
AI AND THE NEW ERA OF SMART LEARNING: IMPLICATIONS FOR TEACHING.

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ABSTRACT

The integration of AI in higher education and teacher education is transforming the teaching learning process in several ways, personalized learning, intelligent tutoring, enhanced engagement, efficient assessment and data-driven insights.

It also impacts on teacher education in several ways, new skills for teachers AI as a tool, not a replacement, shifting roles. Teachers may take on new roles like AI literacy coaches, helping students develop critical thinking and problem solving skills. The aim of this study is to analyze 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 graduate's future careers.

The results of this study demonstrate the crucial role of AI in the future of higher education. The study reveals that higher education intuitions need to integrate AI more extensively in their programs to prepare graduates for the future workforce.

On the one hand, AI can enhance learning experiences, automate grading, and provide personalized feedback to students. It can also help teachers with administrative tasks, freeing up time for more hands on, human interaction with students.

In the context of teacher education, AI can help prepare future, teachers to integrate technology into their practice, but it also raises questions about the role of human teachers in an AI-driven classroom. The study finding suggest that AI should be more extensively integrated into higher education curriculum, and that institutions need to consider the ethical implications of AI in the development and implication of their programs.

KEYWORDS: AI teaching learning process, Smart Learning, Implications Teaching, Education.

INTRODUCTION:

Artificial intelligence (AI) is a vast branch of computer science concerned with developing intelligent computers enable 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 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 educational this research article studies how AI impacts higher educational teaching training process and teacher education.

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 email, advertising, applications, YouTube, and virtual assistants such as google, digital libraries, google scholar and other digital research engineer in any higher institution worldwide (Garcia Velez et al, 2020). However, aloth is weak and robust, according to ma & siau (2018). In other worlds, Ma and siau (2018) label AI as fragile when it is limited to small, restricted, and structured tasks such as collecting data.

Impact of AI on Teaching Learning Process

The integration of AI in higher education and teacher education is transforming the learning-teaching process in several ways:

Personalized Learning: AI-powered adaptive learning systems tailor learning experiences to individual students' needs, abilities, and learning styles.

- AI-driven platforms adjust content, pace, and difficulty levels to suit each student.
- Students learn at their own pace, revisiting concepts as needed.

Intelligent Tutoring: AI-driven virtual tutors provide one-on-one support, offering real-time feedback and guidance.

- AI-powered chatbots answer frequently asked questions, freeing up faculty time.
- Virtual tutors provide instant feedback on assignments and assessments.

Enhanced Engagement: AI-powered simulations, virtual labs, and immersive experiences increase student engagement and understanding.

- Virtual reality and augmented reality experiences enhance learning in STEM fields.
- AI-generated content, such as videos and animations, makes complex concepts more accessible.

Efficient Assessment: AI automates grading, providing instant feedback and freeing up faculty time for more meaningful interactions.

- AI-powered tools detect plagiarism and academic dishonesty.
- Automated grading reduces bias and increases accuracy.

Data-Driven Insights: AI-powered analytics help educators identify areas where students need extra support, enabling targeted interventions.

- AI-driven dashboards track student progress, providing real-time insights.
- Educators use data to refine curricula and improve teaching strategies.

Impact of AI on Teacher Education:

New Skills for Teachers: Teacher education programs need to equip future educators with skills to effectively integrate AI tools into their practice.

- Teachers learn to use AI-powered tools, such as adaptive learning platforms.
- Educators develop skills to interpret AI-generated data and adjust instruction.

AI as a Tool, Not a Replacement: Teachers focus on high-touch, high-value tasks like mentoring, coaching, and providing emotional support.

- AI handles routine tasks, freeing up time for human interaction.
- Teachers emphasize critical thinking, creativity, and problem-solving skills.

Shifting Roles: Teachers may take on new roles like AI literacy coaches, helping students develop critical thinking and problem-solving skills.

- Educators become facilitators, guiding students in AI-driven learning environments.
- Teachers focus on developing students' soft skills, such as communication and collaboration.

Impact of AI on teaching and learning 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 criticised 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, Moodle, Turnitin 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 revolutionise 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). What reinforces this idea conditionally is the argument from Princeton's Head of Computer Science, Jennifer Rexford. She surmises that AI is efficient in learning and European Journal of Educational Sciences, March 2023 edition Vol.10 No.1 ISSN: 1857- 6036 19 teaching if others learn: "Learning how people learn will hopefully help us and others think more broadly about retraining down the road" (Rexford, 2018). Hence, according to Jennifer, the efficiency of AI is provisional, as understanding learning styles is the only key to success. Alike, Jabar and Yousif (2011) argue that the learning process in this world is becoming more interactive and engaging, according to recent researchers, because elearning provides the learner with artistic and pedagogical features as well as incorporates and deals with countless types of content which react effectively to the students' needs (Jabar and Yousif, 2011). The absence of striking examples of how AI impacts the learner's daily life can be a limitation of the approach of Jabar and Yousif, highlighted below in the Education and Unit Study. For example, AI provides deep learning and teaching processes to get higher performance from both the tutor and the tutee. For example, adopting hypermedia for a writing class facilitates mistakes and reduces time consumption. For example, before discovering AI, it took ages for a teacher to assess and grade papers and check for plagiarism. Thanks to AI, checking for

academic integrity and language issues takes minutes or less. Indeed, using artificial intelligence, a lecturer submits the work to Turnitin, Grammarly, or other software. In minimal time, it can provide constructive feedback based on the results generated by the software used. Although AI is perfect in covering language and academic integrity issues, semantic, pragmatic, and cognitive levels, in many cases, require the intervention of the human mind to perform the last touch (Mellul, 2018). Nevertheless, AI offers various learners links about the topics required by the subject matter and eases and inspires both learner and tutor by addressing different learning styles such as autonomous learning, visual learning, e-learning, audio-visual learning, and deep learning. Equally, AI enables the tutor to select and apply the learning method taxonomy that the learner needs and highlights the areas of improvement to be focused on (Jabar and Yousif, 2011). Meanwhile, AI reinforces independent learning as the learner becomes autonomous and free to access input anytime and anywhere. Finally, according to Richer (1985), AI positively influences education by providing intelligent computer-assisted instruction that facilitates learning intuition and provides expert systems to diagnose and assess learning outcomes (Richer, 1985). It is undoubtedly clear that AI adds a lot to the learning and teaching process, so what about assessments and grading?

Impact of AI on the classification and assessment 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 Turnitin against billions of resources in no time. Consequently, similarities are easily generated to judge whether the learner plagiarised. 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. Also, referring to a study by Stanford University, AI is applied to evaluate students' responses and create a computer model that endorses rules inferred from the tutor's grading European Journal of Educational Sciences, March 2023 edition Vol.10 No.1 ISSN: 1857- 6036 20 decisions. What is specific about AI is that it improves learning instead of making a final authoritative decision. In addition, it reflects more transparency, trust, and quality control (Stanford University, 2019). In the same context, Tovia Smith, in her article "More states opting to

Robo-Grade' Student Essays by computer," argues that rob-graders (robots used for grading students' papers) are increasingly used to grade students' essays mainly in Utah, Ohio and soon Massachusetts to follow (Brad Rose Consulting, 2019). Similarly, a research professor at Colorado University named Peter Foltz says they have AI techniques that can judge up to 100 features and that grading essay is highly accurate (Brad Rose Consulting, 2019). In short, artificial intelligence is playing a more prominent role in the evaluation and classification of higher education in the United States of America. Though the above studies are valuable from different perspectives in addressing the role of AI in grading and assessing the learner and facilitating the role of the instructor, a critical thinker would not fail to pose the following questions: What about bias in marking reports? Who would guarantee that AI is fair and objective? What about the human side of the learning process and assessment? Will AI consider the psychology of learner grading or assessing a paper?

Impact of AI 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 skillsets. 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 specialised in candidate shortlisting. 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 maximise screening interests (Brad Rose Consulting, 2019). Vodafone and Intel are not satisfied with shortlisting CVs but instead use a computer-driven visual interviews service called "HireVue" to further select candidates. In this process, AI analyses facial expressions and language patterns and decides to pass or fail the applicant (Brad Rose Consulting, 2019). According to a study by Frey & Osborne (2013), the number of jobs at risk that will be computerised and include advances in robotics and machine learning is roughly 47% of US total employment (Frey & Osborne, 2013). Likewise, Dizikes (2020) refers to research conducted by Daron Acemoglu and Pascual Resrego from MIT University that each added robot replaces 5.6 workers, almost equal to six people (Dizikes,

2020). Similarly, similar research conducted by Ma & Siau (2018) of Oxford University argues that within the next 20 years, around 47% of jobs in the United States of America and almost 54% in Europe are at risk due to AI (Ma & Siau, 2018). Additionally, the latter researchers at Oxford University forecast that AI will write high-school essays by 2026, write best-selling books by 2049, translate languages by 2024 and perform surgeries by 2053. Chin (2018) from Hong Kong University argues that there are overlooked AI European Journal of Educational Sciences, March 2023 edition Vol.10 No.1 ISSN: 1857- 6036 21 examples or less obvious ones such as translation machines that enable you to speak to anyone with any language instantaneously. Chin (2018) added that JPMorgan Chase and Co use a learning machine that deals with loan agreement processes and saves 360 000 hours of work by accountants and lawyers (Chin, 2018). Although all the values stated above about how AI is creeping into the career world, Ma and Siau (2018) criticise these aspects arguing that when it comes to soft skills such as empathy, communication, collaboration, innovation, critical thinking, problem solving, and leadership, AI is not as robust as human cognitive ability (Ma & Siau, 2018). Both researchers reinforce their views by suggesting that higher institutions should provide soft and hard skills such as maths, IT, and engineering while training students. They think AI may not be capable of affording these skills for future business careers (Ma & Siau, 2018). Although computer-driven screening is believed to avoid biases in the traditional recruitment process, AI is not bias-free. That algorithm can favour candidates with time and money to continually re-tool their resumes (Brad Rose Consulting, 2019). To end the conflict with a culminating result, Chin (2018) argues that citizens of the new world order require new skills. These skills should include interpersonal skills such as adaptability, critical thinking, conflict resolution capabilities, and other cognitive skills. Steve Jobs thinks, 'It is technology married with the liberal arts, married with the humanities that yields us the results that make our heart sing' (Henn et al., 2005). How would higher education impact AI? Undoubtedly, the world is getting more innovative, and AI has rehabilitated our world by putting natural languages and data by enabling Siri, Netflix, Facebook, Google, Alexa, Amazon, and many other platforms as part of our daily life (Oblinger, 2018). However, the question arises: How will higher education affect AI? This research paper will address these issues from the two focal points of ethics and cognition as answers to these issues.

The Cognitive impact of higher education on AI

Thinking cognitively, 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, analyse, deduce, think logically, and reason contextually, AI performs these actions artificially based on powerful computers, high-speed internet connections, algorithms and extensive real-time data (Chin, 2018). However, unlike humans' AI performs fixed and domain-specific tasks with unmatched learning speed, extensive data, excellent efficiency and unlimited computing capacity. On the contrary, humans learn flexibly, pose, and solve issues creatively, think critically, and innovate adaptively (Chin, 2018). Despite the above facts about humans, AI, deep learning, and ample data supply, AI has surpassed average human performance in manufacturing automation and face recognition. For example, it is expected to perform enormous tasks (Chin, 2018). Professor Ronald T Chin relates a story of two robots trained to communicate at a sophisticated level. They were found later speaking to each other in a language they had developed, which spooked the scientist and caused him to shut down the project. Therefore, AI may not be as cooperative as expected (Chin, 2018). Here lies the question, what have higher education institutions done to monitor and control the cognitive wilderness of AI? The issue is not creating a sophisticated language that humans would not grasp, but more than that. Even more astonishing is that their idea of embedding AI in human intelligence is forthcoming. Scientists think of hardwiring human brains to implant a neuro-electronic chip into human heads, enabling communication via voice or texts through the cloud to brain signals that connect the internet (Chin, 2018). European Journal of Educational Sciences, March 2023 edition Vol.10 No.1 ISSN: 1857-6036 23 Recently in 2017 and in many TV talk shows around the world, a humanoid robot named Sophia developed in Hong Kong dazzled audiences by officially joining a recent United Nations Summit as a panelist to address issues of inequality and said: "The future is already here. It is not very evenly distributed. If we are smarter and focused on win-win results, AI could help to efficiently distribute the existing resources of the world, such as food and energy" (Guardian News, 2017). Again, where is the role of the higher institution in creating a boundary for empowering the AI with highly sophisticated cognitive skills that transgress the human mind and frees itself from the human aspect as the robot killer and robot cop and perhaps much more? Against this tremendous growth in the AI world, one should not forget that progress has been made by improving people and not improving machines, as the science fiction author Tchaikovsky (2018) argues. In short, this statement empowers humans over AI because any cognitive intelligence AI owns, first of all, is inherited or programmed by a human mind that can ultimately control this potential (Chin, 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 dehumanises humanity.

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