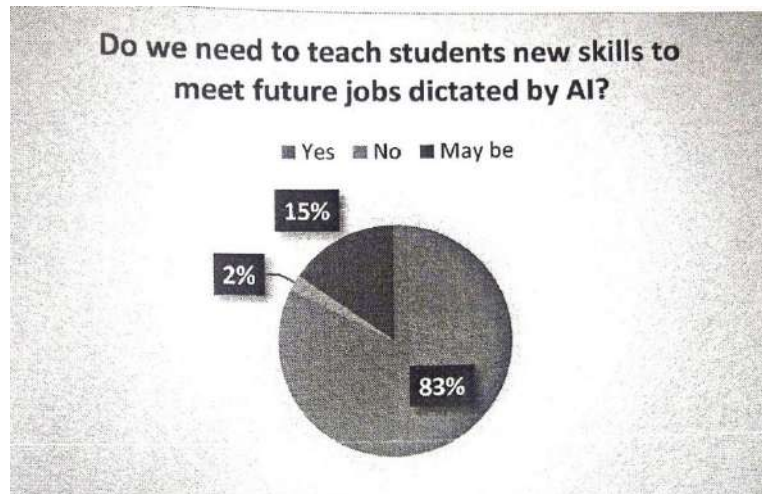


Fig6 Teaching new skills to meet the requirements of Ai.



Correspondingly, 21 participants preferred to be interviewed by human rather than robot, 71 liked robot interviewers, as explained by the following figure.

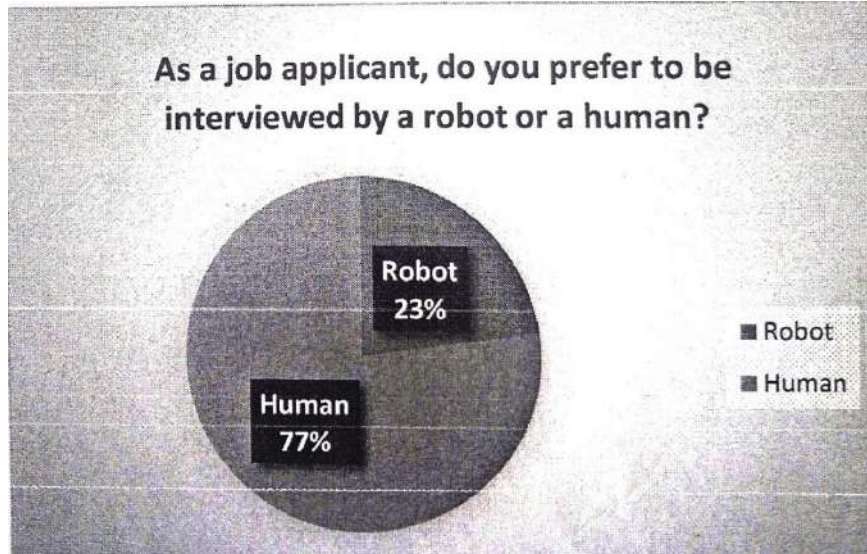


Fig7. Prefers to be interviewed by a robot or human.

The results reveal that 50 participants think shortlisting should be done manually compared to 42 who believe it should be AI.



Fig. 8. Candidates shortlisting manual or via AI

Cognitive and Ethical Impacts of AI on Accounting Education.

Concerning the impact of AI on the ethical, cognitive and human sides overall, humanity comes second with 19 votes, cognitive ability with 17 votes and ethics with 11 votes.

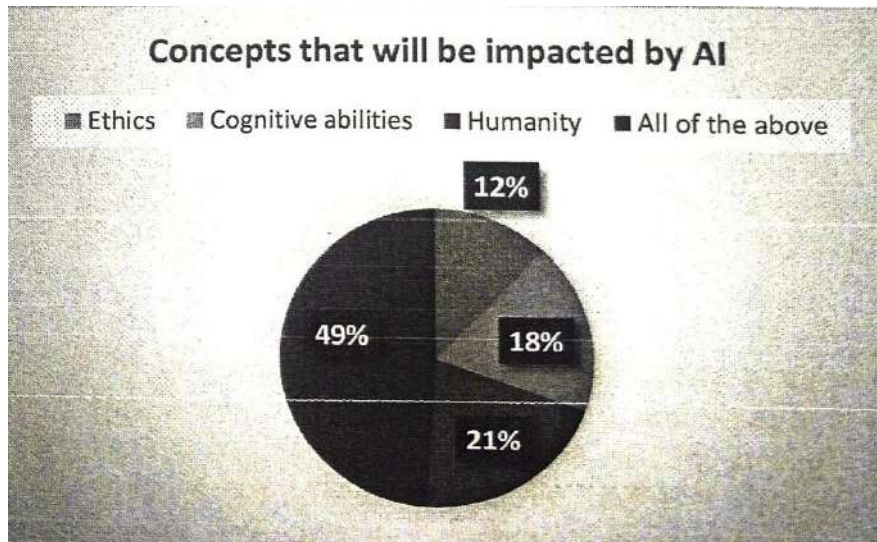


Fig. 9. Cognitive and ethical impact of AI on accounting education.

Similarly, vis –a –vis the robotisation of academic staff, the majority did not accept replaying academic staff with robots in accounting education, as 27 strongly disagreed, and 22 disagreed. Whereas, 7 strongly agreed and 20 agreed and 16 were neutral.

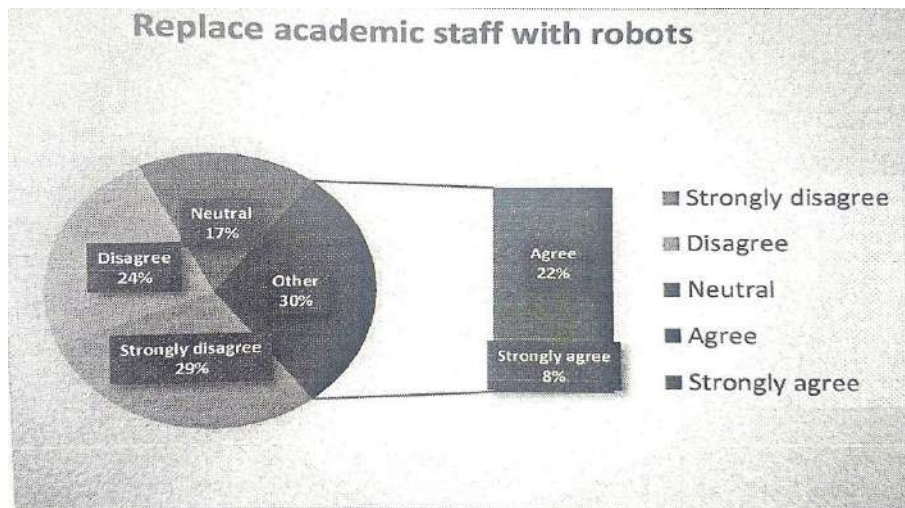


Fig. 10. Replace academic staff with robots.



Discussion

The impact of AI on accounting education is made clear as 79% of the participants think “yes” compared to 19% who think “maybe” and only 2% who contradicted the idea by what was discussed earlier in the literature review (Rexford, 2018) in reinforcing the idea that AI will significantly impact the future of accounting education (Tromi et al, 2018). Likewise, regarding the efficiency of AI in learning and teaching, a big part of participants believe that AI is more efficient than humans; 43% strongly agree and 15% agree with the idea, in contrast, with 7% who strongly disagree, 10% who disagree and 25% are neutral. Again, the results agree strongly with Brad and Rosa’s thought (Brad Rose Consulting, 2019) and discussed earlier in (Mahana, John & Apte 2012). Generally, AI enhances accounting education by improving student performance, offering personalized learning, and automating tasks, but also highlight challenges such as curriculum gaps, lack of infrastructure, and insufficient stakeholder collaboration. While overall AI adoption in the accounting profession in Nigeria shows promise for efficiency and data analysis, its deep integration into tertiary accounting curricula, including in places like Ebonyi state, is still a nascent area requiring more curriculum updates and stakeholder efforts to ensure future accountants are AI-ready.

Influence of Artificial Intelligence on the Assessment and Classification Process

Similarly, regarding artificial intelligence’s accuracy, and objectivity in assessing learners, results reveal that the majority agree with this point, as 25% strongly agrees and 50% agree, compared to 10% who strongly disagree, 4% who disagrees and 1% who are neutral. The findings agree with Brad Rose’s (2019) perception about AI’s efficiency grading and accuracy (Brad Rose Consulting, 2019). The results agree with what Brad Rose Consulting (2019) believes and Chin (2018) believes.

Artificial Intelligence impact on future career concerns

The findings opined that those who think it will be negatively impact future career of students are as follows: 54% believe it will positively impact them. In comparison, 43% believe positively and negatively and 3% think that AI will negatively impact future career. Therefore, the findings agree again with what was discussed in the literature review by Global Business Outlook (2018) and Chin (2018).

Additionally, regarding the recruitment process using AI, the findings reveal that the majority of the most substantial prefer a manual method with a percentage of 54%, compared with minority choosing artificially intelligent approach with a percentage of 3%, and this is an example that justifies their choice. “I prefer to be accessed by a human because a human can understand what you mean more than a robot. For example, in exams, student can write and answer that makes sense but is not in the book so that the robot can mark as wrong answer, but the human will mark it as a right answer”. The later result contradicts what was discussed in the interaction review, as researchers think that automation will be used in interviewing and shortlisting candidates (Wang & Siau, 2017) and (Global Business Outlook, 2018). Similarly, 77% of participants prefer human to 23% who fancy robots being interviewed by robot or humans. This finding is not reflected deeply in Frey and Osborne (2013) and is used nowadays by Vodafone and other organizations, as mentioned earlier in the literature review.

Finally, concerning the importance to learn new skills to fit the requirements of the AI era, the findings reveal that 83% of the participants thinks ‘yes’. In comparison, 15% thinks “maybe” and only 2% says “no”. Therefore, the results agree with what was discussed in the literature review that Accounting Education instructions should prepare learners for the new world order of AI (Frey and Osborne, 2013).



Concerning the impact of AI on ethically, humanly and cognitively, 49% of the participants think Accounting Education should impact the human, cognitive and ethical aspects. However, 21% of the participants believe in the human element compared to 18% who favour cognitive abilities as a second priority, and only 12% though ethnically. The finding reveals significant concern with what was raised earlier in the literature review that AI should go hand in hand with ethics, as Chin (2018). Chin (2018) argues when he opined about liberal arts, humanity and AI combination. Not only Chin (2018) raised this point but also Guardian News (2017) and the example of human – robot talking about equally in the world, as well as Holmes (2018) as he focused a lot on putting ethical rules for Artificial Intelligence.

Conclusion

Based on the findings of this study, the researchers concluded that AI effects the learning and teaching process of Accounting Education. For example, a great number of participants agree that AI is more efficient than Human when it comes to learning and teaching. Consequently, it emphasized on the impact of AI on ethical, human and cognitive aspect on the future of humanity in general, students and their future career. Artificial intelligence (AI) is transforming accounting education in Nigeria, including tertiary institutions in Ebonyi state, by shifting focus from routine tasks to data analytics, strategic thinking, and the use of Ai tools. For successful integration, institutions must update curricula to include AI-related skills like data analytics and coding, train educators, and emphasize ethical AI use to prepare future accounting teachers, and accountants for a technologically advanced, data-driven profession, preventing them from becoming irrelevant. On Artificial Intelligence's efficiency, accuracy and objectivity in assuming learners, the results reveal that majority agree with the point as 25% strongly agree, 50% agree against 10% strongly disagree, 4% disagrees, and 1% are neutral. Findings met with the argument of (Mahana et al, 2012; Stanford University, 2019; Brad Rose Consulting, 2019). Regarding the process of recruiting using AI, it was revealed that the greater participants proffer manual method with a percentage of 54% as contrasted to a minority choosing an artificial approach with 3%. Finally, academic professionals should be well trained in Artificial Intelligence to give the learners the necessary skills to face the Artificial Intelligence era of work.

Recommendations

Based on the findings, the researchers recommended as follows:

- 1) The educational leaders and policymakers should integrate AI in curricula of all accounting education programmes.
- 2) AI should be made a basic requirement for teaching and learning of accounting education in all higher education institutions (HEIs).
- 3) All academic staff should be well trained in the use of AI to equip learners with required skills to face future challenges.
- 4) The researchers recommended high lighting ethics, and humanity first when teaching AI, as it threatens mankind without these values.

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