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The Impact of Artificial Intelligence on Higher Education: An Empirical Study

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Abstract: Artificial intelligence (AI) has been a topic of growing interest and investigation in various fields, including higher education. This research article explores the impact of AI on higher education by examining its effects on teaching and learning, assessment, ethics, required skills, and future careers. The aim of this study is to analyse the influence of AI on higher education, investigate its impact on the teaching and learning process, examine its effect on assessment and grading, and predict its influence on graduates' future careers. To accomplish this, the study employs a qualitative approach based on a survey of the higher education audience. The results of this study demonstrate the crucial role of AI in the future of higher education. The findings highlight the effectiveness and efficiency of AI in equipping graduates with new skills for their future careers. They also emphasize the importance of considering the ethical implications of AI. The study reveals that higher education institutions need to integrate AI more extensively in their programs to prepare graduates for the future workforce. AI has the potential to revolutionize education by personalizing teaching methods to suit individual student needs, providing prompt feedback, and automating administrative tasks. It can also assist in grading and assessment, freeing educators to focus on developing curriculum and providing quality instruction. The study findings suggest that AI has a 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 higher education and contribute to the development of new skills for graduates. It has important implications for educators, policy-makers, and other stakeholders in the higher education sector. The study findings suggest that AI should be more extensively integrated into higher education curricula, and that institutions need to consider the ethical implications 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.

Keywords: *AI; Higher Education; Impact; Learning & Teaching*

I. INTRODUCTION

Artificial intelligence (AI) is a vast branch of computer science concerned with developing intelligent computers capable of doing tasks that typically need human intelligence. Siri, Alexa, self-driving cars, Robo-advisors, talking bots, and email spam filters are examples of AI (Stanford Encyclopedia of Philosophy, 2020). AI is the world's new trend as it has proved more efficient in many fields, mainly during the COVID-19 pandemic (Vaishya et al., 2020). AI helped fight the virus and globally rescued jobs and educational systems (UNESCO, 2020). Thus, it is vital to shedding light on how AI will impact one of the essential areas of life, higher education. This research article studies how AI impacts higher education based on previous studies and participants' experiences, views, and predictions.

II. LITERATURE REVIEW

Currently, AI has become a vital part of the virtual world. Unquestionably, AI plays an important role in general education and higher education (Edtech, 2020). For example, the efficient uses of filtering emails, advertising, applications, YouTube, and virtual assistants such as Google, digital libraries, Google Scholar, and other digital research engines in any higher institution worldwide (García-Vélez et al., 2021). However, AIoth is weak and robust, according to Ma &Siau (2018). In other words, Ma and Siau(2018) label AI as fragile when it is limited to small, restricted, and structured tasks such as collecting data. The latter researesearchersAI as sharp and robust when performing most or all cognitive tasks are typically human (Beight&Reddell, 2005). Although AI plays a vital role currently, the researchers mentioned above consider AI a threat to human civilisation and support their argument with what experts in the field think about AI, such as Bill Gates, Elon Musk and Stephen Hawking (Ma &Siau, 2018). Undeniably, what is mentioned above about AI is vital. Still, at the same time, it is questionable for any critical-thinking reader as any further investigation remains possible, and the truth is never absolute. So, how would AI impact the learning and teaching processes?

AI impact on the learning and teaching process

Dealing with the impact of AI on learning and teaching in higher education, it is evident that AI will impact higher education in many ways and mainly in two focal areas: enrollment and curriculum (Taneri, 2020). For instance, Ma and Siau (2018) maintain that AI will speed consistency and accuracy in curriculum and registration. Furthermore, according to Ma and Siau (2018), human sciences and liberal arts majors will become more popular because these areas of study are less vulnerable to the field of AI than other areas, such as accounting and finance (Ma &Siau, 2018).

Although this study is essential for a load of information on the influence of AI on higher education, it can be criticized for not tackling the issue genuinely, as the impact is much more profound. Indeed, focusing on the learning and teaching process, no one would doubt that AI is replacing the lecturer or tutor in many ways, such as blended learning and e-learning. The presence of an e-learning lecturer is limited as the learner interacts with a virtual classroom, whether on Blackboard, Model, Turn tin or any other platform (Jlu& Laurie A, 2018). Equally, Professor Roland T Chin from Hong Kong Baptist University (2018) believes that AI is meant to revolutionist how we learn, teach, work, live, make decisions, and be ready for the AI era. Therefore, AI is not only about its superficial effect, but about radical changes in the teaching and learning process in depth (Chin, 2018).

Impact of AI on the assessment and classification process

AI does not impact only the learning and teaching process but also the assessing and grading process. For instance, AI checks assignments and research projects through software such as Turn tin against billions of resources in no time. Consequently, similarities are easily generated to judge whether the learner plagiarized. Similarly, online rubrics and grading forms are added to assignments with criteria and scales, and final grades are automatically added to the submitted work without any hassle (Mahana et al., 2012). Furthermore, AI offers interactive ways of providing constructive feedback to the learner, easy access in a relaxed manner anytime and anywhere, with more privacy and autonomy. Additionally, the instructor can write or record feedback to facilitate and improve learning from errors.

AI Impact on Future Careers of Graduates

AI affects the world of education, but it also seems restricted to this area and follows the learner even after graduation. For instance, according to Wang and Siau (2017), AI will impact the future job market of required skillets. It will replace many other studies that involve routine tasks and structures that are easy to automate instead of unstructured disciplines that require complex cognitive interference (Wang &Siau, 2017). AI or computer assessment is not limited to grading papers but can be the gateway to a future career. For instance, a human may not read CVs but be screened by an algorithm specialized in candidate short listing. As an example, in an article by the Economist entitled "How algorithms may decide your career: getting a job means getting past the computer", it is reported that the largest firms are now using computer programs or algorithms to select candidates with an applicant tracking system (ATS) which can reject up to 75% of candidates. The above policy pushed applicants to use keywords to maximize screening interests (Brad Rose Consulting, 2019).

Cognitive and ethical impacts of higher education on AI

Dealing with ethics in AI is a lecturer in learning science and innovation at the Institute of Educational Technology in the UK. Holmes (2018), discussing the impact of AI on education, raised the importance of adopting ethics in AI education. The same lecturer argues that whether we like it or not, AI is being deployed in higher institutions worldwide and significantly impacts the future of higher education. Similarly, he adds that by 2024 the global AIED market will be worth 4.5 billion pounds. Companies such as Google, Facebook, and Amazon invest millions of dollars in developing AI in education (Drabwell, 2018).

Recommendations

Based on the findings and issues raised in this research paper, the researcher recommends that applying AI in higher education is a requirement for all higher institutions. However, AI appliance suggests that academic staff should be well trained in using AI to equip learners with the required skills to face future care challenges. Similarly, the researcher recommends highlighting ethics and humanity first when teaching AI, as it threatens humankind without these values. Furthermore, privacy and dignity should be respected and protected by regulations and international laws, as AI can be used without limitations and violate human freedom. Finally, higher education institutions should control AI, make it serve and not destroy and dehumanise humankind.

CONCLUSION

This research paper investigated the impact of AI on higher education. Therefore, it stressed AI's human, ethical and cognitive impacts on the future of humanity in general and students and their future careers. Consequently, AI affects the learning and teaching process. For instance, a large part of the participants believe that AI is more efficient than humans when it comes to learning and teaching: 43% strongly agree and 15% agree with this idea, in contrast with 7% who strongly disagree and 10% who disagree, and 25% are neutral. The latter finding goes hand in hand with the literature review findings suggested by (Chin, 2018; Ma and Siau, 2018; and Jabar and Yousif, 2011).

Similarly, regarding AI's efficiency, accuracy, and objectivity in assessing learners, results reveal that the majority agree with this point as 25% strongly agree, 50% agree compared to, 10% strongly disagree, 4% disagree, and 1% are neutral. Findings meet with the argument of (Mahana et al. 2012; Stanford University, 2019; and Brad Rose consulting 2019). Additionally, regarding the process of recruiting using AI, findings reveal that the most substantial majority prefer a manual method with a percentage of 54% as contrasted to a minority choosing an artificially intelligent approach with a percentage of 3%, and this is an example justifying their choice: "I prefer to be assessed by a human because a human can understand what you mean more than a robot. Therefore, the results agree strongly with what was discussed in the literature review that higher education institutions should prepare learners for the new world order of AI (Frey and Osborne, 2013; Oxford University, 2019). Finally, academic professionals should be well trained in artificial intelligence to provide learners with the necessary skills to handle future care concerns. When teaching AI, academics should emphasise ethics and humanity first, as AI is a threat to humanity without these ideals. Higher education institutions should also maintain control over AI, ensuring that it serves rather than dehumanizes humanity.

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