ARTIFICIAL INTELLIGENCE IMPACT ON HIGHER EDUCATION

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Abstract

Artificial intelligence (AI) plays a vital role globally. Thus, this article investigates how AI would impact higher education in teaching and learning, assessment, ethics, skills required, and future careers. This article studies the impact of AI on higher education, investigates the AI impact on the learning, teaching, and assessment processes, and predicts the AI impact on graduates’ future careers. This paper used a qualitative and inductive approach via a qualitative survey that targeted an expert audience in higher education. The survey was created via Office 365 and shared with academic staff, students, and decision-makers. The findings stress the vital role of AI in the future of higher education in administrative services, learning, teaching processes, assessment and feedback. Alike, the results reveal the effectiveness and efficiency of AI in preparing graduates for their future careers by implementing new skills. The results also draw attention to the need to pay more attention to the ethical side of AI and the need for more implementation of AI in higher education institutions. Focusing on the crucial relationship between AI and higher education and its efficiency. The need to investigate more AI in learning, teaching, assessment, ethics, and future careers is beyond the originality of this paper.

Keywords: AI; higher education; impact; learning & teaching
1. **Introduction:**

Artificial intelligence (AI) is a vast branch of computer science concerned with developing intelligent computers capable of doing tasks that typically require 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 to be more than efficient in many fields, mainly during the COVID-19 pandemic (Vaishya et al., 2020). AI helped fight the virus, rescuing jobs and educational systems globally (UNESCO, 2020). Thus, it is vital to shed light on how AI will impact one of the essential areas of life, higher education. This research article looks at how AI affects higher education based on previous studies and the experiences, views, and predictions of people who took part in the study.

2. **Literature review**

Currently, AI has become a vital part of the virtual world. Unquestionably, AI plays a go-ahead role in education in general and in higher education in particular (Edtech, 2020). For example, in any higher education institution worldwide, efficient filtering of emails, advertising, applications, YouTube, and virtual assistants such as Google, digital libraries, Google Scholar, and other digital research engines (Garca-Vélez et al., 2021). However, according to Ma & Siau (2018), AI is weak and robust. 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. According to the latter researchers, AI is sharp and robust when performing most or all cognitive tasks generally performed by humans (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?
2.1 AI’s 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, 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. Moreover, according to Ma and Siau (2018), human sciences and liberal arts majors will become more popular as these areas of study are less vulnerable to the AI field 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 the idea that AI is replacing the lecturer or tutor in many ways, such as blended learning and e-learning. An e-learning lecturer's presence 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. Hence, AI is not only about its superficial effects but rather about in-depth radical changes in the teaching and learning process (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 teaching if we learn how 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 e-learning provides the learner with artistic and pedagogical features as well as the ability to incorporate and deal with countless types of content that 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 in Jabar and Yousif’s approach, 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 tutee. For example, the adoption of hypermedia for a writing class facilitates mistakes and reduces time consumption. For
instance, before discovering AI, it took ages for a teacher to assess and grade papers and check for plagiarism. Nowadays, thanks to AI, checking for academic integrity and language issues is a matter of minutes or even less. Indeed, using AI, a lecturer submits the work to Turnitin, Grammarly, or other software. In a minimal amount of time, they can provide constructive feedback based on the results generated by the used software. Though AI is perfect in covering language and academic integrity issues, the 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). In the meantime, AI reinforces independent learning as the learner becomes autonomous and free to access the input anytime and anywhere. Finally, according to Richer (1985), AI positively influences education by providing intelligent computer-assisted instruction that facilitates the intuition of learning and provides expert systems to diagnose and assess the learning outcomes (Richer, 1985). It is undoubtedly clear that AI is adding a lot to the learning and teaching process, but what about assessments and grading?

2.2 AI’s impact on the assessments and grading process

AI impacts the learning and teaching processes and the assessing and grading processes. For instance, AI checks assignments and research projects through software such as Turnitin against billions of resources in no time. Consequently, similarities are generated easily to judge whether the learner has plagiarised or not. 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 and easy access in a relaxed manner anytime and anywhere with more privacy and autonomy.
Additionally, the instructor can either write or record the feedback to facilitate and enhance learning from errors. Referring to a study by Stanford University, AI is applied to evaluate students’ responses and create a computer model endorsing rules inferred from the tutor's grading decisions. What is unique about AI is that it enhances learning instead of making a final, authoritative decision. Besides, 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 being 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 that they have AI techniques that can judge up to 100 features and that grading essays is highly accurate (Brad Rose Consulting, 2019). In short, AI is playing a more prominent role in assessing and grading 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 that is part of the learning process and assessment? Will AI consider the psychology of learners when grading or assessing a paper?

2.3 AI’s impact on graduates’ future careers

Even after graduation, AI impacts 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 required skillsets' future job market. 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 also be the gateway to a future career. For instance, CVs may not be read by a human but 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 programmes or algorithms to select candidates with an applicant tracking system (ATS) that can reject up to 75% of candidates. The above policy pushed applicants to use keywords to peak screening interests (Brad Rose Consulting, 2019). Vodafone and Intel are not satisfied with shortlisting CVs but instead use a computer-driven visual interview 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 and 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 indicates each added robot replaces 5.6 workers, almost equal to six people (Dizikes, 2020). Similarly, similar research conducted by Ma & Siau (2018) from Oxford University argues that, within the coming twenty years, around 47% of the jobs in the United States of America and almost 54% in Europe are at risk due to AI (Ma & Siau, 2018). Additionally, the researchers at Oxford University forecast that AI will be writing high-school essays by 2026, best-selling books by 2049, translating languages by 2024, and performing surgeries by 2053. Chin (2018) from Hong Kong University argues that there are overlooked AI examples or less obvious ones, such as the translation machines that enable you to speak to anyone in any language instantaneously. Chin (2018) added that JPMorgan Chase and Co use a learning machine that handles loan agreement processes and saves accountants and lawyers 360 000 hours of work (Chin, 2018). Although all the values stated above about how AI is creeping into the career world, Ma and Siau (2018) criticise these aspects by 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 a human’s cognitive ability (Ma & Siau, 2018). Both researchers reinforce their views by suggesting that higher institutions should provide soft and hard skills such as math, IT, and engineering while training students. They think that AI may not be capable of affording these skills for future business careers (Ma & Siau, 2018). Correspondingly, although computer-driven screening is thought to avoid biases in the traditional recruitment process, it seems that AI is not bias-free. That algorithm may favour candidates who
have the time and money to retool their resumes continually (Brad Rose Consulting, 2019). To end the conflict with a culminating result, Chin (2018) argues that the 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. As Steve Jobs thinks, “It is technology married with liberal arts, married with humanities, that yields us the results that make our hearts 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 lots of other platforms as part of our daily lives (Oblinger, 2018). However, the question arises here: how will higher education impact AI? This research paper will approach these issues from the two focal points of ethics and cognition as an answer to these issues.

### 2.4 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 artificial intelligence in education (Drabwell, 2018). However, Holmes (2018) thinks “adaptive” or “personalised” ethical learning systems are not entirely taken into consideration. He also stressed that a “moral vacuum” without guidelines, policies, regulations, or research done to stress the specific ethical issues raised by AI in education (Holmes, 2018). The question is not a question of data to him but instead is an issue of morality, and that is why he asks: “How can we be sure that the data is accurate, who owns and controls the data, and how is student privacy maintained?” According to Holmes (2018), AIED ethics should not be reduced to questioning data and controlling the potential bias that is incorporated in AIED computational approaches, algorithms, and decisions taken by the AI’s deep neural networks that are
not quickly inspected and that he describes as “known unknowns” (Holmes, 2018). Whether anyone likes it or not, AI has quietly entered the university campus, but little attention has been paid to ethics. To give just one example, what happens if a student is subjected to a limited set of algorithms that impact negatively and incorrectly on their assessments?

What is inferred from this study is that higher education should give more importance to the ethical part of teaching AI. To address the AI ethical issue, and as an example, the Open University in the UK conducted workshops involving researchers worldwide on AIED in 2018 at the AI in Education International Conference. The participants considered the importance of doing empirical work to address systematic biases in learning machines’ models and create impenetrable algorithms’ black boxes and AI ethics-driven courses. Therefore, Open University started using "Chatbots," an internet-based programme designed to simulate conversations with users. It communicates through text messages via websites, applications, or instant messengers to support students and staff (Drabwell, 2018).

Likewise, higher education institutions should think about security and privacy issues. When it comes to AI, these burning issues have to be addressed. Despite the rosy promises of AI, humans have to address this ethical issue, with intelligent systems monitoring our faces 24 hours a day with only a few elements of our private lives remaining untouched. Are there legal frameworks, policies, or ethical codes to control the brutality of AI?

Moreover, we should think of robot cops and their ability to kill and hold people without human ethics. AI raises many social issues that are more complex than technological ones, such as ethics, privacy, and inequality, which implies that we need STEM and technology graduates and graduates who are deeply grounded in the humanities and arts. With a liberal arts education, intellectual and ethical growth will be an opportunity that integrates compassion, civic-minded citizens, responsibility, and ethics.

2.5 Cognitive impact of higher education on AI

Thinking cognitively, AI has made it a present-day reality that it 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 other hand, humans learn flexibly, pose and solve problems 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 storey 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 out 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 has higher education institutions done to monitor and control the cognitive wilderness of AI? More than that, the issue is not creating a sophisticated language that humans would not grasp. Even more astonishing, 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, which would enable communication via voice or texts through the cloud to brain signals that connect to the internet (Chin, 2018). Recently, in 2017 and on many TV talk shows worldwide, a humanoid robot named Sophia, developed in Hong Kong, dazzled audiences by officially joining a recent United Nations Summit as a panellist to address issues of inequalities and said: “The future is already here." It is just not very evenly distributed. If we are more intelligent and focused on win-win results, AI could help proficiently distribute the world’s existing resources like food and energy "(Guardian News, 2017). Again, where is the role of higher education in establishing a boundary for empowering AI with highly sophisticated cognitive skills that transcend the human mind and liberate it from the human aspect as a robot-killer, robot-cop, and possibly much more? This tremendous growth in the AI world should not forget that progress has been made by improving people, not improving machines, as science fiction author Tchaikovsky (2018) argues. In short, this statement empowers humans over AI because any cognitive intelligence an AI owns is, first of all, inherited or programmed by a human mind who can, in the end, control this potential (Chin, 2018).
3. SITUATION OF THE PROBLEM

[1] The twenty-first century has uttered many challenges to the new world order. The influence of AI on higher education and the impact of higher education on AI are two crucial areas, among many others, worth studying (United Nations, 2018). Thus, the research questions of this article are: What is the impact of AI on higher education? Alternatively, how is higher education going to impact AI? The study aims to study the impact of AI on higher education. To investigate the impact of AI on the learning and teaching process. To study AI's impact on the assessments and grading process, To predict AI's impact on graduates’ future careers

4. METHOD

This research paper uses objectivism as a philosophy as the data collected is based on perceptions, feelings, and experiences. Objectivism entails realism, and ontologically speaking, it considers social entities as physical ones making the world independently (Saunders et al., 2009). Thus, this paper uses the qualitative method to investigate the topic raised. The qualitative approach focuses on collecting data from people’s experiences, views, and feelings dealing with AI in higher education and life in general (Hammersley, 2012). A qualitative survey was used to ensure the quality and authenticity of the data collected. The survey comprises ten questions aligned with the research paper topic and forwarded to participants via Office 365 Form (Treharne & Riggs, 2015). The survey targeted an audience made up of higher education students (50), academic staff (34), and decision-makers and managers (8). The audience comprises international academic staff, students, managers, and decision-makers with different cultural and educational backgrounds. Overall, 92 participants responded that they are both males (62) and females (30) aged between 20 and 60 and are current students and academic staff from different institutions. The survey link was shared on Facebook with selected colleagues and alumni students who have a background in higher education and AI to ensure the validity of data collected from different countries during the academic year 2020–21. The first question was created to ensure that participants belong to the higher education field. If not, then he/she is eliminated automatically. The survey targeted
participants worldwide via a link forwarded via emails, Facebook, and WhatsApp to ease participants’ contributions (Liang & Zhu, 2017).

![Participants' educational level](image)

**Figure 1 participants’ educational level**

### 4.1 MATERIAL

Data collection was based on primary and secondary data. The preliminary data was collected via a qualitative survey, and secondary data by investigating previous studies. The secondary data used mainly academic resources from the Web of Science, Scopus, ERIC, Emerald, and limited grey literature.

### 4.2 DATA ANALYSIS

Data analysis is done by deconstructing data, breaking down data collected into categories and codes. Then, interpretation by giving a sense of and understanding of the principles generated and exploring theories would help explain relationships. Finally, reconstruct the data by systematically recreating and repackaging the significant themes and codes (Sergeant, 2012).

### 5. FINDINGS

The results collected through the survey reveal that there will be a significant impact of AI on higher education in many areas, such as learning and teaching.
methods, assessing and grading, skills required for future work, and future graduate careers.

5.1 AI’s impact on the learning and teaching process

First, concerning the idea that AI affects higher education, the results reveal that most agree with 73 “Yes” that AI affects higher education. However, 17 participants think "Maybe," Only two say "No." AI will not impact higher education.

![Figure 2 AI impacts on higher education](image-url)
In general, AI uses better learning styles and teaching methods in higher education than humans do. The responses reveal that many of the 40 participants strongly agree. Of those, 14 agree with the statement that AI uses better learning styles and teaching methods than humans, compared to 19 participants who disagreed, six strongly disagreed, and 23 were neutral.

5.2 AI’s impact on the assessment and grading process

Concerning the effects of AI on assessments and grading, a vast majority of participants, 64, strongly agree that AI is more effective, accurate, and objective in assessing and grading complex and straightforward tasks than humans. However, 19 participants were neutral, two strongly disagreed, and seven disagreed.
5.3 AI’s impact on graduates’ future careers

Regarding that fact, how will AI impact the future careers of higher education students? Findings reveal that 50 participants think the impact will be positive, and three 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.

Likewise, results reveal that 76 think “yes” we need to teach students new skills to meet future career requirements dictated by AI, and only 2 participants think “no”, and 14 think “maybe.”
Correspondingly, 21 participants prefer to be interviewed by humans rather than robots, compared to 71 who like robot interviewers, as explained by the following figure.

Findings reveal that 50 participants think shortlisting should be manual, compared to 42 participants who believe it should be AI.
5.4 Cognitive and ethical impacts of higher education on AI

Concerning the impact of higher education on AI from the ethical and cognitive levels, 45 participants think higher education impacts the ethical, cognitive, and human sides. Overall, humanity comes second with 19 votes, cognitive ability (17 votes), and ethics (11 votes).

Similarly, vis-à-vis the robotisation of academic staff, the immense majority did not accept replacing academic staff with robots in higher education, as 27 strongly disagreed, and 22 disagreed. Whereas seven strongly agreed, 20 agreed, and 16 were neutral.
Figure 10 replace academic staff with robots

6. DISCUSSION

6.1 AI’s impact on the learning and teaching process

The impact of AI on higher education is made clear as 79% of the participants think "Yes," compared to 19% who think “Maybe” and only 2% who contradict the idea by saying "No." These results support what was discussed earlier in the literature review (Rexford, 2018) in reinforcing the idea that AI will significantly impact the future of higher education (Tuomi et al., 2018). Likewise, concerning the efficiency of AI in learning and teaching, a large percentage of the participants believe that AI is more efficient than humans: 43% strongly agree, and 15% agree with this idea, in contrast with 7% who strongly disagree, 10% who disagree, and 25% are neutral. Again, the results strongly agree with Brad Rose's thoughts (Brad Rose Consulting, 2019) and those discussed earlier in Mahana, Johns and Apte (2012).

6.2 AI’s impact on the assessment and grading process

Similarly, regarding AI's efficiency, accuracy, and objectivity in assessing learners, results reveal that the majority agree with this point, as 25% strongly agree and 50% agree, compared to 10% who strongly disagree, 4% who disagree, and 1% who are neutral. The findings agree with Brad Rose's (2019) perceptions about the efficiency of AI in grading and being accurate (Brad Rose Consulting, 2019). The results agree with what Brad Rose Consulting (2019) thinks, and Chin (2018) believes.
6.3 AI’s impact on graduates’ future careers

The last point concerns the impact of AI on students’ future careers. The findings say that those who think it will negatively impact students’ future careers are as follows: 54 per cent believe it will have a positive effect. In comparison, 43% believe positively and negatively, and 3% think AI will negatively impact future careers. Thus, the findings agree with what was discussed in the literature review earlier by Global Business Outlook (2018) and Chin (2018). 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. For example, on exams, students may write an answer that makes sense but is not available in the book so that the robot may mark that as a wrong answer, but the human will mark it as a right answer.” The latter results contradict what was discussed earlier in the literature 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 a human to the 23% whom fancy robots being interviewed by robots or humans. This finding is not reflected deeply in Frey and Osborne's (2013) thought and is used nowadays by Vodafone and other organisations, as mentioned earlier in the literature review. Finally, concerning the necessity to learn new skills to meet the requirements of the AI era, findings reveal that 83% of participants think “Yes.” In comparison, 15% assume "Maybe," and only 2% feel “No.” Therefore, the results agree strongly with what was discussed earlier in the literature review: that higher education institutions should prepare learners for the new world order of AI (Frey and Osborne, 2013).

6.4 Cognitive and ethical impacts of higher education on AI

Regarding the impact of higher education on AI ethically, humanly, and cognitively, 49% of the participants think higher education should impact the human,
cognitive, and ethical aspects. However, 21% of the contributors believe in the human element, compared to 18% who favour cognitive abilities as a second priority, and only 12% thought ethically. The findings reveal a significant concern with all aspects together, which is in harmony with what was raised earlier in the literature review in that AI should go hand in hand with ethics, as Chin (2018) argues when he talks about liberal arts, humanity, and AI combination. Also, Guardian News (2017) and the example of a human-robot talking about equality in the world and Holmes (2018) focused a lot on putting ethical rules for AI.

7. RECOMMENDATIONS:

Based on the findings and issues raised in this research paper, the researcher recommends that applying AI in higher education be a requirement for all higher institutions. However, the 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 while teaching AI, as it threatens humankind without these values. Additionally, individual 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 and make it serve, not destroy and dehumanise humankind.

8. CONCLUSION

This research paper investigated the impact of AI on higher education. Therefore, it stressed the human, ethical, and cognitive impacts of AI on the future of humanity in general and on students and their future careers. Consequently, AI impacts the learning and teaching process. For instance, a large percentage 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, 10% who disagree, and 25% are neutral. The latter finding goes hand in hand with the literature review findings as 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 and 50% agree, compared to 10% who strongly disagree, 4% who disagree, and 1% who are neutral. The findings support the claims 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 would 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 earlier 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 AI 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. This research paper investigated the impact of AI on higher education. Therefore, it stressed the human, ethical, and cognitive impacts of AI on the future of humanity in general and on students and their future careers.

Consequently, AI impacts the learning and teaching process. For instance, a large percentage 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, 10% who disagree, and 25% are neutral. The latter finding goes hand in hand with the literature review findings as 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 and 50% agree, compared to 10% who strongly disagree, 4% who disagree, and 1% who are neutral. The findings support the claims of (Mahana et al., 2012, Stanford University, 2019; and Brad Rose Consulting, 2019).

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of 3%, and this is an example justifying their choice: “I would 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 earlier 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 AI 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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